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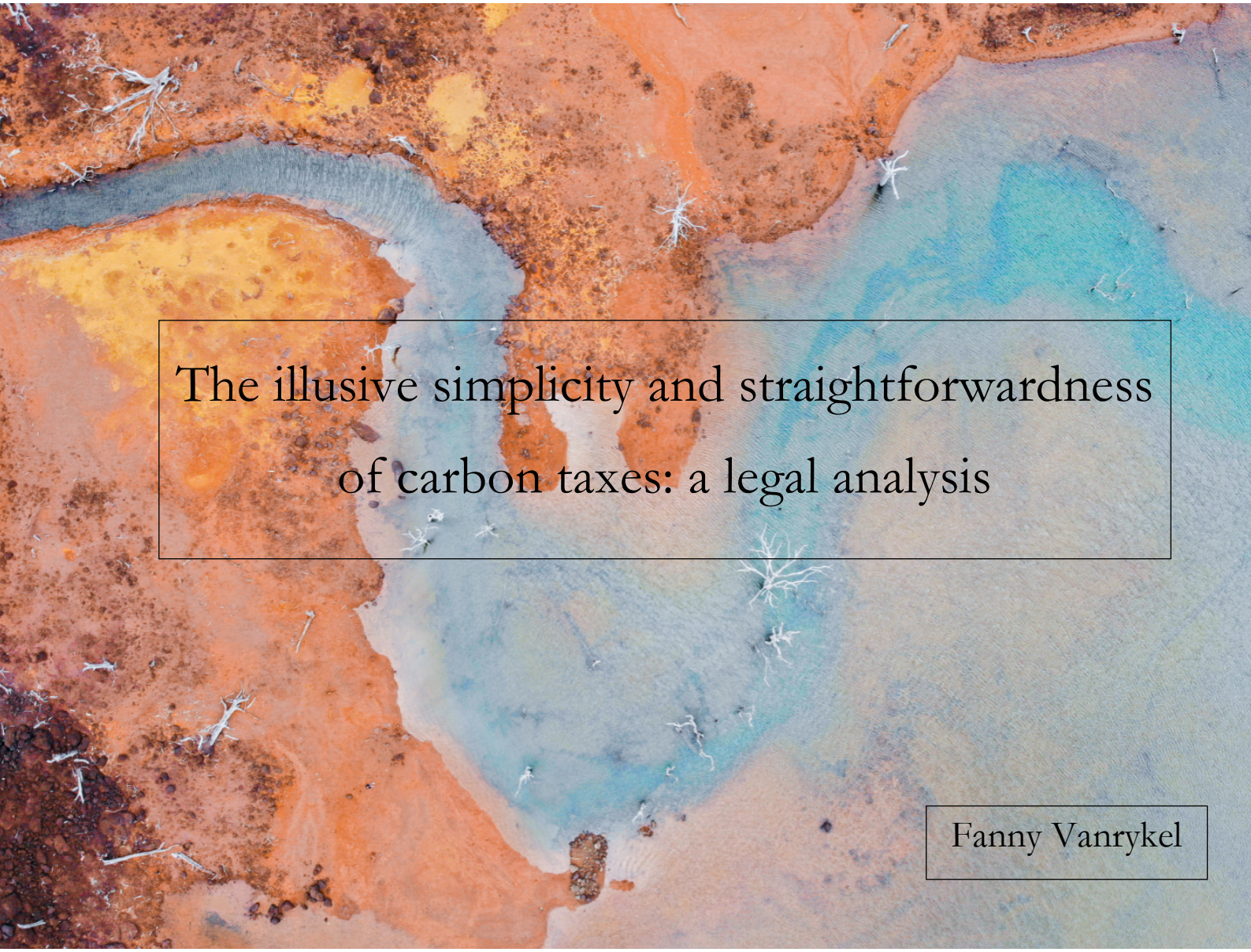

The illusive simplicity and straightforwardness of carbon taxes: a legal analysis

Fanny Vanrykel

I chose this picture as a metaphor of the mutual interactions between carbon taxes and their legal environment. The river represents the tax, and the land, its legal environment. The river will flow to the sea and the simplest and most straightforward path seems to be the best. Yet the river and the land are not separate entities, thoroughly watertight from one another. Instead, the river is shaped by the land; its original blue colour becomes tainted in contact with the land. In turn, the river influences the land it flows through. The dry land, initially of an orange colour becomes wetter, bluer. Water does not follow a linear or well-defined trajectory. On the contrary, it sometimes leaves its path and carves its own route. In the end, things are not so simple and straightforward as they seemed to be at first glance.

To my grandmother Yvonne, I promise, we'll go back to the sea.
To Julien, my hope is that you are climbing the stars from above

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Chapter 1
Is a carbon tax so simple and straightforward? The gap between theory and practice

1. INTRODUCTION

This research offers a critical legal analysis of carbon taxes, as a legal response to climate change.[1] Adoption of a carbon tax is a staple of climate change mitigation discussions, which makes it a burning topic for research. It has been hailed as a promising solution for mitigating climate change and has been promoted across the globe. This promotion often relies on the assumption that a carbon tax is a simple and straightforward instrument in response to climate change.[2] In practice, however, these assumptions seem to be contradictory. Firstly, while a carbon tax is conceptually simple – it is a tax levied on carbon dioxide (CO_2) or other greenhouse gas (GHG) emissions, when it is implemented in law, a carbon tax assumes a variety of shapes, differing substantially *e.g.* in terms of rate level and coverage. Secondly, whereas the adoption of a carbon tax has been widely advocated as a way to mitigate climate change, in practice its history has been ill-fated. It is true that these strategies have recently mushroomed. However, their adoption has often been fraught with difficulties (*e.g.* in France) and their design has generally been inadequate to lead to sufficient emission reductions.

These contradictions incited me to question the assumed straightforwardness and simplicity of a carbon tax and interrogate the role of the law in this matter. Hence, my search for a response to the following questions: Is a carbon tax truly a simple and straightforward instrument to mitigate climate change; or in the end, is the purported simplicity and straightforwardness of carbon taxes merely illusive? Do other more appropriate definitions exist to better appreciate their implementation in practice? The next question is what is the role of the law both in the definition of a carbon tax and in the apparent contradiction between theory surrounding this strategy and the practical implementation? In place of these assumptions, I submit that a carbon tax should rather be apprehended as a malleable concept that is permeable to its legal environment. Once they escape the terrain of thoughts, carbon taxes take on a life of their own; their shape is determined by the way they interact with their legal environment.

[1] This research was ended on 2 June 2022.
[2] I do not use the term 'straightforward' in the sense of 'easy' or 'simple' but rather as 'direct' or 'obvious'. It corresponds to the idea that it is 'sufficient' to adopt this strategy to remedy climate change and according to steps that are easily identified and defined.

This alternative story is yet to be told. It follows a substantive approach to the relationship between climate change and the law. This approach entails that the response to climate change (including through a carbon tax) and the law play 'mutually constitutive roles'; that is, they shape each other.[3] What matters in this discussion is the nature of the problem that is addressed by the law as well as the way the problem and its response are conceptualised. This offers an original way to understand the role of the law in defining legal response to climate change and in determining why some regulatory strategies 'fail' while others 'succeed'. Such a substantive approach contrasts with the instrumental approach (or mindset) that prevails in legal scholarship surrounding carbon taxes. As Roger Brownsword says, the terms 'instrumental mindset' can be defined as a 'pattern of thought' that is 'entirely focused on whether the law is instrumentally effective in serving specified regulatory purposes and policies'.[4]

Under an instrumental mindset, legal scholars understand the relationship between the law and the response to climate change in instrumental terms. That is, both carbon taxes and laws are viewed as tools to reduce GHG emissions; they are defined as means towards an end. As a result, this literature has classified regulatory strategies in well-defined categories of instruments, opposing 'traditional' to 'economic' (or 'market-based') regulations, including taxes and emission trading systems (ETS). To illustrate this idea with a simple image, an instrumental approach tends to focus on the box itself, scrutinising its shape and colour, rather than on the content of this box. I argue that this approach has offered a limited response regarding the role of the law in the contradiction. It has resulted in an over-emphasis on the role of non-legal factors in this state of affairs, circumscribed the law to a mere constraint and often neglected the role of contextual particularities in legal analyses. To fill this gap, this study proposes a key to open the different boxes and compare them in terms of substance.

This said, the substantive perspective followed in this research is also less straightforward. In particular, it does not come with a defined method waiting to be used. Rather, it requires establishing a revised framework of analysis, which represents a keystone of this research. This analytical framework aims to help navigate the interactions between different schemes, categories and frames in the context of climate change mitigation. As such, it is intended to appraise the

[3] Expression borrowed from E. FISHER, « Imagining Technology and Environmental Law », *in* R. Brownsword, E. Scotford et K. Yeung (eds.), *The Oxford Handbook of Law, Regulation and Technology*, 1, Oxford, Oxford University Press, 2016, pp. 360-378.

[4] R. BROWNSWORD, 'Law Disrupted, Law Re-Imagined, Law Re-Invented', *Technology and Regulation*, 2019, available at https://techreg.org/index.php/techreg/article/view/5 (Last consulted 2 June 2022). R. BROWNSWORD, 'Law and Technology: Two Modes of Disruption, Three Legal Mind-Sets, and the Big Picture of Regulatory Responsibilities', *Indian Journal of Law and Technology*, 2018, vol. 40, pp. 1-40 ; A.J. COCKFIELD, 'Towards a Law and Technology Theory', *Manitoba Law Journal*, 2004, vol. 30, n° 3, pp. 383-415.

complexity of implementing purportedly simple and straightforward solutions in law. With this analytical framework, I regard the law as an ecosystem composed of various legislations that interact with one another. My argument is that when a new response to climate change, such as the carbon tax, is implemented, it entertains a mutually constitutive interaction with these legislations. To put it another way, the law is not a white sandy beach where all solutions easily fit in. It is marked by asperities arising *e.g.* from cultural, institutional and social factors, that may shape the legal response to climate change.

This analytical framework has several building blocks. The first is the concept of *legal categories*, namely 'groups with the same features'[5]. It then builds on the concept of *frame*, i.e. 'a categorising or taxonomising structure (…) which allows actors to make sense of an "amorphous, ill-defined problematic situation"'.[6] A frame defines the nature of a problem and its response; how an issue is problematised has an influence on how situations are categorised in law. My intuition is that there are possible discrepancies between the economic response to climate change, which advocates in favour of a carbon tax, and the categories that prevail in law. Mainstream economic theory concludes that climate change should be addressed through a uniform carbon price (mainly a tax or ETS). In other words, this means pricing each additional tonne of carbon dioxide equivalent (CO_{2eq}) emitted at the same level, namely at the level of its marginal external costs (i.e. the additional damage imposed on society).[7]

In law, one can doubt that the adoption of a uniform carbon price is so simple and straightforward. As Michael Gerrard puts, 'The different economic sectors and technologies that emit GHGs are so varied that one size does not come near to fitting all.'.[8] A carbon tax indeed requires putting all emission sources in the same box, when financial levies are distributed according to emission levels. It also implies distributing emission reduction efforts where the cost of emission reduction (abatement cost) is the lowest. In law, treating all additional tonnes of CO_{2eq} in the same way, through a uniform carbon price is closely tied to the legal principle of equal treatment. Simply put, this principle implies that comparable situations should be treated in the same way and that different situations should be treated in different ways. In this research, equal treatment is seen as a structural principle that links categories and frames. By referring to

[5] Definition retrieved from https://dictionary.cambridge.org/dictionary/english/categorization.
[6] My emphasis. C. BRADSHAW, 'England's Fresh Approach to Food Waste: Problem Frames in the Resources and Waste Strategy', *SSRN Electronic Journal*, 2019 <https://doi.org/10.2139/ssrn.3499698>.
[7] This is developed in Chapter 3.
[8] M.B. GERRARD, 'An Environmental Lawyer's Fraught Quest for Legal Tools to Hold Back the Seas', *Daedalus*, October 2020, vol. 149, n° 4, p. 89.

equal treatment, my intention is not to determine whether a given categorisation of situations as being comparable or different is lawful.

Let me illustrate this point with a simplistic example. Jeff is a rich billionaire, who each year organises a space trip with his family. This trip emits 300 tonnes of CO_{2eq}, on which a carbon tax is levied at 50 euro per tonne of CO_{2eq}. Therefore, Jeff decides that it is better to pay the 15,000 euro tax than to renounce the family trip, which already costs him 300,000 euros. The level of 300 tonnes of CO_{2eq} corresponds to the total emissions of 15 Americans on average and 125 South Africans for the year 2015.[9] Vanessa lives in Uganda. She emits two tonnes of CO_{2eq} per year and these emissions largely cover necessary activities, such as transport to school, food, some clothing and electricity. Of course, if she decides she had better pay the tax, Vanessa will pay less than Jeff. However, the question remains whether Jeff and Vanessa should be subject to the same system. The situation can be viewed through different lenses. One can argue that each tonne of CO_{2eq} emitted is comparable because it imposes the same damage on society. That is the economic response to climate change. But one can also contend that these tonnes of CO_{2eq} are different, because they correspond to different situations, to different needs. These are two different ways to define the comparability of these situations.

In law, there are two reasons why existing categories are likely to diverge from the categories implied by a uniform carbon price. Firstly, the law seemingly addresses issues completely different climate change mitigation (*e.g.* collecting revenues, reducing air pollution), that intersect with a new legal response to climate change. Secondly, there are other ways to portray (or frame) the problem of climate change than through 'economic efficiency'. These other frames are enshrined in law. For instance, the question arises of whether this new legal response matches up with the legal principle of sustainable development or with human rights (*e.g.* right to life, right to a healthy environment). In order to explore the possible *interactions* among the different frameworks, this research proceeds through comparisons. Cross case comparisons are conducted between several initiatives aiming to respond to climate change, including carbon tax proposals but also other types of regulatory strategies (*e.g.* an ETS), against the backdrop of the EU legal order in order to determine elements of convergence or divergence with their legal environment. The reason I take such a broad view is to avoid being trapped into instrumental analyses.

Thanks to this approach, the research adds value to existing scholarship in several regards. To begin with, it provides a critical take on carbon taxes that invites tempering expectations

[9] Data retrieved from L. CHANCEL et T. PIKETTY, 'Carbon and inequality: from Kyoto to Paris', 2015, p. 50.

surrounding this regulatory strategy. Next, it helps provide clarity in the definition of the concept of carbon tax. In this area, it also highlights the constitutive role of the law in defining what a carbon tax is, as well as the legal response to climate change more broadly. Viewing this role as constitutive attributes a greater influence to the law, beyond that of a mere constraint. It also emphasises the significance of the legal context, providing answers as to how regulatory concepts 'travel' across legal settings.[10] Subsequently, with the establishment of an original framework of analysis, it helps 'mature' methodology in environmental law scholarship.[11] Analysing the horizontal interactions between different schemes is an innovative component of this research. Lastly, this analytical framework helps conduct an analysis of the 'whole of legal system' which is particularly relevant for problems such as climate change, but also challenging.[12]

The remainder of this Chapter is structured as follows. Section 2 provisionally sheds light on the concept of carbon tax. Then, in Section 3, I present the main assumptions that underpin the promotion of carbon taxes as a regulatory strategy to address climate change. Subsequently, I question these assumptions in light of the practical implementation of carbon taxes in law. Ultimately, Section 4 lays down the structure of this research.

2. THE CONCEPT OF CARBON TAX

The purpose of this second section is to delineate the concept of carbon tax. It is fair to say that there is no commonly agreed definition of the concept of carbon tax. As noted by the United Nations (UN) Committee of Experts on International Cooperation in Tax Matters 'There is still a lot of debate around the definition of carbon tax, environmental tax and environmentally related tax, and those terms may have different meanings in different contexts'.[13] This state of affairs is thus reminiscent of broader conceptual issues in the field of environmental taxation.[14] Bringing

[10] As put by Liz Fisher in E. FISHER, 'Through 'Thick' and 'Thin': Comparison in Administrative Law and Regulatory Studies Scholarship', *in* P. CANE *et al.* (eds.), *The Oxford Handbook of Comparative Administrative Law*, Oxford, Oxford University Press, 17 December 2020, pp. 614-634, available at https://oxfordhandbooks.com/view/10.1093/oxfordhb/9780198799986.001.0001/oxfordhb-9780198799986-e-37 (Last consulted on 2 June 2022).
[11] E. FISHER *et al.*, 'Maturity and Methodology: Starting a Debate about Environmental Law Scholarship', *Journal of Environmental Law*, January 2009, vol. 21, n° 2, pp. 213-250.
[12] E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law: Analysing national climate change legislation', *Review of European, Comparative & International Environmental Law*, 2019, vol. 28, n° 1, pp. 67-81.
[13] UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', 2021, p. 23, available at https://www.un.org/development/desa/financing/sites/www.un.org.development.desa.financing/files/2021-10/Carbon%20Taxation.pdf ; T. FALCÃO, 'Highlights of the United Nations Handbook on Carbon Taxation', *Intetax*, 2021, vol. 49, n° 11, pp. 897-914.
[14] F. PITRONE, 'Environmental Taxation: A legal perspective', 2014 2013 ; F. PITRONE, 'Defining "Environmental Taxes": Input from the Court of Justice of the European Union', *SSRN Electronic Journal*, 2015, available at http://www.ssrn.com/abstract=2567311 (Last consulted 2 June 2022) ; J.E. MILNE et M. SKOU ANDERSEN,

conceptual clarity to carbon taxes is central for two main reasons. Firstly, it is necessary for the scope of the research. Stating it broadly, the carbon tax will not be distinguished from other regulatory strategies. Stating it narrowly, the study will lose out on the variety of shapes that carbon taxes take in practice. Secondly, it enables the ideas developed in the literature on this topic to be appraised better and it helps in being more critical about them. The diverging definitions of this concept might result in a cacophony when diverging concepts are referred to under a common name.

The absence of a commonly shared definition can be attributed to several factors. After singling out these factors in Sub-Section 2.1, I review several definitions of the concept of carbon tax in the literature (both legal and non-legal), by classifying them and critically discussing them. Table 1 below classifies these definitions according to the following elements: the concept of tax (2.2) carbon (2.3) and the link between these two elements (2.4). To continue the earlier metaphor, the tax is the box and carbon is the content of that box. This step is preliminary since the way a carbon tax is defined in law is one of the main themes of this research. How legal scholars apprehend the concept of carbon tax will be further refined in Chapter 2, while in Chapter 3, I provide my own definition of this concept.

'Introduction to environmental taxation concepts and research', in *Handbook of Research on Environmental Taxation*, Northampton, Edward Elgar Publishing, 2012, pp. 15-32, available at http://www.elgaronline.com/view/9781848449978.00009.xml (Last consulted 2 June 2022). See also T. , 'Providing environmental taxes with an environmental purpose', in *Market Based Instruments*, Cheltenham, Edward Elgar Publishing, 2013, pp. 41-62, available at http://www.elgaronline.com/view/9781782548713.00013.xml (Last consulted 2 June 2022). N. CARUANA, *La fiscalité environnementale: Entre impératifs fiscaux et objectifs environnementaux, une approche conceptuelle de la fiscalité environnementale*, Aix-Mareille Ecole doctorale Sciences Juridiques et Politiques, 2015.

Reference	Definition	Main features		
UNITED NATIONS, « United Nations Handbook on Carbon Taxation for Developing Countries », 2021, p. 23	A compulsory, unrequited payment to general government, levied on carbon emissions or its proxy that can confer a reduction in corresponding carbon-based (equivalent) emissions in the atmosphere and is thus characterised as having both environmental purpose and effect.	GHG	Tax	Tax base, intent
OECD, Glossary of Environment Statistics, Studies in Methods, Series F, No. 67, United Nations, New York, 1997	An instrument of environmental cost internalisation. It is an excise tax on the producers of raw fossil fuels based on the relative carbon content of those fuels.	Unspecified	Energy tax	Tax base, intent
OECD, *Climate and Carbon: Aligning Prices and Policies*, OECD Environment Policy Papers, 9 October 2013, p. 12,	Carbon taxes refer to taxes that are directly linked to the level of CO_2 emissions, often expressed as a value per tonne CO_2 equivalent (per tCO_{2e}).	GHG	Tax	Tax base
WORLD BANK, *State and trends of carbon pricing 2020*., 2020, p. 16	Carbon taxes cover taxes, levies and excise duties that explicitly state a price on carbon.	Unspecified	Other	Tax base - rate
WORLD BANK, "Partnership for Market Readiness. Carbon Tax Guide : A Handbook for Policy Makers. », 2017, p. 27	A tax that explicitly states a price on greenhouse gas emissions or that uses a metric directly based on carbon (that is, price per tCO2e).	GHG	Tax	Tax base - rate
I. PARRY (IMF), « Putting a price on pollution », *Finance & Development*, December 2019, p. 4.	Carbon taxes are charges on the carbon content of fossil fuels.	Unspecified	Other	Tax base
IMF, *Fiscal Policies for Paris Climate Strategies-from Principle to Practice*, 2019, p. 4	A tax imposed on CO_2 releases emitted largely through the combustion of carbon-based fossil fuels.	CO_2	Tax	Tax base
J. MILNE, 'Carbon taxes in the United States: The context for the future.' Vermont Journal of Environmental Law, 10, 31 (p. 3).	A tax based on the 'carbon content of fuels or the carbon dioxide (CO_2) they produce when combusted, usually measured in tons'. She notes that GHG other than CO_2 emissions can be incorporated into the tax base, by expressing them in terms of CO_2 equivalent (CO_2e).	GHG	Tax	Tax base
M.S. ANDERSEN, The Politics of Carbon Taxation: How Varieties of Policy Style Matter', *Environmental Politics*, 28.6 (2019), 1084–1104 (note 1)	A tax levied on the carbon content of fuels	Unspecified	Tax	Tax base

Table 1 Sample of definitions for the concept of carbon tax

2.1. Challenges in defining the concept of carbon tax

Defining the concept of carbon tax poses several challenges that are central to this research. To begin with, the process of definition is itself multifaceted; that is, there are different types of

definitions. François Ost distinguishes three of them: 'usage' definitions, 'functional' definitions, and 'purpose' definitions:[15]

> 'If we take the example of a car, we can answer the question of what it is for in three different ways. As its name suggests, an "automobile" is a machine that can move by itself; its "function" consists in its ability to move by itself; this mobility is its functionality in the world of objects. Its use, on the other hand, can be extremely diverse, depending on the interests and strategies of its users (...). Finally, we can still ask ourselves what purpose to assign to its functionalities: mobility, yes, but for what purpose? Leisure, transport of people or goods, professional contacts...'

These categories are not mutually exclusive; instead, they place the emphasis on different features of this object.

Another way to distinguish definitions is by making a distinction between instrumental definitions and more substantive ones.[16] An instrumental definition would focus on the purpose and function of a carbon tax while a substantive definition would concentrate on the content. To illustrate this point, let me use the example of a 'shovel'. A shovel can be referred to as a tool used for moving material, which is an instrumental definition of this concept. Then, one can distinguish between different purposes for which this tool can be used: moving soil, snow, pizzas, pies. A different, more constitutive, definition would understand a shovel as an object consisting of a stick and a blade. Depending on the shovel's purpose, its shape will differ; it will be made of different materials (*e.g.* wood, plastic, metal) and its form will vary (*e.g.* circular, rectangular). Another way to appraise instrumental definitions that has prevailed in carbon taxes literature, is to classify the different types of instruments, based on their (theoretical features). In this regard, the parallel between carbon taxes and shovels does not work.

The second challenge concerns carbon taxes in particular. A carbon tax, indeed, lies at the intersection of several disciplines (such as law, economics, political science and sociology). It is also discussed by various actors (academics, international organisations, NGOs, etc.) from all over the world, having distinct objectives and backgrounds. Carbon taxes have been associated

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[15] In French :'usages', 'fonctions' et 'finalités'. Ost's example is the following : 'Prenons l'exemple d'une voiture; à la question de savoir à quoi elle sert, on peut se répondre de trois manières différentes. Comme son nom l'indique une 'automobile' est un engin susceptible de se déplacer toute seule; sa 'fonction' consiste dans une aptitude à la mobilité automotrice; cette mobilité est sa fonctionnalité dans le monde des objets. Son usage, en revanche, peut être extrêmement diversifié, au gré des intérêts et des stratégies de ses utilisateurs (…). Enfin, on peut encore se demander quelle fin assigner à ses fonctionnalités: mobilité oui mais pour quoi faire? Loisir, transport de personnes ou de marchandises, contacts professionnels…'. F. OST, *À quoi sert le droit ? usages, fonctions, finalités*, Penser le droit, n° 25, Bruxelles [Paris], Bruylant, 2016, p. 7.

[16] This distinction is based on the separation established in Chapter 2 between an instrumental and a substantive approach.

with pluri-/interdisciplinary, multifaceted and cross-border discussions. The richness of these discussions provides a multitude of angles to view this concept.[17] Secondly, a theoretical definition of a carbon tax hardly covers the variety of ways in which this concept is imagined and implemented in practice. Carbon taxes have an economic underpinning with roots in Pigou's work on externalities.[18] While it is possible to define the design elements of a carbon tax based on a Pigouvian approach (so-called Pigouvian tax), such design is rather theoretical and is never fully achieved in practice.[19] These elements support the interest in conducting an in-depth analysis of what a carbon tax is and of the nature of its relationship with the law.

2.2. **First component: the concept of 'tax'**

Let me now turn to the definition of a carbon tax. The first component is the concept of 'tax'. Most definitions do not specify this concept. A tax is widely recognised to consist of 'a compulsory, unrequited payment to general government'.[20] It is deeply interlinked with state sovereignty and usually involves an act of parliament (as opposed to government). This is because taxation is the 'most familiar manifestation of the government's power to coerce and it can provide States with the necessary revenues to pursue their policies'.[21] As tax law usually establishes democratic guarantees against this power, characterisation as a tax involves several legal consequences. It can influence distribution of competences and lead to the application of dedicated legal principles in tax matters (*e.g.* annuality and legality) or a different application of general principles such as equality. In EU law, for instance, unanimity is required to enact fiscal legislation.[22]

Therefore, from a legal standpoint, a tax is not a charge (which is a generic term) or a fee (which is the counterpart of a service).[23] However, outside legal scholarship, some writings (*e.g.* OECD) tend to confuse taxes with charges, levies and fees. A tax is also distinguishable from a cap-and-

[17] About the different angles in legal scholarship see *Infra* Chapter 2.
[18] This is detailed *Infra*, Chapter 2, 2.2.1. and Chapter 3, 2.1. Note that Pigou did not specifically put forward the idea of a carbon tax or of an environmental tax; his approach was on externalities more broadly.
[19] See discussion *Infra*, 3.2. and 3.3.
[20] UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.*, p. 23.
[21] W. BARKER et H. VORKING, 'The relevance of a concept of tax. 10.a. Normative considerations', *in* B. PEETERS (ed.), *The concept of tax: 2005 EATLP congress, Naples (Caserta) 27 - 29 may 2005*, EATLP international tax series, n° 3, Amsterdam, IBFD, 2005, p. 10.
[22] See *Infra*, Chapter 2, 2.3.3. and Chapter 4, 5.2.
[23] F. VANISTENDAEL, 'Legal Framework for Taxation', In Tax Law Design and Drafting, Volume 1. International Monetary fund. https://doi.org/10.5089/9781557755872.071. See also M. BOURGEOIS, 'Constitutional (see: general) framework of the different types of income', *in* B. PEETERS (ed.), *The concept of tax: 2005 EATLP congress, Naples (Caserta) 27 - 29 may 2005*, EATLP international tax series, n° 3, Amsterdam, IBFD, 2005, pp. 45-127.

trade system or from an emission limit or a standard.[24] An ETS is traditionally defined as a scheme in which the State determines the level of emission that is allowed (cap) and requires firms to return the number of allowances that corresponds to their emission level.[25] Allowances are made tradeable to ensure that emissions are reduced where they are the cheapest. In practice, though, the delineation between an ETS and a tax is not always so straight. As we shall see, these strategies have sometimes been hybridised.[26] The second problem is that paying excessive attention to the instrument category tends to overlook elements of convergence or divergence that instead relate to what is being regulated (*e.g.* coverage of the scheme).

2.3. **Second component: the concept of 'carbon'**

The second component is the concept of 'carbon'. This term is not understood consistently in the literature; as Steffen Dalsgaard notes, it 'has almost become a catchall for all the different forms of chemical compounds and greenhouse gas emissions'.[27] GHG emissions are often made commensurable under the term 'CO_2 equivalent' (CO_{2eq}) in light of their global warming intensity. Hence, CO_2 serves as a baseline for the effect that other types of GHG have on climate.[28] For instance, the global warming potential of methane is 25 times that of CO_2; that is, emits 25 tonnes of CO_{2eq}.[29] Some contributions define the term 'carbon' strictly as referring to CO_2 emissions only (*e.g.* IMF). Others include different types of GHGs, not just CO_2 (*e.g.* UN handbook, OECD), whilst in other cases, the term 'carbon' remains unspecified (*e.g.* Andersen). Nonetheless, this is observation is more a matter of detail than a central issue. A most important point is that the concept of 'carbon' is associated with a wide range of activities and situations. Few activities or actions of our daily lives are exempt of any impact on climate change.

Let me illustrate this point with a humoristic note. In his book 'How Bad Are Bananas', Mike Berners-Lee has classified a series of activities or goods in function of their impact on climate change.[30] A banana, for instance, has a carbon footprint of 80g CO_{2eq} if it is imported from the

[24] For instance, in the *ATAA* case, the Court of Justice has ruled that the EU-ETS was not a tax, given that 'apart from the fact that it is not intended to generate revenue for the public authorities' it did 'not in any way enable the establishment, applying a basis of assessment and a rate defined in advance'. *Air Transport Association of America and Others,* C-366/10, 6 October 2011, § 143.
[25] This is detailed *Infra* in Chapter 2, 2.
[26] Some taxes have links with ETS (*e.g.* carbon floor) and conversely, an ETS may have some features that make it resemble to a tax (*e.g.* guaranteed price/price corridor). See *Infra*, 3.3.
[27] S. DALSGAARD, 'The commensurability of carbon: Making value and money of climate change', *HAU: Journal of Ethnographic Theory*, 2013, vol. 3, n° 1, p. 83.
[28] *Ibid.*
[29] Information retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Carbon_dioxide_equivalent (Last consulted 2 June 2022).
[30] M. BERNERS-LEE, *How bad are bananas? the carbon footprint of everything*, Vancouver, Greystone Books, 2011.

other part of the world. The Iraq war is estimated at an emission level of 250 to 600 million tons CO_{2eq}, while a Volcano like the Etna emits 1 million tons CO_{2eq} in a quiet year. We thus see that GHG emission sources and activities are varied.

The diversity of GHG emissions raises a lot of questions; touching on issues such as the scope of the tax (should it cover all emission sources or provide for exemption?), the tax base, i.e. 'the thing or amount on which the tax rate is applied'[31] (should the tax be based on all GHGs or only some of them, only direct or also embedded emissions, that is the quantity of carbon necessary to produce a product?), the tax rate is the 'rate at which that something is taxed' (what should be the rate level, should the same rate be applied to all additional tonnes of CO_{2eq}, what about past emissions?),[32] and the point of regulation, (should it be imposed upstream, i.e. the beginning of the production process or downstream, i.e. at the end of the production process). The way in which these questions are answered will influence the definition of a carbon tax.

Another question concerns embedded emissions. This question is inter-related to the notion of 'carbon border tax adjustment' (CBTA), which belongs to the broader category of 'carbon border adjustment mechanisms' (CBAM). CBAMs are hard to define in the abstract; this name hides a mechanism to be linked to several objectives.[33] The traditional objective attributed to CBAMs is to prevent carbon leakage, that is the displacement of emissions resulting from a firm's relocation. CBAMs are often depicted as an 'equalisation system'[34]; they do not exist on their own but need to be grafted on to carbon pricing mechanisms (*e.g.* a carbon tax or an ETS). With CBAMs, a carbon price is imposed on GHG emissions *embedded* in products, when they enter the territory (import). Under certain designs, exported products are not subject to the carbon price. There is thus an intrinsic *cross-border* dimension with CBAMs; the carbon price is imposed or lifted when a border is crossed. A carbon tax, on the contrary, does not necessarily apply to

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[31] I. BURGERS et S. WEISHAAR, 'Designing Carbon Taxes Is Not an Easy Task Legal Perspectives', 2018, p. 9.
[32] J.E. MILNE, 'How Durable is a Lockbox for Carbon Tax Revenue?', *Pittsburgh Tax Review*, 2020, vol. 17, n° 1, p. 109, available at https://taxreview.law.pitt.edu/ojs/index.php/taxreview/article/view/107 (Last consulted on 2 June 2022).
[33] As argued by A. PIRLOT, 'Carbon Border Adjustment Measures: A Straightforward Multi-Purpose Climate Change Instrument?', *Journal of Environmental Law*, November 2021. On this topic see R. ISMER, K. NEUHOFF et A. PIRLOT, 'Border Carbon Adjustments and Alternative Measures for the EU ETS An Evaluation', 2016, p. 23 ; A. PIRLOT, *Environmental border tax adjustments and international trade law: fostering environmental protection*, New horizons in environmental and energy law series, Northampton, MA, Edward Elgar Pub, 2017 ; Y. SPASSOV, 'EU ETS: Upholding the Carbon Price Without Incidence of Carbon Leakage', *Journal of Environmental Law*, July 2012, vol. 24, n° 2, pp. 311-344 ; C. MCLURE, 'A Primer on the Legality of Border Adjustments for Carbon Prices: Through a GATT Darkly', *Carbon & Climate Law Review*, 2012, vol. 5, n° 4, pp. 456-465 ; C. KAUFMANN et R.H. WEBER, 'Carbon-related border tax adjustment: mitigating climate change or restricting international trade?', *World Trade Review*, October 2011, vol. 10, n° 4, pp. 497-525.
[34] Y. SPASSOV, 'EU ETS', *op. cit.*, p. 329.

embedded GHG emissions, even though a carbon tax that follows a life-cycle approach is in theory possible.[35]

The inherent cross-border nature of CBTAs further differentiates them from a carbon tax (as well as from an ETS). Whereas these mechanisms may also cover to extra-territorial emissions, as the expansion of the EU-ETS to international flights shows, it is not a necessary condition for their existence.[36]

2.4. **The link between 'tax' and 'carbon'**

The trickiest issue in the definition of a carbon tax is arguably how to connect the two components above, i.e. 'carbon' and 'tax'. There are three main ways in which the literature links them. The first approach is to refer to the tax base. This is endorsed in definitions such as a 'tax levied on the carbon content of fuels'.[37] In some contributions, the focus is on taxes levied on fossil fuels (*e.g.* Andersen). In that case, the point for regulating the tax is upstream and the definition is restricted to energy. This focus can be attributed to the fact that in practice carbon taxes generally take the form of an energy tax on the CO_2 content of energy products.[38] Most definitions, by contrast, do not characterise carbon taxes depending on whether they are imposed upstream or downstream. The tax base offers an objective basis for definition.[39] However, the problem of this approach is that it does not fully allow differentiation from traditional taxes, including those levied on energy. In the absence of additional criteria pertaining to the design of such a tax (such as the rate, coverage, or derogations) or the intent behind it, this tax lacks threshold: is it a tax levied on the CO_2 content of heating fuel, one that differentiates the rates of CO_2 emissions or else one that sets a carbon tax at 1 euro/tonne of CO_{2e}?

A second way to appraise this issue is by opposing explicit and implicit carbon pricing. According to this approach, a carbon tax is supposed to be expressed in a monetary unit per ton of CO_{2eq}[40]

[35] On this question see for instance Traversa & Timmermans' proposal (even though the authors go a step further by proposing that such a tax is levied at each stage of the production process. E. TRAVERSA et B. TIMMERMANS, 'Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives', *Intertax*, 2021, vol. 49, n° 11, pp. 871-884.
[36] *Infra*, Chapter 4, 5.2. and Chapter 6, 3.3.
[37] M.S. ANDERSEN, 'The politics of carbon taxation: how varieties of policy style matter', *Environmental Politics*, September 2019, vol. 28, n° 6, pp. 1084-1104.
[38] *Eg.* France and Sweden. See *Infra*, 3.3.
[39] As noted by Federica Pitrone in the broader context of environmental taxation. F. PITRONE, « Defining "Environmental Taxes" », *op. cit.*
[40] WORLDBANK, *State and Trends of Carbon Pricing 2021*, 2021, p. 16, available at http://hdl.handle.net/10986/35620 (Last consulted on 2 June 2022).

or else set a price on every tonne of CO_{2eq}.[41] However, this approach leads to problems similar to the one described above.

Under a third approach, carbon taxes have been defined according to their function or ambition. The definition of this concept as an 'instrument of environmental cost internalisation',[42] or as a tax 'having both environmental purpose and effect' falls into this category.[43] Conditioning the definition of a carbon to a specific intent raises the question of how to identify such intent. This task is, however, difficult. Is it sufficient, for instance, to announce one's willingness to reduce GHG emissions via the tax? Where to find such intent?

Altogether, we see that all three approaches leave a number of unanswered questions. They all have their merits and drawbacks. This already argues that a carbon tax may not be as simple as straightforward as some advocate.

3. THE CARBON TAX, A STRAIGHTFORWARD AND SIMPLE SOLUTION TO CLIMATE CHANGE?

A widespread assumption in the literature is that the carbon tax is a simple and straightforward strategy to address climate change (3.1). This assumption has been crucial in climate policy discussions because it partly underpins the enthusiasm for carbon taxes. The simplicity and straightforwardness of carbon taxes are indeed commonly advanced to promote their use. However, their legal implementation seems to contradict this assumption. In practice, the introduction of a carbon tax appears challenging. These difficulties have sometimes been insurmountable, preventing the very introduction of carbon taxes in law. In other cases, they have led to a design that is incapable of adequately responding to climate change (3.2). Furthermore, in practice, carbon taxes are characterised by a variety of shapes; to put it another way, each carbon tax is unique (3.3). These elements seem to challenge the assumption above.

[41] *Climate and Carbon: Aligning Prices and Policies*, OECD Environment Policy Papers, 9 October 2013, p. 9, available at https://www.oecd-ilibrary.org/environment-and-sustainable-development/climate-and-carbon_5k3z11hjg6r7-en (Last consulted on 2 June 2022).
[42] OECD, Glossary of Environment Statistics, Studies in Methods, Series F, No. 67, United Nations, New York, 1997.
[43] UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.*, p. 23.

3.1. **Advancing the carbon tax as a straightforward and simple solution**

A carbon tax has been presented as an 'elegant' solution to the problem of climate change.[44] Taxation in general has been promoted to address a broader range of problems in all contexts. Indeed, insofar as problems imply externalities (such as noise or congestion) not factored into costs, the adoption of a tax has been advanced to solve them.[45] This strategy has long appeared as a 'one size fits all' approach[46] or a 'panacea', that is 'the action or tendency to apply a single solution to many problems'.[47] That is not to say that authors take the view that a carbon tax alone can solve the problem of climate change but that this problem cannot be efficiently addressed without such solution.[48] Recently, thousands of economists from the US and the EU released a statement on the need to adopt a carbon tax. They claimed that a 'sufficiently robust and gradually rising carbon tax will replace the need for various carbon regulations that are less efficient'.[49]

Over the decades, discussions have intensified and shifted from promoting the use of a carbon tax towards carbon pricing more broadly, even though within these discussions many persist in advocating for the adoption of carbon taxes over other schemes.[50] What used to be a timid message from engaged economists has become an insistent demand from internationally

[44] For instance G.E. METCALF, *Paying for pollution: why a carbon tax is good for America*, New York, Oxford University Press, 2019, p. 44.
[45] For an overview of this broad range of issues see the collection Critical Issues in Environmental Taxation series, Edward Elgar Publishing. See also Commission of the European Communities, Green Paper on market-based instruments for environment and energy related policy purposes, 28 March 2007, COM(2007) 140 final.
[46] M.B. GERRARD, 'An Environmental Lawyer's Fraught Quest for Legal Tools to Hold Back the Seas', *op. cit.*
[47] E. OSTROM, M.A. JANSSEN et J.M. ANDERIES, 'Going beyond panaceas', *Proceedings of the National Academy of Sciences*, September 2007, vol. 104, n° 39, pp. 15176-15178.
[48] For instance, 'A well-designed carbon price is an indispensable part of a strategy for reducing emissions in an efficient way' High-Level Commission on Carbon Prices. 2017. Report of the High-Level Commission on Carbon Prices. Washington, DC: World Bank. License: Creative Commons Attribution CC BY 3.0 IGO, p. 1. See also C. HEPBURN, N. STERN et J.E. STIGLITZ, '"Carbon pricing" special issue in the European economic review', *European Economic Review*, August 2020, vol. 127, p. 103440.
[49] Economists' Statement on Carbon Dividends, available at https://clcouncil.org/economists-statement/#:~:text=I.,towards%20a%20low%2Dcarbon%20future (Last consulted 2 June 2022).; Economists' Statement on Carbon Pricing, available athttps://www.eaere.org/statement/. (Last consulted 2 June 2022).
[50] As explained by D.M. DRIESEN, 'Putting a Price on Carbon: The Metaphor', *SSRN Electronic Journal*, 2013 <https://doi.org/10.2139/ssrn.2318599>.

recognised climate experts, including the IPCC,[51] NGOs[52], international organisations such as the IMF, the OECD and the World Bank).[53] There are now dedicated organisations aimed at enhancing carbon pricing, such as the Carbon Pricing Leadership Coalition.[54] The state of carbon pricing worldwide is now monitored; it has become a tool for comparing countries in their climate ambition. In this sense, the World Bank's carbon pricing dashboard can be used to compare countries according to performance in implementing carbon pricing schemes.[55] Such bustle recently culminated in works on a global carbon pricing model under the auspices of the OECD.[56] This development can be linked to emission reduction pledges by all countries since the adoption of the Paris Agreement.

A central and widespread assumption behind the promotion of a carbon tax to remedy climate change is that it represents a simple and straightforward response.[57] It is 'transparent and relatively easy to design and implement'.[58] According to some, it is even the 'most straightforward' strategy to reduce GHG emissions.[59] This is illustrated by the following statement of the US economist Catherine Wolfram:

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[51] The 2018 IPCC report highlights that 'Policies reflecting a high price on emissions are necessary in models to achieve cost-effective 1.5°C pathways (high confidence).', Rogelj, J., D. Shindell, K. Jiang, S. Fifita, P. Forster, V. Ginzburg, C. Handa, H. Kheshgi, S. Kobayashi, E. Kriegler, L. Mundaca, R. Séférian, and M.V. Vilariño, 2018: Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.

[52] EUROPEAN ENVIRONMENTAL BUREAU, *A carbon pricing blueprint for the EU*, Marc 2021, available at https://eeb.org/library/a-carbon-pricing-blueprint-for-the-eu/ (Last consulted on 2 June 2022).

[53] *Carbon pricing and COVID-19: Policy changes, challenges and design options in OECD and G20 countries*, OECD Environment Working Papers, 10 March 2022, available at https://www.oecd-ilibrary.org/environment/carbon-pricing-and-covid-19_8f030bcc-en (Last consulted on 2 June 2022).; 'Tax Policy and Climate Change: IMF/OECD Report for the G20 Finance Ministers and Central Bank Governors, September 2021, Italy', 2021, p. 34.;

[54] See https://www.carbonpricingleadership.org/who-we-are, Accessed 14 April 2022. See also Carbon Market Watch, https://carbonmarketwatch.org/our-work/carbon-pricing/, Accessed 14 April 2022.

[55] See https://carbonpricingdashboard.worldbank.org/map_data, Accessed 14 April 2022.

[56] Even though the discussion take place for a global carbon price take place under the umbrella of the OECD and not the UNFCCC. See https://www.law360.com/tax-authority/articles/1465628/oecd-starting-new-inclusive-framework-on-carbon-pricing (Last consulted on 2 June 2022).

[57] In this sense 'By imposing a charge on the carbon content of fossil fuel supply, carbon taxes are a straightforward carbon pricing instrument from an administrative perspective. 'Tax Policy and Climate Change: IMF/OECD Report for the G20 Finance Ministers and Central Bank Governors, September 2021, Italy', *op. cit.*, p. 9. J. ALDY et R. STAVINS, *The Promise and Problems of Pricing Carbon: Theory and Experience*, Cambridge, MA, National Bureau of Economic Research, November 2011, p. 155, available at http://www.nber.org/papers/w17569.pdf (Last consulted 2 June 2022). See also the references below as well as the discussion *Infra*, Chapter 2, 2.3. and 2.4.

[58] OECD, 'Designing Carbon Pricing Instruments for Ambitious Climate Policy', December 2017, p. 7, available at https://www.oecd.org/environment/cc/carbon-market-platform/Designing-Carbon-Pricing-Instruments-for-Ambitious-Climate-Policy-September-2017.pdf.

[59] In this sense Y. MARGALIOTH, 'Tax Policy Analysis of Climate Change', *Tax Law Review*, 2010, vol. 64, p. 63 ; R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change: Why a Carbon Tax is a Better Response to Global Warming than Cap and Trade', *SSRN Electronic Journal*, 2008, p. 7, available at

> 'You have to work hard to get a mainstream economist to agree that anything bests a global carbon tax. With a carbon tax, the government, informed by calculations of the benefits of avoiding climate change (…), sets the level of the tax and then steps back and lets a thousand flowers bloom.'[60]

What this statement suggests is that it suffices to price carbon at the level of the benefits in avoiding climate change and positive consequences will automatically result. This illustrates the reputed straightforwardness of the solution, which is presented almost as a mathematical exercise.

Legal scholars have also relayed the assumption that a carbon tax is a simple and straightforward solution to climate change.[61] It has been described as an 'obvious and tried model', with 'evident' success in reducing GHG emissions.[62] It is a regulatory strategy that 'can be enacted and enforced practically overnight'.[63] A carbon tax is purported to have clear advantages over other regulatory strategies.[64] In this sense, it is advanced: 'There are many obvious advantages in implementing a carbon tax instead of an ETS. It is simple, it does not require a complex monitoring, reporting and verification (MRV) system, and it can be implemented through the existing tax instruments such as excise taxes and duties.'[65] According to another scholar, 'A carbon tax is simply easier to design and implement and more effective than almost anything else. This is true for almost every country, every kind of society, and almost every imaginable economic circumstance'.[66] These assumptions are sometimes viewed as inherent to the instrument used; as another contribution asserts, '*At its core*, a carbon tax is fairly simple because relatively few entities control virtually all carbon production'.[67]

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http://www.ssrn.com/abstract=1109167 (Last consulted on 2 June 2022) ; R.F. MANN, 'How to Overcome Politics and Find Our Green Destiny', *Environmental Law Reporter News & Analysis*, 2009 vol. 39, n° 2, p. 10120. G.M. LUCAS, 'Behavioral public choice and the carbon tax', *Utah Law Review*, 2017, vol. 1, p. 122. A. KERR, 'Why we need carbon tax', *Environs: Environmental Law and Policy Journal*, 2010, vol. 34, n° 1, p. 93.

[60] C. WOLFRAM, 'What's the Deal with the Green New Deal?', 7 January 2017.

[61] For instance, R.F. MANN, 'How to Overcome Politics and Find Our Green Destiny', *op. cit.*, p. 10122. This applies to environmental levies more generally. They are viewed as 'a straightforward way to put prices on the use of the environment'. K. DEKETELAERE, 'European environmental policy and the use of market-based instruments', *Elsa Law Review*, 1993, vol. 1993, p. 49.

[62] L. XYNAS, 'Climate Change Mitigation: Carbon Tax - Is it the Better Answer for Australia', s.d., p. 342. For a different perspective see J.F. GREEN, 'Does carbon pricing reduce emissions? A review of ex-post analyses', *Environmental Research Letters*, 2021, vol. 16, n° 4, p. 043004 ; T.H. TIETENBERG, 'Reflections—Carbon Pricing in Practice', *Review of Environmental Economics and Policy*, 2013, vol. 7, n° 2, pp. 313-329.

[63] N. SHURTZ, 'Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy', *San Diego Journal of Climate & Energy Law*, 2016 2015, vol. 7, p. 93.

[64] See discussion *Infra*, Chapter 2, 2.

[65] UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.*, p. 20.

[66] S.-L. HSU, *The case for a carbon tax: getting past our hang-ups to effective climate policy*, Washington, Island Press, 2011, p. 7.

[67] M. WAGGONER, 'Why and How to Tax Carbon', *Colorado Journal of International Environmental Law and Policy*, 2008, vol. 20, p. 10 ; R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.*, p. 38.

3.2. **The difficulties surrounding the legal implementation of carbon taxes**

Whilst the assumed simplicity and straightforwardness of a carbon tax is appealing, there is a gap between these theoretical merits and implementation of this strategy in practice. This gives rise to the following paradox: whereas it is widely promoted to address climate change, it has generally experienced an ill-fated relationship with the law. About a century after Pigou's work on externalities, it is widely acknowledged that the consistent message of economists in favour of carbon taxation has been 'rarely heeded'.[68] Carbon taxes have remained 'unpopular'[69], confronted with an 'almost magical repugnance'[70] or being something of a 'Greenspeak'.[71] Their adoption has proved difficult and their design has also been recognised as generally ineffective as a sufficient response to climate change.[72] In light of this apparently puzzling situation, some have wondered '[w]hy is it that a simple, effective, efficient and common-sense prescription is one that is so universally unpopular'.[73] This statement confronts the mainstream assumptions behind the carbon taxes' promotion with their legal implementation.

Those difficulties can be attributed to an array of factors. These include political economy factors (lobbying, social and political acceptability) and legal factors, such as the principle of equality and rules organising the competences for distribution and exercise (including procedural requirements). Several examples support this point.

The EU's experience with carbon taxation, which will be studied in depth, is a casebook illustration of these difficulties. The Commission has already made two proposals for a harmonised carbon tax, neither of which could be enacted.[74] Under the 'Fit for 55' Package, a third proposal is currently pending.[75] The role of lobbying has been recognised as decisive in the

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[68] K.R. RICHARDS, 'Framing Environmental Policy Instrument Choice', *SSRN Electronic Journal*, 1998, p. 223, available at https://www.ssrn.com/abstract=117593 (Last consulted on 2 June 2022).
[69] J. DELBEKE et P. VIS (eds.), *EU climate policy explained*, London ; New York, NY, Routledge, 2015, p. 1. See also Klenert & al. who propose solutions with a view to 'making carbon pricing popular for citizens'. D. KLENERT *et al.*, 'Making carbon pricing work for citizens', *Nature Climate Change*, August 2018, vol. 8, n° 8, pp. 669-677.
[70] HSU, *The Case for a Carbon Tax Getting Past Our Hang-Ups to Effective Climate Policy*, *op. cit.* p. 147.
[71] K. DEKETELAERE, « European Environmental Tax Law and Policy: Greenspeak ! », *in* S. BELKIN (ed.), *Environmental Challenges*, Dordrecht, Springer Netherlands, 2000, pp. 361-377, available at http://link.springer.com/10.1007/978-94-011-4369-1_29 (Last consulted on 2 June 2022).
[72] E. HAITES *et al.*, 'Experience with Carbon Taxes and Greenhouse Gas Emissions Trading Systems', *Duke Environmental Law & Policy Forum*, 2018, vol. 29, n° 1, pp. 109-182; J.F. GREEN, 'Does carbon pricing reduce emissions? A review of ex-post analyses', *Environmental Research Letters*, 2021, vol. 16, n° 4, p. 043004 ; T.H. TIETENBERG, 'Reflections—Carbon Pricing in Practice', *op. cit.*
[73] HSU, *The Case for a Carbon Tax Getting Past Our Hang-Ups to Effective Climate Policy*, *op. cit.*, p. 8.
[74] The two proposals are addressed *Infra* in Chapter 5.
[75] See *Infra* Chapter 9.

EU's failure to adopt the two first proposals.[76] From a legal standpoint, the traditional reading, which this research seeks to supplement, is that the required unanimity in tax matters has prevented the adoption of these proposals. At the national level, it is true that carbon taxes have gained interest especially during the past ten years, with thirty schemes in place or scheduled for implementation across the world.[77] However, adoption of these taxes has often faced numerous challenges, which refutes the assumption that they are so simple to adopt.

There was a remarkable increase in the number of carbon taxes in 2021, which could be viewed as the result of increased ambition in climate mitigation that arose from adoption of the Paris Agreement of 2020.[78] In the EU alone, three countries have recently introduced a carbon pricing scheme including the Netherlands, Luxembourg and Germany, and Austria has proposed a bill of law in this sense.[79] This possibility is also under discussion in Belgium.[80] In France, it took three attempts for the legislature to enact a carbon tax; the first two bills of law were annulled by the Constitutional Council for breaching the principles of equality and non-discrimination.[81] In 2018, amid of the strikes of the Yellow Jackets, tax rate increases were frozen.[82] By the same token, Sweden which is usually presented as a 'success story' in carbon taxation took a step back after introducing a rather uniform carbon tax and granted a lower tax rate to the industry.[83] In the same vein, Australia adopted a carbon tax in 2012 that was repealed once the opposition won the elections.[84]

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[76] S. VIESSENT, 'La fiscalité environnementale de l'Union européenne in Fumaroli', in *La fiscalité environnementale: Entre attentes, doutes et pragmatisme*, Aix en Provence, Presses univesitaires d'Aix Marseille, 2018, pp. 128-132.

[77] WORLDBANK, *State and Trends of Carbon Pricing 2021*, *op. cit.* As noted before, there are wide disparities and it should be recalled that this number corresponds to the World bank's own definition and practical appreciation of the concept of carbon tax.

[78] *Ibid.*

[79] For an overview see EUROPEAN ENVIRONMENTAL BUREAU, *A carbon pricing blueprint for the EU*, *op. cit.* About Austria's proposal in particular see R. DAMBERGER, « Austria's ecological tax reform: a model for other EU Member States? », *Kluwer International Tax Blog*, 3 February 2022, available at http://kluwertaxblog.com/2022/02/03/austrias-ecological-tax-reform-a-model-for-other-eu-member-states/(Last consulted 2 June 2022).

[80] BELGIAN FEDERAL ADMINISTRATION, *Belgian National Debate on Carbon Pricing*, June 2018, available at https://klimaat.be/doc/National_Carbon_Pricing_Debate_-_Final_Report.pdf.

[81] See *Infra* 3.2.

[82] J. HARDING (2019) Among the Gilets Jaunes, 41(6) London Review of Books 3.

[83] It is only in 2014 that these rates were aligned once again. SWEDISH ENVIRONMENTAL PROTECTION AGENCY (SEPA) & SWEDISH ENERGY AGENCY (SEA), 'Economic instruments in environmental policy', February 2007, p. 90. See more generally the website of the Swedish administration which is largely dedicated at exporting Swedish success story all over the world : https://www.government.se/government-policy/taxes-and-tariffs/swedens-carbontax/?TSPD_101_R0=088d4528d9ab2000c79e49de9289335e118c72626a43c651bbaa8c52b268c3d08376207fa550c25c081d62959a143000c7b590d5274d4f7b62bcc0f0e74090f982507e13e25abd89b21b6dccd5c8179b3b553153505b711b122e0ed4e843fc5f. (Last consulted on 2 June 2022).

[84] C.L. SPASH et A.Y. LO, 'Australia's Carbon Tax: A Sheep in Wolf's Clothing?', *The Economic and Labour Relations Review*, February 2012, vol. 23, n° 1, pp. 67-85 ; S. GEROE, 'Addressing Climate Change Through a Low-Cost, High-Impact Carbon Tax', *The Journal of Environment & Development*, 2019, vol. 28, n° 1, pp. 3-27.

The Canadian Supreme Court's decision in *References re Greenhouse Gas Pollution Pricing Act*, further illustrates the challenges to enact a carbon tax, although the litigated scheme was a 'federal backstop' for national carbon pricing that could take both the form of a tax or an ETS.[85] This mechanism was applicable only where provinces had not implemented a sufficiently stringent carbon pricing mechanism.[86] The decision concerned the validity of the Greenhouse Gas Pollution Pricing Act introducing this mechanism against the rules organising the distribution of competences in Canada. It was challenged by the provinces of Saskatchewan, Ontario and Alberta. To pass the constitutionality test, the crucial question was whether establishing such a minimum standard was a concern for Canada as a whole.[87] The Court pointed to the broad agreement that carbon pricing is a 'critical measure' to mitigate climate change and upheld the litigated act.[88] Even though the Court sanctioned the measures, the litigation highlights the controversies surrounding the mechanism above.

3.3. **The diversity of carbon taxes in law**

The appealing simplicity of a carbon tax contrasts not only with its terminological confusion (see Section 2), but also with the variety of shapes these taxes take in practice. As noted before, the basic idea behind a carbon tax is conceptually simple: it applies a given price, predetermined by the tax rate, on a unit of pollution (tax base), such as a tonne of CO_2 emission. The level of the tax is calculated by applying the tax rate on the tax base. Yet, it has become evident that carbon taxes are seldom enacted 'in their textbook form'[89]. Or to put it another way, regulatory practices differ from their 'theoretically-principled basis'.[90] As several authors underscore, '[c]onceptually, a carbon tax imposes a uniform tax per [tonne of CO_2 equivalent] emitted. In practice, a carbon tax is usually implemented as a series of taxes on various fossil fuels and emitting activities'.[91] They

[85] Supreme Court of Canada, References re Greenhouse Gas Pollution Pricing Act, SCC 11, 25 March 2021. About this case see J. STACEY, 'Climate Disruption in Canadian Constitutional Law: *References Re Greenhouse Gas Pollution Pricing Act*', *Journal of Environmental Law*, November 2021, vol. 33, n° 3, pp. 711-725. See also N. CHALIFOUR, P. OLIVER et T. WORMINGTON, 'Clarifying the Matter: Modernizing Peace, Order, and Good Government in the Greenhouse Gas Pollution Pricing Act Appeals', *SSRN Electronic Journal*, 2020, available at https://www.ssrn.com/abstract=3651556 (Last consulted 2 June 2022). This could already argue that the instrument category is not totally relevant but that what matters is more substantive.
[86] J. STACEY, 'Climate Disruption in Canadian Constitutional Law', *op. cit.*, p. 715.
[87] *References Re Greenhouse Gas Pollution Pricing Act*, § 49.
[88] *Ibid.*, § 170.
[89] M.G. FAURE, 'Effectiveness of Environmental Law: What Does the Evidence Tell Us?', *SSRN Electronic Journal*, 2012, p. 312, available at http://www.ssrn.com/abstract=2165715 (Last consulted 2 June 2022). Note that the author discusses environmental taxes generally.
[90] S. SPECK, 'The design of carbon and broad-based energy taxes in european countries.', *Vermon Journal of environmental law*, 2008, vol. 10, n° 1, p. 37. C.A.D. SOARES, *The design features of environmental taxes*, London School of Economics, 2011. The contribution concerns environmental taxes in general but conducts several cases study about carbon taxes.
[91] E. HAITES *& al.*, 'Experience with Carbon Taxes and Greenhouse Gas Emissions Trading Systems', *op. cit.*, p. 118.

differ in terms like rate level and coverage. In addition, the design of carbon taxes has changed over time. These variations are illustrated in Table 2 below.

When they are implemented in law, carbon taxes do not cover all emission sources; their scope is limited to some emission sources or gases.[92] Their rates vary and are often very far from those prescribed by economic studies[93] and they generally contain important derogations including tax reductions or exemptions. In this sense, Argentina's carbon tax covers twenty percent of the country's GHG emissions and its rate equals US$10/$tCO_{2eq}$.[94] It is levied on the major fossil fuels used for heating or transport purposes but exempts natural gas and LPG.[95] By contrast, Chile's carbon tax is imposed downstream on facilities emitting at least 25,000 tCO_2, although its rate is set at the same level[96]. Switzerland's carbon tax has yet another design. It is set at a rate ten times higher than the Argentinian or Chilean one (US$101/$tCO_{2eq}$). At one time it was restricted to fossil fuels used for heating purposes but recently has been expanded to transport.[97] This illustrates that the design of a carbon tax is not fixed.

The Swedish carbon tax further illustrates this point. This country adopted a carbon tax in 1991 that was levied on fossil fuels, establishing itself as one of the first movers in carbon taxation. It then modified the existing base of energy taxes towards two components: CO_2 emissions and calorific content.[98] The rate was originally set at SEK 250 (EUR 24) per tonne of CO_2 emission, to be gradually increased to SEK 1,200 (EUR 114) in 2021.[99] Under this system, prior to 2018, firms benefitted from a lower rate than individuals. When the EU-ETS was introduced, industries participating in this Swedish scheme were exempted. In France, the energy-climate contribution was enacted as an additional component of prevailing excise duties on energy.[100] Unlike Sweden, however, the tax base of France's energy taxes, on which the carbon component is added, is not

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92 For an overview see M.S. ANDERSEN, 'The politics of carbon taxation', *op. cit.* See also UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.*

93 Even though these studies vary. See *Infra* chapter 3, 2.3.

94 Based on Argentina's comprehensive tax reform and its new carbon and liquid fuels tax, April 2018, retrieved from https://www.thepmr.org/system/files/documents/Argentina%2018-04-11%20Tax%20reform%20-%20Carbon%20tax.pdf. See also UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.*, p. 114.

95 *Ibid.*, p. 86.

96 UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.* See also https://carbonpricingdashboard.worldbank.org/map_data.

97 Information retrieved from https://carbonpricingdashboard.worldbank.org/map_data.

98 M.S. ANDERSEN, 'Reflections on the Scandinavian Model: Some Insights into Energy-Related Taxes in Denmark and Sweden', *European Taxation*, June 2015, pp. 235-244 ; SWEDISH MINISTRY OF FINANCE, 'Insights and outlook on carbon taxation in the EU non-ETS sectors'', COP24 Side event in the Benelux Pavilion, Katowice, 13 December 2018.

99 Information retrieved from https://carbonpricingdashboard.worldbank.org/map_data.

100 On the French carbon tax see A. MAGNANT, 'La taxe carbone en France : la troisième tentative est la bonne', *Revue française de finances publiques*, 2015, vol. 131, p. 239.

the calorific content of energy products. On the top of this, these taxes include a wide range of derogations (e.g. in favour of agriculture and energy-intensive industries), which means that at the end of the day, the amount due varies across energy uses.[101]

Thus, we see that there is a clear gap between an idealised carbon tax and its practical adoption. Furthermore, over time carbon taxes have become increasingly hybrid, combining elements of both a carbon tax and emission trading, which could be explained by the planned extension of the EU-ETS to new sectors.[102] For instance, the German ETS and the pending Austrian carbon levy have set a price on emission allowances during a transitional period. In a similar vein, the Dutch carbon tax is applied in combination with the EU-ETS, providing for a carbon floor to this scheme (i.e. the guarantee of minimum carbon price).[103] In all, these multiple carbon tax designs across countries cast doubts on their straightforwardness. Instead, it seems that the conceptualisation of these schemes leaves space for regulatory imagination and diversity across different legal cultures.

[101] L. ROGISSART, S. POSTIC & J. GRIMAULT, *La composante carbone en France : fonctionnement, revenus et exonérations*, Point Climat, October 2018.
[102] See *Infra* Chapter 9, 4 (discussion on the Fit for 55). For a discussion about the role of the EU-ETS in the planned reform in Austria see R. DAMBERGER, 'Austria's ecological tax reform: a model for other EU Member States?', *Kluwer International Tax Blog*, 3 February 2022, available at http://kluwertaxblog.com/2022/02/03/austrias-ecological-tax-reform-a-model-for-other-eu-member-states/ (Last consulted on 2 June 2022).
[103] This change of approach casts doubt on the focus on instrument categories under an instrumental approach.

Country	Adoption year	Rate in USD/tCO_{2eq}	Coverage in % total emissions	Coverage and derogations
Argentina	2018	6	20	Fossil fuels Exemption of natural gas, CNG and international aviation and shipping. Differentiated rate for fuel oil, coke, mineral carbon
British Columbia	2008	32,76	78	Fossil fuels Exemptions for industry, aviation, transport and agriculture sectors
Chile	2017	5	39	Annual tax on facilities emitting at least 25,000 tCO2 (replaces threshold of at least 50 MWt total thermal power capacity of boilers and turbines) Part of the tax on air emissions from contaminating compounds
Denmark	1991	28 (GHGs); 24 (f-gases)	35	Fossil fuels and f-gases Partial exemption and refund for ETS sectors covered by the EU ETS, energy-intensive processes, and many transport activities
France	2014	54	35	Fossil fuel consumption, Exemption of ETS installations and derogations in favour of energy-intensive industries.
Iceland	2010	35 (GHGs); 20 (f-gases)	55	Part of the Environmental and Resource tax Fossil fuels and f-gases Aviation is exempted
Sweden	1991	142,23	40	Fossile fuel consumption, except ETS installations.
Switzerland	2008	101	33	Fossil fuels Exempts installations covered by Swiss ETS, large fossil fuels power plants, installations at risk of carbon leakage

Table 2 Illustration of the design of carbon taxes, based on the World Bank carbon pricing dashboard and own research

4. OBJECTIVES, LIMITS AND STRUCTURE OF THE RESEARCH

The previous Section clearly showed that in practice, carbon taxes assume a variety of shapes and are difficult to adopt. This state of affairs seems hard to reconcile with the assumptions that a carbon tax is a simple and straightforward solution to climate change. In light of this, the present research questions the validity of these assumptions and answers this question by interrogating the relationship between the carbon tax and the law. In particular, it aims to respond to the following research questions:

> Is a carbon tax as simple and straightforward as assumed or are these assumptions illusive?
>
> What is the role of the law in the apparent contradiction between the assumed simplicity and straightforwardness of carbon taxes and their implementation in practice?

> What is the role of the law in the definition of a carbon tax and why do some regulatory strategies 'fail' while others succeed?

To do so, I proceed as follows. The first step is to review how legal scholarship answers these questions (Chapter 2). Beforehand, I classify the existing literature depending on how the *role* played by the law and carbon taxes is apprehended. I find that the literature has two main ways to define this concept. The first one, which appears to be prevalent, understands the relationship between the response to climate change and the law in instrumental terms; that is, carbon taxes and the law are portrayed as tools to remedy climate change. Another strand of the literature follows what I qualify as a substantive approach. It attributes a more constitutive role to the law in the definition of environmental problems. While this part of the scholarship is scarcer when it comes to discussing the topic of carbon taxes, it has undeniable value. It should be noted that the delineation between these two strands of the literature is not clear-cut because authors do not necessarily proclaim themselves as following an instrumental or substantive approach.

Overall, I find that the way in which scholars think about the relationship between the response to climate change and the law influences how they respond to the questions above. When they follow an instrumental perspective, authors generally do not question and even propagate the assumption that a carbon tax is a simple and straightforward response to climate change, even though they generally do recognise the discrepancies between theory and practice. They often attribute a limited role to the law in shaping the legal response to climate change, compared to other factors (*e.g.* political feasibility or lobbying). The law is rather viewed as a mere constraint or barrier to the adoption of carbon taxes. A share of this scholarship also relegates the legal context a to 'clean clinic', where the influence of legal culture in shaping climate law is ignored.[104] On the other, substantive, side, I find that no in-depth study has been conducted in relation to carbon taxes following a substantive approach, even though some contributions have focused on other types of market-based instruments (such as the CBAM or the EU-ETS).[105]

My conclusion of this literature review is that following a substantive approach can help bring into light a different story on the relationship between carbon taxes and the law. This, however,

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[104] Expression borrowed from M. PEETERS et R. UYLENBURG, 'Concluding observations: Three core themes', in *EU Environmental Legislation*, Cheltenham, Edward Elgar Publishing, 2014, p. 240, available at http://www.elgaronline.com/view/9781781954768.00020.xml (Last consulted 2 June 2022). See also E. FISHER *et al.*, 'Maturity and Methodology: Starting a Debate about Environmental Law Scholarship', *Journal of Environmental Law*, January 2009, vol. 21, n° 2, p. 233.

[105] S. BOGOJEVIĆ, *Emissions trading schemes: markets, states and law*, Oxford : Portland, Oregon, Hart Publishing, 2013 ; A. PIRLOT, 'Carbon Border Adjustment Measures', *op. cit.*

calls for establishing a revised analytical framework (Chapter 3). Building on literature from various disciplines, I find it relevant to look at the law as an *ecosystem* where different frameworks *interacting* with each other *categorise* the world according to multiple *frames*. I deduce from economic literature on carbon taxes, and in particular the conclusion that such taxes should impose a uniform carbon price, that the most relevant category for studying this issue is whether situations are comparable or different (equal treatment). I have decided to use this legal principle as an analytical tool, as opposed to studying whether given categories are lawful. The establishment of this analytical framework highlights the bold ambition of this research and its regard to rigorous methodology. It has come about through a process of doing-by-learning and learning-by-doing, by moving back and forth between analysis of the law and identification of the blocks in my analytical framework.

In Chapter 4, this analytical framework is refined in the context of the EU legal order. This is a key step because it underlines the significance of the legal context. The focus on EU law is justified as follows. Firstly, the EU has given attention to the use of economic regulation, including carbon taxes, to mitigate climate change and has taken legislative steps towards this end. Secondly, the EU has presented itself as a leader in combating climate change.[106] That is not to say that the EU law and policy are necessarily consistent with this ambition, yet it points out that climate change is a matter of concern for the EU. Finally, following the CJEU judgement *Arcelor de Lorraine* which put forward that the different sources of GHG emissions are in principle in a comparable situation,[107] an eminent scholar underscored the worth 'to start a research project based on the assumption that all emitters are put under the same instrument, and that exceptions should rest on a strong justification.'[108] In my view, this call has remained insufficiently answered and this research intends to partly fill this gap.

Subsequently, in a third step, I conduct cross case comparisons by applying the analytical framework established previously on a series of EU initiatives aimed at responding to climate change (Chapters 5-9). These initiatives are the ill-fated 1992 Proposal for a Directive introducing a tax on CO_2 emissions and energy (hereinafter '1992 Proposal') and 2011 Proposal for a

[106] J. DELBEKE & P. VIS, 'EU climate leadership in a rapidly changing world', *in* J. DELBEKE et P. VIS (éds.), *EU climate policy explained.*, 2015, pp. 4-25. See also S. BOGOJEVIC, 'Legalising Environmental Leadership: A Comment on the CJEU'S Ruling in C-366/10 on the Inclusion of Aviation in the EU Emissions Trading Scheme', *Journal of Environmental Law*, July 2012, vol. 24, n° 2, pp. 345-356.
[107] CJEU, Arcelor Atlantique et Lorraine and Others, 16 December 2008, C-127/07, § 34.
[108] M. PEETERS, 'Instrument mix or instrument mess? The administrative complexity of the EU legislative package for climate change', in *EU Environmental Legislation*, Cheltenham, Edward Elgar Publishing, 2014, p. 188, available at http://www.elgaronline.com/view/9781781954768.00016.xml (Last consulted on 2 June 2022).

Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity (hereinafter '2011 Proposal'), and the EU ETS Directive, as last revised by Directive 2018/410.[109] The comparison between both tax proposals aims to isolate the role of the changing legal environment in the design of the carbon tax proposed. The focus on the EU-ETS is explained by the fact that in theory, such a scheme also permits to implement a uniform carbon price. This scheme is compared with the carbon tax proposals in a substantive way in the aim to elucidate whether reasons other than differences in terms of type of instrument used (tax vs. cap and trade) could explain why the former failed to be adopted while the second established itself as the 'cornerstone' of EU climate policy.[110]

Ultimately, the limits of this research should be pointed out. *Firstly*, my goal is merely analytical. As such, I refrain from making prescriptions as to what should be done to (better) address climate change, what should be the role of taxes and the law should be in this response or how carbon taxes should be designed. *Secondly*, these analyses are circumscribed to case studies within one specific legal order. The findings need to be understood in this context, even though some of them might be generalisable. Unlike the case studies, the analytical framework is deemed to be replicable and could be used to study other legal orders for future research. *Thirdly*, I do not go into comparative law analyses between countries. I consider that the role of the legal context is sufficiently illuminated with the revised framework of analysis proposed and by applying this framework to the case studies. *Finally*, although the revised analytical framework is rooted in different disciplines, the analyses carried out in this study remain legal. This is thus only one, yet I believe important, angle to study the response to climate change.

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[109] Commission of the European Communities (1992). Proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy, 30 June, COM(92) 226 final (hereinafter '1992 Proposal'); European Commission, Proposal for a Council Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity, 13 April 2011, COM(2011) 169 final; Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, OJ L 275, 25 October 2003, p. 32–46 (hereinafter 'ETS Directive').

[110] As noted by S. BOGOJEVIĆ, 'Trading Schemes', *in* E. LEES et J.E. VIÑUALES (eds.), *The Oxford Handbook of Comparative Environmental Law*, Oxford, Oxford University Press, 6 May 2019, pp. 925-948, available at http://oxfordhandbooks.com/view/10.1093/law/9780198790952.001.0001/law-9780198790952-chapter-41 (Last consulted on 2 June 2022).

Chapter 2
Carbon taxes in legal scholarship, a matter of instrument?

1. INTRODUCTION

The previous Chapter questioned the assumption that a carbon tax is a simple and straightforward strategy to remedy climate change. It argued that the observation that in practice carbon taxes are difficult to adopt and assume a variety of shapes is hard to reconcile with the above assumption. This Second Chapter conducts a literature review to determine how legal scholarship explains the role of the law in this contradiction. It distinguishes two main approaches through which this question is examined. These distinct approaches express diverging perspectives on the concept of *role*. The first one is 'instrumental'. This approach portrays carbon taxes and the law as tools to remedy climate change and places the focus on instrument categories (Section 2). The second one is 'substantive'. It attributes a more constitutive role to the law in defining and problematising the challenge posed by climate change and its solutions. It also concentrates on what is being regulated rather than on the instrument used (Section 3).

In light of these analyses, I make the following findings. The first finding is that under an instrumental mindset, authors do not generally question the assumed simplicity and straightforwardness of carbon taxes. I also find that this scholarship is largely influenced by economic theory. It tends to promote the adoption of carbon taxes over other regulatory strategies and revision of the law to achieve this end. The contradiction above is often recognised but tends to be explained primarily by invoking non-legal elements (*e.g.* lobbying). Many scholars propose technical solutions (*e.g.* revenue recycling) to overcome the difficulties in enacting a carbon tax which are commonly presented as universal. Along the same lines, they tend to attribute a limited role to the law, which is presented as a mere constraint or limit. Sometimes, legal analyses are even lacking. A part of this scholarship also tends to ignore the contextual particularities of each legal system or conducts comparative analyses with the intent to identify best practices and transplant them. The result is that this scholarship plays a role in spreading these assumptions.

Another part of legal scholarship has embraced a substantive approach. While this scholarship also enters in dialogue with other disciplines, it is less influenced by economic thoughts. Although it encompasses a relatively substantial number of contributions, none of them provides

an in-depth analysis of the topic of carbon taxes. A review of the advantages and disadvantages of this approach brought me to the conclusion that it is valuable but also methodologically more challenging that the previous one. These analyses bring me to the final point of this Chapter (Section 4): neither of the two perspectives fully helps make sense of the contradiction between theory surrounding carbon taxes and practice. I conclude that the substantive approach is worth following, as the instrumental one has led to what I consider to be a dead end. Nonetheless, following such a substantive approach requires establishing a revised analytical framework that is suitable for the purpose of this research, which is set out in the next Chapter.

Before I start, a number of caveats must be made. Legal scholarship on carbon taxes is dense and diversified. It involves specific analyses of this topic, on the one hand, and broader writings on climate or environmental law, or even tax law, on the other hand. Some of them follow an interdisciplinary approach whilst others are solely legal. The result is that the depth of the analysis as well as the perspective varies. This scholarship is also extensive, with contributions dating back to the 1980s. Finally, the topic of carbon taxes has gathered interest from all over the world, creating a transboundary dialogue. The consequence is that a sizable number of contributions have piled up over the years. Therefore, this literature review does not claim to be exhaustive. Capturing entirely this complexity would require a level of nuance and depth that is beyond the purpose of this research. In this context, I argue that contributions selected represent sufficiently the main developments and positions in the field. Annex I include a table that classifies the contributions reviewed according to their period, territorial focus and the research question they ask to further refine the analyses.

This literature review has followed two steps. I first conducted a narrow search, by entering terms such as 'carbon tax', 'CO_2 tax', or 'tax' and 'climate change' into legal databases.[111] I restricted my review to scholarly contributions published by legal scholars in English and in French. Admittedly, this tends to strike a balance in favour of English or French-speaking authors and thus to certain jurisdictions. This is a limit that needs to be acknowledged. I then set aside contributions merely mentioning these terms without discussing them. I also excluded contributions which, although included in legal journals, were not written by at least one legal scholar. I then examined the scholarship referenced by these writings and followed the same methodology. In a second step, I expanded my research to scholarly contributions that did not discuss carbon taxes directly but spoke of climate change or other types of environmental

[111] In particular, Heinonline, Westlaw, Scopus, Jura and Strada.

problems more generally, with a view to assessing whether a perspective other than instrumental existed.[112]

2. AN INSTRUMENTAL APPROACH TO THE RELATIONSHIP BETWEEN THE RESPONSE TO CLIMATE CHANGE AND THE LAW

By reviewing literature on carbon taxes, I have found that the most prevalent approach adopted in legal scholar studies on carbon taxes is the instrumental perspective. This Section first introduces the key tenets of an instrument approach in legal scholarship (2.1). I then untangle the different prisms through which the literature has projected taxes as an instrument of climate mitigation (*e.g.* to internalise the external costs of climate change) (2.2). Finally, in Sub-Section 2.3, I highlight the consequences of an instrumental approach in the way legal scholars explain the role played by the law in the contradiction between the assumed simplicity and straightforwardness of carbon taxes and their implementation in practice.

2.1. Defining the concept of 'instrumental approach'

Several authors[113] have identified the existence of an instrumental approach in legal scholarship. As noted at the outset of this research, the terms 'instrumental mindset' are referred to as a 'pattern of thought' that is 'entirely focused on whether the law is instrumentally effective in serving specified regulatory purposes and policies'.[114] As Roger Brownswords specifies:

> 'The question is: what works, what will serve certain specified purposes? When a regulatory intervention does not work, it is not enough to restore the status quo; rather, further regulatory measures should be taken, learning from previous experience, with a view to realising the regulatory purposes more effectively.'[115]

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[112] In effect, although the topic of carbon taxation does not need to be analysed according to an instrumental perspective, scoping a research to a specific instrument category is arguably the result of an instrumental approach.
[113] B. LANGE, *Implementing EU pollution control: law and integration*, Cambridge studies in European law and policy, Cambridge, UK ; New York, Cambridge University Press, 2008, pp. 38-39 ; E. FISHER *et al.*, 'Maturity and Methodology', *op. cit.*, pp. 224 & 229 ; S. BOGOJEVIC, 'Ending the Honeymoon: Deconstructing Emissions Trading Discourses', *Journal of Environmental Law*, January 2009, vol. 21, n° 3, p. 449 ; E. FISHER, *Imagining Technology and Environmental Law*, 1, *op. cit.* ; E. SCOTFORD, *Environmental principles and the evolution of environmental law*, Oxford ; Portland, Oregon, Hart Publishing, 2017. N. AFFOLDER, 'Beyond law as tools: foreign investment projects and the contractualisation of environmental protection', *in* P.-M. DUPUY & J.E. VINUALES (éds.), *Harnessing Foreign Investment to Promote Environmental Protection*, Cambridge, Cambridge University Press, 2013, pp. 355-382, available at https://www.cambridge.org/core/product/identifier/9781139344289%23c03077-13-1/type/book_part (Last consulted 2 June 2022). S. Caudal uses the term 'perspective finaliste' in S. CAUDAL, 'Equité et fiscalité environnementale', La Rochelle (France), 2011.
[114] R. BROWNSWORD, 'Law Disrupted, Law Re-Imagined, Law Re-Invented', *op. cit.* R. BROWNSWORD, 'Law and Technology: Two Modes of Disruption, Three Legal Mind-Sets, and the Big Picture of Regulatory Responsibilities', *op. cit.* ; A.J. COCKFIELD, 'Towards a Law and Technology Theory', *op. cit.*
[115] M.G. FAURE, 'Effectiveness of Environmental Law', *op. cit.*, p. 295.

This explanation highlights that an instrumental mindset can be detected by screening the research question(s) and conclusion(s) across scholarly contributions. Instrumental law, as Bettina Lange ascertains, is 'outcome driven'; instrumental perspectives, she adds, regard the law as a 'mechanism, tool and technique'.[116]

Such mindset has been pointed out in different fields of law, such as technology law but also environmental law.[117] As Faure notes, 'Many environmental lawyers have, of course, looked at the empirical evidence concerning the effectiveness of environmental legal instruments'.[118] A share of this literature (known as 'instrument choice') explicitly claims to be instrumental. This scholarship has been concerned with determining the 'best path' to address environmental problems, including climate change.[119] It gathers authors from various disciplines including economists, political scientists and, less prominently, lawyers.[120] As part of this movement, some have identified what 'toolbox' is available for regulators, and have provided guidance to evaluate and compare alternative instruments.[121] In this view, a policy instrument represents a 'tool that is used to achieve a goal'[122] and regulators 'seeking to constrain environmental externalities can choose instruments from a well-stocked toolbox'.[123]

This scholarship has classified regulatory strategies into well-defined categories, depending on each regulatory strategy's (theoretical) features. Towards this end, they have developed theoretical assumptions on how regulatory instruments function and on their ability to alleviate environmental problems. The main regulatory strategies are comprised of both traditional and

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116 B. LANGE, 'Searching for the best available techniques – open and closed norms in the implementation of the EU Directive on Integrated Pollution Prevention and Control', *International Journal of Law in Context*, 2006, vol. 2, n° 01, p. 67.

117 See *supra* foonote 113.

118 M.G. FAURE, 'Effectiveness of Environmental Law', *op. cit.*, p. 295.

119 Definition of instrument choice borrowed from J. SALZMAN, 'Teaching policy instrument choice in environmental law: The five p's', *Duke Environmental Law & Policy Forum*, 2013, vol. 23, n° 2, p. 363.

120 Examples of this literature include K.R. RICHARDS et J.A.W. van ZEBEN (éds.), *Policy instruments in environmental law*, Elgar encyclopedia of environmental law, n° volume VIII, Cheltenham, UK ; Northampton, MA, Edward Elgar Publishing, 2020. J. GOLUB (ed.), *New instruments for environmental policy in the EU*, Routledge/EUI environmental policy series, London ; New York, Routledge, 1998. For an overview see N. GUNNINGHAM, 'Environment Law, Regulation and Governance: Shifting Architectures', *Journal of Environmental Law*, January 2009, vol. 21, n° 2, pp. 179-212.

121 About the toolbox vision see E FISHER, 'Unpacking the Toolbox: Or Why the Public/Private Divide is Important In EC Environmental Law', Law' in M Freedland and J-B Auby (eds), *The Public Law/Private Law Divide: Une Entente Assez Cordiale? la Distinction du Droit Public et du Droit Privé: Regards Français et Britanniques,* Hart Publishing, Oxford, 215..

122 K.R. RICHARDS et J.A.W. van ZEBEN (eds.), *Policy instruments in environmental law*, *op. cit.*, p. 4.

123 J.B. WIENER, 'Global Environmental Regulation: Instrument Choice in Legal Context', *The Yale Law Journal*, s.d., p. 125 ; M. PEETERS', 'The law as an instrument for climate protection: the case of integrated approaches to understanding emissions trading', in *Sustainable Development Research at ICIS – Taking stock and looking ahead-2*, 2016 ; D. ELLIOTT, « EPA's Existing Authority to Impose a Carbon "Tax" », *Environmental Law Reporter News & Analysis*, 2019, vol. 49, n° 10, pp. 10919-10924. The latter notes 'It is long past time that emission charges should take their rightful place in EPA's toolbox of instruments available to regulate pollution, including GHG pollution'.

economic regulation, including taxes and cap-and-trade systems.[124] It is worth noting that these terms are not used consistently; the terms 'market-based instrument', 'economic incentive', or 'economic regulation' are sometimes used interchangeably in the literature.[125]

The first category is traditional regulation, also negatively assimilated to 'command and control' in reference to the Soviet Union.[126] It refers to regulatory strategies 'that specify both the regulatory goals and the means by which they are to be achieved'.[127] It encompasses technology-based standards, emission limits, product bans, environmental quality standards.[128] On the other side, economic regulation – or market-based instruments – does not prescribe how the goal should be achieved; it 'steer[s] behaviours in the desired direction' through price signals, leaving flexibility to the market to determine what amount of pollution will be abated and how.[129] Among other things, economic regulation includes taxes, cap-and-trade systems, subsidies and deposit funds.[130]

As observed by Sanja Bogojević, those comparisons 'were the typical starting point for environmental law discussions in the 1980s'.[131] This period was characterised by doubts regarding the environmental efficiency and cost-effectiveness of traditional regulation, as governments were under pressure from industries to reduce the costs of compliance with environmental regulation.[132] These discussions, she adds, involved (and still involve today) two entangled 'analytical frames': a 'promotional' frame that entailed the promotion of one regulatory option over another and a 'dichotomous' frame, where regulatory strategies were compared based on

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[124] Note also that there are also voluntary strategies and labels.
[125] S. BOGOJEVIĆ, 'Trading Schemes', *in* E. LEES & J.E. VIÑUALES (eds.), *The Oxford Handbook of Comparative Environmental Law*, Oxford, Oxford University Press, 6 May 2019, p. 929, available at http://oxfordhandbooks.com/view/10.1093/law/9780198790952.001.0001/law-9780198790952-chapter-41 (Last consulted on 2 June 2022).
[126] D. COLE, 'Explaining the persistence of 'command and control' in US environmental law', in *Policy instruments in environmental law*, Elgar Encyclopedia of Environmental Law series, 2020. P. 158 ; M. LEE, *EU environmental law: challenges, change and decision-making*, Modern studies in European law, n° v. [6], Oxford ; Portland, Oregon, Hart Pub, 2005, p. 183.
[127] D. COLE, 'Explaining the persistence of 'command and control' in US environmental law', *op. cit.*, p. 159.
[128] *Ibid.* N. de SADELEER, *EU environmental law and the internal market*, Oxford, United Kingdom, Oxford University Press, 2014, p. 214.
[129] R.B. STEWART, 'Instrument Choice', *in* D. BODANSKY, J. BRUNNÉE & E. HEY (eds.), *The Oxford Handbook of International Environmental Law*, Oxford, Oxford University Press, 7 August 2008, p. 151, available at http://oxfordhandbooks.com/view/10.1093/oxfordhb/9780199552153.001.0001/oxfordhb-9780199552153-e-8 (Last consulted on 2 June 2022).
[130] *Ibid.* See also J. PENCA, 'Marketing the Market: The Ideology of Market Mechanisms for Biodiversity Conservation', *Transnational Environmental Law*, October 2013, vol. 2, n° 2, p. 250.
[131] S. BOGOJEVIĆ, 'Trading Schemes', *op. cit.*, p. 933. See also E. FISHER, « Imagining Technology and Environmental Law », *op. cit.*
[132] P. EKINS, 'European environmental taxes and charges: recent experience, issues and trends', *Ecological Economics*, October 1999, vol. 31, n° 1, pp. 39-40; N. GUNNINGHAM, 'Environment Law, Regulation and Governance', *op. cit.*, p. 185.

their merits and drawbacks.[133] Even though the literature emerged in the US context, it has influenced modern environmental law outside that territory.[134] For example, the US's influence on the EU-ETS is well documented and quite apparent in the communications surrounding the EU-ETS.[135]

Admittedly, however, legal scholarship on carbon taxes is not entirely part of this instrument choice literature. Many contributions do not elaborate on the respective merits of the different regulatory strategies but do see the law as an instrument. Some writing can be very obvious about this; for instance, 'The law basically can be seen as a powerful *instrument* that governments can use to guide actors in society towards a particular policy goal'.[136] Others may be more implicit. For those writings, the existence of an instrumental perspective can be unveiled by screening the vocabulary used (*e.g.* 'instrument' and 'tool' to characterise taxes and the law, and of 'effective', 'efficient' to assess them). These elements are particularly remarkable in the introductions where the scholars lay out their approach and/or intention (*e.g.* in the determination of their research question and/or starting point) and in the conclusion, where authors may go beyond strict legal descriptions or reasoning and make policy prescriptions.

2.2. **Carbon taxes as an instrument to remedy climate change**

The presentation of a carbon tax as a (better) instrument of climate mitigation has been a common denominator of many scholarly discussions. Statements such as '[c]arbon taxation can play a crucial role in achieving (long-term) emission reduction targets'[137], or a 'carbon tax is an

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[133] As observed by S. BOGOJEVIĆ, 'Trading Schemes', *op. cit.* ; D. COLE, 'Explaining the persistence of 'command and control' in US environmental law', *op. cit.*, p. 159.

[134] P. EKINS, « European environmental taxes and charges », *op. cit.* ; N. GUNNINGHAM, « Environment Law, Regulation and Governance », *op. cit.*
P. EKINS, (1999). European environmental taxes and charges: Recent experience, issues and trends. *Ecological Economics*, *31*(1), 39–62. https://doi.org/10.1016/S0921-8009(99)00051-8; N. Gunningham (2009). Environment Law, Regulation and Governance: Shifting Architectures, Journal of Environmental Law 21:2.. For an early comment see K. DEKETELAERE, "The use of economic instruments in the European environmental policy", *Elsa Law Review*, 1993, pp. 45-67.

[135] Commission of the European Communities (1998). Towards an EU post-Kyoto strategy, 3 June, 98(353) Final; Commission of the European Communities (1999). Preparing for implementation of the Kyoto Protocol, 19 May, COM(99)230. See also J. DREGER, 'The Commission's Puzzling and Powering over the Revision of the Emissions Trading Scheme', in *The European Commission's Energy and Climate Policy*, London, Palgrave Macmillan UK, 2014, pp. 62-109, available at http://link.springer.com/10.1057/9781137380265_3 (Last consulted on 2 June 2022); J. DREGER, 'The Commission's Strategies for Designing an Emissions Trading Scheme for the European Union', in *The European Commission's Energy and Climate Policy*, London, Palgrave Macmillan UK, 2014, pp. 28-61, available at http://link.springer.com/10.1057/9781137380265_2 (Last consulted on 2 June 2022).

[136] M. PEETERS', 'The law as an instrument for climate protection: the case of integrated approaches to understanding emissions trading', *op. cit.*, p. 215.

[137] I. BURGERS et S. WEISHAAR, 'Designing Carbon Taxes Is Not an Easy Task Legal Perspectives', *op. cit.*, p. 1.

effective tool to reduce carbon emissions'[138] are not uncommon. The central point to pick up here is that the scholars' focus is on the instrument category rather than on what this instrument is regulating exactly and how. To put it simply, authors concentrate on the 'envelope' rather than the contents of this envelope. Nonetheless, the motives and theoretical foundations underpinning this form of promotion are varied. Legal scholarship does not see carbon taxes through a uniform prism; carbon taxes are instead conceived through 'a kaleidoscope of hopes and objectives'.[139]

In light of this, this Section pursues a two-fold objective. Firstly, it aims to unmask the instrumental perspective through which legal scholars understand and support the role of carbon taxes in responding to climate change. Secondly, it seeks to untangle the main prisms underpinning it and to outline the main theoretical elements of each of these prisms. Therefore, it refers both to legal and non-legal contributions. It identifies the following appraisals of a carbon tax: as an instrument of external costs internalisation (2.2.1.), as an instrument implementing the polluter pays principle (2.2.2), as a market-based instrument (2.2.3) or as a fiscal instrument (2.2.4) and finally, as a carbon pricing instrument (2.2.5).

2.2.1. *An instrument for external costs internalisation*

A carbon tax is neither a novel strategy to address climate change nor the prerogative of legal scholars; it has long-standing roots in economics. Imposing a tax on carbon emissions is presented as a solution to the problem of un-costed externalities. The basic idea is the following: Externalities refer to 'situations when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided'.[140] That is, the cost of GHG emitting imposed on society is not reflected in the price emitters pay for their polluting activities. Un-costed externalities lead to market failure, which justifies State intervention.[141] Market failures are seen as a problem from an economic standpoint because they lead to efficiency losses; in other words, with market failure,

[138] D.H. DENG, 'Improving the Legal Implementation Mechanisms for a Carbon Tax in China', *Pace Environmental Law Review*, 2015, vol. 32, n° 3, p. 695.
[139] Expression borrowed from S. BOGOJEVIĆ, 'Trading Schemes', *op. cit.*, p. 930.
[140] Glossary of Industrial Organisation Economics and Competition Law, compiled by R. S. Khemani and D. M. Shapiro, commissioned by the Directorate for Financial, Fiscal and Enterprise Affairs, OECD, 1993.
[141] In this sense K.R. RICHARDS et J.A.W. van ZEBEN (éds.), *Policy instruments in environmental law*, *op. cit.*, p. 5. E. FISHER, 'Environmental Law as "Hot" Law', *Journal of Environmental Law*, November 2013, vol. 25, n° 3, p. 348.

markets do not function as efficiently as they should. Climate change has been described as 'the biggest market failure the world has ever seen'.[142]

The idea of using taxes to address environmental problems is generally traced back to the 1920s, in reference to Arthur Cecil Pigou's seminal work *The Economics of Welfare*.[143] Although the author was not the first to study the role of social costs in economics, he placed an emphasis on the concept of externalities and came up with the idea of using taxes as a way to capture – or internalise – them.[144] A tax can force the internalisation of those costs, creating a price signal that will orient choices, purportedly towards less environmentally harmful options. With a tax, polluters thus have an incentive to continue reducing their emissions as long as the cost to reduce them – the abatement costs – are below marginal costs. This is deemed to address residual pollution and foster innovation.[145] As such, carbon taxes are sometimes studied as a part of broader environmental tax discussions.[146]

With his work on externalities, Pigou's perspective was welfare maximisation, with a view to ensuring an efficient and steady State.[147] Thus, at the heart of this approach lies the policy goal of ensuring economic efficiency. Economic efficiency implies maximising the net social benefits for society, that is, the social benefits minus the social costs.[148] A necessary but insufficient condition for economic efficiency is that the policy needs to be cost-effective. Cost-effectiveness means achieving a policy goal at the lowest social cost. It supposes the equalisation of marginal pollution costs (that is the price of each additional unit of pollution) among different polluters. In strict design conditions, a Pigouvian tax ensures an economically efficient (or socially optimal) level of pollution. The underlying goal of Pigouvian taxes is not to eradicate pollution, as zero pollution is generally not considered optimal.[149]

The high-profile that carbon taxes have enjoyed among economists, has filtered down to environmental law scholarship. Pigou's theory of external cost internalisation is frequently cited

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142 N. STERN, *The Economics of Climate Change: The Stern Review*, Cambridge, Cambridge University Press, 2007, p. viii, available at http://ebooks.cambridge.org/ref/id/CBO9780511817434 (Last consulted on 2 June 2022).
143 A.C. PIGOU (1920). *The Economics of Welfare*.
144 J.E. MILNE, & M. SKOU ANDERSEN, « Introduction to environmental taxation concepts and research », in *Handbook of Research on Environmental Taxation*, Northampton, Edward Elgar Publishing, 2014, pp. 15-32, at 17.
145 This issue is explored in more details *Infra* in Chapter 3.
146 For instance A. PIRLOT, 'Exploring the impact of European Union Law on Energy and Environmental Taxation', in *Research handbook on European Union taxation law*, Cheltenham, UK ; Northhampton, MA, Edward Elgar Publishing, 2020 ; VIESSENT, 'La fiscalité environnementale de l'Union européenne in Fumaroli', *op. cit.*
147 In this sense H.J. HOVENKAMP, 'The Coase Theorem and Arthur Cecil Pigou', *Arizona Law Review*, 2008, vol. 51, p. 635. It is worth noting that valuing those external costs is challenging (See *Infra* Chapter 3).
148 K.R. RICHARDS et J.A.W. van ZEBEN (éds.), *Policy instruments in environmental law*, *op. cit.*
149 G.E. METCALF, *Paying for pollution*, *op. cit.*, p. 39.

to legitimise a legal analysis of carbon taxes and in some cases its promotion.[150] Referring to Pigou, one legal scholar justifies the focus on carbon taxation as 'one of the important tax measures that could lead to behavioural change in carbon consumption patterns'.[151] In a similar vein, legal scholars often relay economic theory that concludes that a tax is a (more) cost-effective and economically efficient strategy to mitigate climate change.[152] For instance, Lucas underscores that 'economists across the political spectrum argue that a carbon tax is the most effective and economically efficient policy available'.[153]

Taxes are not the only way to address the problem of externalities. Other possible options include civil liability, standards and emission limits, voluntary agreements and market-based instruments. However, these different options are not equally capable of internalising negative externalities and therefore, differ as to their ability to ensure economically efficient policies. Traditional regulations, in particular, are not considered to be an economically efficient option, on the grounds that they 'cannot ensure equalisation of marginal pollution costs among different polluters and thus the government winds up distorting the market and pricing winners and losers'.[154] This would demand that regulators determine the efficient pollution level for all activities and thus know the costs and benefits in each case. In addition, traditional regulations are claimed to involve higher information and enforcement costs.[155]

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[150] For instance, S.-L. HSU, 'A Complete Analysis of Carbon Taxation: Considering the Revenue Side', *Buffalo Law Review*, 2017, vol. 65, n° 4, p. 866. A. MAGNANT, 'La taxe carbone en France : la troisième tentative est la bonne', *op. cit.*, p. 239 ; N.J. CHALIFOUR, 'A Feminist Perspective on Carbon Taxes', *Canadian Journal of Women and the Law*, January 2010, vol. 22, n° 1, pp. 177-178 ; J. MASUR et E.A. POSNER, 'Toward a Pigouvian State', *University of Pennsylvania Law Review*, 2014, vol. 164, p. 57 ; Y. MARGALIOTH, 'Tax Policy Analysis of Climate Change', *op. cit.* ; I. SCHLEGEL, 'The Future of European Energy Taxes in the Context of Environmental Policy Instruments', *Carbon & Climate Law Review*, 2014, vol. 2, p. 11 ; E. TRAVERSA et B. TIMMERMANS, 'Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives', *op. cit.* W. MASTOR, 'La contribution carbone à la lumière de la décision du Conseil constitutionnel du 29 December 2009 : chronique d'une mort - et d'une renaissance ? - annoncées', *op. cit.*

[151] T. FALCÃO, 'Highlights of the United Nations Handbook on Carbon Taxation', *op. cit.*, p. 898.

[152] M. WAGGONER, 'Why and How to Tax Carbon', *op. cit.*, p. 2 ; L. XYNAS, 'Climate Change Mitigation: Carbon Tax - Is it the Better Answer for Australia', *op. cit.* ; R. GILLIS, 'Carbon Tax Shifts and the Revenue-Neutrality Dilemma', *Florida Tax Review*, 2020, vol. 23, n° 1, pp. 293-348 ; N. SHURTZ, 'Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy', *op. cit.*

[153] G.M. LUCAS, 'Voter Psychology and the Carbon Tax', *Temple Law Review*, 2017, vol. 90, n° 1, pp. 3-4.

[154] M.G. FAURE et R.A. PARTAIN, *Environmental Law and Economics: Theory and Practice*, 1st ed., Cambridge, Cambridge University Press, 2019, p. 122, available at https://www.cambridge.org/core/product/identifier/9781108554916/type/book (Last consulted on 2 June 2022).

[155] In this sense B.A. ACKERMAN et R.B. STEWART, 'Reforming Environmental Law', *Stanford Law Review*, May 1985, vol. 37, n° 5, p. 1333.

2.2.2. *An instrument that implements the polluter pays principle*

Along similar lines, the 'polluter pays' principle is also invoked by legal scholars to support the adoption of carbon taxes.[156] This legal principle stipulates that polluters should pay for the harm they cause.[157] There is a clear link between the 'polluter pays' principle and external cost internalisation, although they do not fully overlap.[158]As Sylvie Caudal explains, 'ecotaxes are often seen, rightly or wrongly, as a privileged tool for applying this principle'.[159] The following extract illustrates this point:

> 'Environmentally, a carbon tax implements the "polluter pays" principle, outlined in Principle 16 of the Rio Declaration. Economically, this internalisation through carbon taxation creates a justifiable reason to impose the tax. In summary, a carbon tax mandates that whoever causes the pollution is responsible for bearing the costs of the harm the pollution creates, as well as the cost of minimising future harm."[160]

This statement highlights the interconnection between this principle and external cost internalisation. It is part of the argument that the EU should 'dump' the ETS in favour of a carbon tax.

The founding of environmental taxes, including carbon taxes, on the 'polluter pays' principle distinguishes them from traditional taxes.[161] As Janett Milne outlines, environmental taxation 'is

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156 For instance S. SEWALK, « Europe Should Dump Cap-and-Trade in Favor of Carbon Tax with Reinvestment to Reduce Global Emissions », Washington and Lee Journal of Energy, Climate and the Environment, 2014, vol. 5, pp. 355-416, at 382.

157 About this principle see among others E. SCOTFORD, 'Environmental Principles Across Jurisdictions: Legal Connectors and Catalysts', *in* E. LEES & J.E. VIÑUALES (eds.), *The Oxford Handbook of Comparative Environmental Law*, Oxford, Oxford University Press, 6 May 2019, pp. 650-677, available at http://oxfordhandbooks.com/view/10.1093/law/9780198790952.001.0001/law-9780198790952-chapter-29 (Last consulted 2 June 2022). ; N. DE SADELEER, *Environmental Principles: From Political Slogans to Legal Rules*, 2nd ed., Oxford Oxford University Press, 2020, available at https://oxford.universitypressscholarship.com/view/10.1093/oso/9780198844358.001.0001/oso-9780198844358 (Last consulted 2 June 2022). ; X., *Le principe du pollueur payeur, mythe ou réalité ?*, Les themiales de Riom, 2002, Presses universitaires de Droit de Clermont-Ferrand, 2003; A.C. LIN, 'The unifying role of harm in environmental law', *Wisconsin Law Review*, 2006, vol. 3, pp. 898-984; N. DE SADELEER, 'The Polluter-pays Principle in EU Law – Bold Case Law and Poor Harmonisation', *in* H.C. BUGGE (ed.), *Pro Natura. Festskrift til*, Oslo, 2012, pp. 405-419; B.J. PRESTON, 'Sustainable Development Law in the Courts: The Polluter Pays Principle', in, Hong kong, 2009, p. 13; DE SADELEER, N., « The Polluter-pays Principle in EU Law – Bold Case Law and Poor Harmonisation », *in* H.C. BUGGE (ed.), *Pro Natura. Festskrift til*, Oslo, 2012, pp. 405-419. This principle is further discussed in the EU context, *Infra* Chapter 4, 2.1.

158 See *Infra* Chapter 4, 2.1.

159 S. CAUDAL, 'Equité et fiscalité environnementale', *op. cit.*, p. 185.

160 S. SEWALK, 'Europe Should Dump Cap-and-Trade in Favor of Carbon Tax with Reinvestment to Reduce Global Emissions', *op. cit.*, p. 382.

161 This issue has received a large attention in legal scholarship, notably in countries where taxes are based on the 'ability to pay' (*e.g.* France), *e.g.* N. CARUANA, *La fiscalité environnementale: entre impératifs fiscaux et objectifs environnementaux, une approche conceptuelle de la fiscalité environnementale*, Finances publiques, Paris, L'Harmattan, 2015.
See also S. CAUDAL, 'Equité et fiscalité environnementale', *op. cit.* ; F. BIN, 'Les taxes carbones à l'épreuve du principe d'égalité dans la jurisprudence du Conseil constitutionnel', in, Faculté de droit de Toulon, October 2015.

embedded within an unrelated legal regime designed primarily to achieve non-environmental purposes – government's systems of taxation that exist to generate the resources that governments need to perform their public functions'.[162] As such, it merges two ontologically different fields of law, i.e. tax law and environmental law.[163] The consequence is that legal scholarship on carbon taxes lies at the intersection between these two very different areas of law. Whilst environmental law is the 'law concerned with environmental problems'[164], tax law's core function is to determine the conditions and modalities on which public authorities are allowed to collect revenues.

2.2.3. *As a market-based instrument*

Carbon taxes are also promoted for being a 'market-based' or 'economic' instrument, together with emission trading or subsidies.[165] In the search for better instruments, scholars, including legal scholars, have dichotomised traditional regulation and economic or market-based regulation, with the intent to promote the later.[166] Typically, market-based instruments have been purported to be a more flexible, straightforward, technology-enhancing and even a more democratic strategy than traditional regulation.[167] They give flexibility to actors to determine the level of pollution and how to abate it.[168] They also have an advantage in terms of economic efficiency and cost-effectiveness.[169] Traditional regulations, on the contrary, are often criticised for being

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[162] J. MILNE, 'Environmental Taxation', *in* E. LEES et J.E. VIÑUALES (éds.), *The Oxford Handbook of Comparative Environmental Law*, Oxford, Oxford University Press, 6 May 2019, p. 904, available at http://oxfordhandbooks.com/view/10.1093/law/9780198790952.001.0001/law-9780198790952-chapter-40 (Last consulted on 2 June 2022).
[163] *Ibid.*
[164] E. FISHER, *Environmental law: a very short introduction*, A very short introduction, New York, NY, Oxford University Press, 2017. For different approaches see D. MISONNE (ed.), *À quoi sert le droit de l'environnement ? réalité et spécificité de son apport au droit et à la société*, Droit(s) et développement durable, Brussels, Bruylant, 2019.
[165] Note that these terms are sometimes used interchangeably, sometimes market-based instrument is used more strictly to refer to mechanisms involving more intensively the market. S. BOGOJEVIĆ, 'Trading Schemes', *op. cit.*
[166] As observed by D.M. DRIESEN, 'Is Emissions Trading an Economic Incentive Program?: Replacing the Command and Control/Economic Incentive Dichotomy', *Washington and Lee Law Review*, 1998, vol. 55, n° 2, p. 291.
[167] As noted by J. FREEMAN et C.D. KOLSTAD, *Moving to Markets in Environmental Regulation*, Oxford, Oxford University Press, 1 October 2006, p. 3, avaialble at http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780195189650.001.0001/acprof-9780195189650 (Last consulted on 2 June 2022).
[168] R.B. STEWART, 'Instrument Choice', *op. cit.*
[169] M.G. FAURE et R.A. PARTAIN, *Environmental Law and Economics*, 1st ed., *op. cit.*, chap. 7 ; D.M. DRIESEN, 'Emissions Trading versus Pollution Taxes: Playing Nice with Other Instruments', *Environmental Law*, 2017, vol. 48, pp. 29-80 ; R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.*, pp. 29-30 ; Y. MARGALIOTH, 'Tax Policy Analysis of Climate Change', *op. cit.*; K. DEKETELAERE, 'European environmental policy and the use of market-based instruments', *op. cit.*, p. 48.

inflexible and costly.[170] Authors have pointed to their shortcomings in addressing residual pollution, their 'piecemeal and uncoordinated character', as well as their rapid obsolescence.[171]

Traditional regulations are also believed, 'to freeze technology because it encourages the adoption of the particular technologies chosen by the regulator to establish the standard, regardless of the peculiarities of different production processes'.[172] Other arguments against traditional regulation includes its lack of consideration for the 'holistic effect' of emissions on the environment as a whole.[173] According to Kurt Deketelaere, the advantages of traditional regulation are well known, but also their disadvantages. The author concludes that in the EU 'all these disadvantages mean that often the balance of years of application of direct regulation is (completely negative)'.[174] Best Available Techniques (BATs) requirements, that is, the best techniques (based on a series of criteria) that can be used by firms to develop and or operate their activities (*e.g.* car or cement production), are probably the prime example of the criticism against traditional regulations.[175]

This is supported by the following statement, made by Ackerman and Stewart in a landmark contribution on emission trading:[176]

> 'One of the many problems with BAT strategies is that they ignore the enormous differences among plants and industries and among geographical areas. In view of these differences, it is wildly inefficient to impose nationally uniform technological requirements. It does not seem sensible to impose the same technology on industries in diverse areas regardless of whether they are polluted or clean, populated or empty, or expensive or cheap to clean up. There are other sources of inefficiency as well.'[177]

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[170] For early landmark contributions promoting economic regulation against traditional regulation B.A. ACKERMAN et R.B. STEWART, 'Reforming Environmental Law', *op. cit.* ; J.B. WIENER, 'Global Environmental Regulation: Instrument Choice in Legal Context', *op. cit.* ; K. DEKETELAERE, 'European environmental policy and the use of market-based instruments', *op. cit.* ; C.R. SUNSTEIN, 'Democratizing America through Law', *Suffolk University Law Review*, 1991, vol. 25, n° 949.

[171] R.B. STEWART, 'Instrument Choice', *op. cit.*, p. 156.

[172] J. FREEMAN et C.D. KOLSTAD, *Moving to Markets in Environmental Regulation*, *op. cit.*, p. 151.

[173] M.G. FAURE et R.A. PARTAIN, *Environmental Law and Economics*, 1st ed., *op. cit.*, p. 121.

[174] K. DEKETELAERE, 'EC transport policy and environment and energy taxation.', *Richmond Law & Tax*, Critical issues in environmental taxation: international and comparative perspectives, 2005, p. 101.

[175] In the EU see *Infra* Chapter 4.

[176] Notably B.A. ACKERMAN et R.B. STEWART, 'Reforming environmental law: the democratic case for market incentives', *Columbia Journal of Environmental law*, 1897 1986, vol. 13, p. 171 ; C.R. SUNSTEIN, 'Democratizing America through Law', *op. cit.* For a different perspective see L. HEINZERLING, 'Selling Pollution, Forcing Democracy', *Stanford Environmental Law Journal*, 1995, vol. 14, n° 2, pp. 300-346 ; M. PAQUES, 'Instruments souples, instruments non contraignants, instruments du marché une alternative pertinente?', in *Acteurs et outils du droit de l'environnement. Développements récents, développements*, Louvain-La Neuve, Anthemis, 2010, pp. 42-45. For a critique of the dichotomy between economic regulation and traditional regulation see D.M. DRIESEN, 'Is Emissions Trading an Economic Incentive Program?: Replacing the Command and Control/Economic Incentive Dichotomy', *op. cit.*

[177] C.R. SUNSTEIN, 'Democratizing America through Law', *op. cit.*, p. 955. A similar conclusion is reached by HSU, *The Case for a Carbon Tax Getting Past Our Hang-Ups to Effective Climate Policy*, *op. cit.*, p. 34.

These authors based this promotion on the alleged inefficiencies of BATs in their argument to replace them with economic regulation, in particular emission trading.

2.2.4. *As a fiscal instrument*

A fourth angle through which carbon taxes are promoted is through their fiscal nature. This element demarcates the carbon tax from other market-based instruments.[178] Carbon taxes have been promoted for their ability to provide price certainty, enable revenue to be collected and foster innovation as well as to provide an economically efficient response to climate change.[179] Hsu singles out ten distinct merits of a carbon tax, including economic efficiency, excessive formation of capital, non-interference with other regulatory instruments or jurisdictions, the observation that government is better at reducing 'bads' than increasing 'goods', incentives for innovation, administrability, international coordination and revenue-raising capacity.[180] He argues that '[a]n extremely broad consensus exists among economists and climate experts that a carbon tax is the most economically efficient, most administratively simple, and most effective way to reduce emissions of carbon dioxide and other greenhouse gases'.[181]

Following this approach, carbon taxes and emission trading have been dichotomised. According to Roberta Mann, '[a] carbon tax is better than a cap-and-trade system because of its simplicity, transparency, efficiency, and certainty (of cost)'.[182] The assumed simplicity and straightforwardness, which has already been pointed out, is directly relevant in these debates. In this sense, one legal scholar argues that a carbon tax is simply the best option for the EU, because it 'is uncomplicated in both implementation and design'.[183] Another one highlights '[t]here is no policy instrument that is more transparent and administratively simple than a carbon

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[178] A third line of demarcation opposes taxes and emission trading to subsidies. See J. FREEMAN, 'Efficacy of Carbon Taxes and Recommendations for Cutting Carbon Emissions', *Houston Business and Tax Law Journal*, 2015, vol. 15, n° 2, pp. 268-299. G.M. LUCAS, 'Behavioral public choice and the carbon tax', *op. cit.* ; K. NICASIO, 'States Rise to the Front of Climate Legislation, but Can a State-Level Carbon Tax Work?', *Indiana Law Journal*, 2019, vol. 95, n° 2, pp. 751-772. *Ibid.*, p. 756.

[179] M.W. WARA, 'Instrument Choice, Carbon Emissions, and Information', *Michigan Journal of Environmental & Administrative Law*, 2015, vol. 4, n° 2, pp. 261-302. R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.* ; A.C. CHRISTIAN, 'Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)', *UCLA Journal of Environmental Law and Policy*, 1992, vol. 10, n° 2, pp. 221-282 ; G.M. LUCAS, 'Voter Psychology and the Carbon Tax', *op. cit.*, pp. 5-9 ; K. NICASIO, 'States Rise to the Front of Climate Legislation, but Can a State-Level Carbon Tax Work?', *op. cit.* ; W. MASTOR, 'La contribution carbone à la lumière de la décision du Conseil constitutionnel du 29 December 2009 : chronique d'une mort - et d'une renaissance ? - annoncées', *op. cit.*

[180] S.-L. HSU, 'A Complete Analysis of Carbon Taxation: Considering the Revenue Side', *op. cit.*, p. 861.

[181] *Ibid.*

[182] R.F. MANN, 'How to Overcome Politics and Find Our Green Destiny', *op. cit.*, p. 10122.
R. F. Mann (2009). The case for the carbon tax: How to overcome politics and find our green destiny. Environmental Law Reporter News & Analysis, 39(2), 10118-10126, at 10122.

[183] S. SEWALK, 'Europe Should Dump Cap-and-Trade in Favor of Carbon Tax with Reinvestment to Reduce Global Emissions', *op. cit.*, p. 413.

tax'.[184] A carbon tax, unlike an ETS, can be 'easily implemented, administered, and overseen'.[185] These assumptions are further illustrated by the following statement: 'The basic formula for taxation is universal and relatively simple, building on three fundamental components and a very straightforward mathematical formula. The tax base multiplied by the tax rate equals the tax revenue', that is: Tax base x tax rate = revenues.[186]

Another line of argument is that a carbon tax 'plays nicer' with other instruments or, to put it differently, is better integrated in the whole instrument mix than ETS.[187] Furthermore, carbon taxes are promoted for not being value-laden; that is, they do not seek to punish polluters nor make moral judgements.[188] In that sense, one contribution claims:

> 'Few pollutants are as well suited for Pigouvian taxation as carbon dioxide. Most individuals in the world, even in poor countries, contribute by burning something that produces carbon dioxide. It is thus difficult to demonize emitters as immoral, since the production of carbon dioxide is so widespread.'[189]

This argument is not dissimilar to the democratic case in favour of economic regulation, compared to traditional regulation.[190] A carbon tax lets the market allocate emission reductions, and 'as long as regulators make errors (as they unavoidably do)' a tax is believed to be 'superior to command-and-control regulation'.[191]

On the contrary, the main arguments invoked by legal scholars in favour of emission trading are the following. First, in theory, emission trading gives certainty as to the environmental benefit, even though the cost of achieving this benefit remains uncertain.[192] Next, it is submitted that an ETS is a better response to climate change because it does not hold the negative connotation

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184 S.-L. HSU, *The case for a carbon tax: getting past our hang-ups to effective climate policy*, Washington, Island Press, 2011, p. 10.
185 A. KERR, 'Why we need carbon tax', *op. cit.*, p. 93.
186 J.E. MILNE, 'Carbon taxes in the United States: the context for the future', *Vermon Journal of environmental law*, 2010, vol. 10, n° 1, p. 3.
187 D.M. DRIESEN, 'Emissions Trading versus Pollution Taxes: Playing Nice with Other Instruments', *op. cit.* This argument is particularly relevant in light of partially overlapping strands of the literature on instrument mixes, which seeks to identify how regulatory strategies should best be combined in particular B. RITTBERGER et J. RICHARDSON, 'Old wine in new bottles? The Commission and the use of environmental policy instruments', *Public Administration*, September 2003, vol. 81, n° 3, pp. 575-606 ; M. PEETERS, 'Instrument mix or instrument mess?', *op. cit.* N. GUNNINGHAM et D. SINCLAIR, 'Integrative Regulation: A Principle-Based Approach to Environmental Policy', *Law & Social Inquiry*, 1999, vol. 24, n° 04, pp. 853-896. L. KRÄMER, 'Some reflections on the EU mix of instruments on climate change', in *EU climate change policy: the challenge of new regulatory initiatives*, New horizons in environmental law series, Cheltenham, Edward Elgar Publishing, 2006, pp. 279-296.
188 HSU, *The Case for a Carbon Tax Getting Past Our Hang-Ups to Effective Climate Policy*, *op. cit.*, p. 27.
189 *Ibid.*
190 *Infra* 2.2.3.
191 J. MASUR et E.A. POSNER, 'Toward a Pigouvian State', *op. cit.*, p. 95.
192 *Infra* 2.2.4.

associated with the term 'tax'.[193] Emission trading is legally and politically different from a tax. An ETS also receives support in virtue of its 'international scalability'; it is viewed as 'more inviting' to other countries.[194] Lastly, ETS are deemed to have a higher 'marketness' than carbon taxes, even though they both involve State intervention.[195]

2.2.5. *As a carbon pricing instrument*

More recently, the discussion has shifted towards the promotion of 'carbon pricing' instead of market-based instruments.[196] The literature is not consistent on the concept of carbon pricing, but this term generally includes carbon taxes and emissions trading.[197] Other schemes such as liability schemes, internal mechanisms, crediting systems and result-based climate finance are sometimes also mentioned.[198] By contrast, traditional regulation is usually disqualified as a carbon pricing mechanism. A common line of demarcation in the carbon pricing discourse is whether the price is set explicitly or implicitly, with the intent to promote explicit prices.[199] An 'explicit carbon pricing mechanism' can be referred to as 'market mechanisms and taxes that put a price on each tonne of CO_2 emitted'.[200] Traditional energy taxes are an example of implicit carbon price.[201]

This recent trend is interrelated to external cost internalisation. Indeed, 'Putting a price on emissions corrects for the under-pricing of the externality in the marketplace'.[202] In this vein, Janett Milne explains the interest for carbon taxes as follows: '[t]he reason is simple: economists submit that putting a price on GHG emissions will reduce emissions in a cost-effective way'.[203]

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193 R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.*, p. 45.
194 A. KERR, 'Why we need carbon tax', *op. cit.*, p. 90.
195 B. LANGE, *Regulatory Transformations : Rethinking Economy-Society Interactions*, Oxford, Hart Publishing, 2015, p. 172, available at http://www.bloomsburycollections.com/book/regulatory-transformations-rethinking-economy-society-interactions (Last consulted 2 June 2022).
196 As observed by D.M. DRIESEN, 'Putting a Price on Carbon', *op. cit.* For instance, N.J. CHALIFOUR et L. BESCO, 'Taking Flight: Federal Action to Mitigate Canada's GHG Emissions from Aviation', *Ottawa Law Review*, 2018, vol. 48, n° 2, pp. 577-625.
197 See *Infra*, Chapter 1, 3.1.
198 For instance, 'Carbon pricing as defined here includes emissions trading schemes, fossil fuel support and carbon, fuel excise or aviation taxes.' D.M. Driesen, 'Putting a Price on Carbon', op. cit., p. 690. See also from a non-legal perspective WORLDBANK, *State and Trends of Carbon Pricing 2021*, *op. cit.*
199 OECD, *Effective Carbon Rates: Pricing CO2 through Taxes and Emissions Trading Systems*, Washington, OECD, 26 September 2016, available at https://www.oecd-ilibrary.org/taxation/effective-carbon-rates_9789264260115-en (Last consulted on 2 June 2022), p. 23. On this distinction see also HIGH-LEVEL COMMISSION ON CARBON PRICES, *Report of the high level commission on carbon prices*, Washington, D.C., World Bank. License, 2017.
200 OECD, *Effective Carbon Rates*, *op. cit.*, p. 23.
201 'Tax Policy and Climate Change: IMF/OECD Report for the G20 Finance Ministers and Central Bank Governors, September 2021, Italy', 2021, p. 9.
202 W. NORDHAUS, 'Climate Change: The Ultimate Challenge for Economics', *American Economic Review*, June 2019, vol. 109, n° 6, p. 453.
203 J.E. MILNE, 'How Durable is a Lockbox for Carbon Tax Revenue?', *op. cit.*, p. 107. N.J. CHALIFOUR et L. BESCO, 'Taking Flight: Federal Action to Mitigate Canada's GHG Emissions from Aviation', *op. cit.* p. 613.

According to David Driesen, 'the pricing language serves as more of a metaphor than a technical description'.[204] This line of arguments tends to blur the distinction between prices and quantities, which has been a typical way to distinguish emission trading and carbon taxes.[205] The emphasis on the price feature, the author argues, rather suggests an antagonism between markets and government.[206] Under this dichotomy, price signals are the realm of markets, as opposed to commands which belong to government. The level of 'marketness' justifies certain options scoring higher than others in the search for the 'best' remedies to mitigate climate change.[207]

2.3. **The law as an instrument to remedy climate change**

The counterpart of assigning an instrumental role to taxes is to present the law in instrumental terms as well. This third Section unveils the instrumental function that legal scholars often attribute to the law (2.3.1). Regarding the law as an instrument to remedy climate change has influenced the way legal scholarship on carbon taxes has explained the contradiction between theoretical merits behind carbon taxes and their practical implementation. To be more precise, three types of attitudes can be distinguished. First, authors have put forward the prevalence of non-legal factors over legal ones as an explanation of the above-mentioned contradiction (2.3.2). Second, they have presented the law as a mere matter of constraint and relegated the law to a 'clean clinic' (2.3.3)[208], failing to appreciate the contextual contingencies that underpin legal systems (2.3.4). The consequence of this approach is that the role of the law in the above contradiction has not been fully appreciated. This leads to what I consider as important gaps in legal scholarship.

2.3.1. *The law as an instrument*

Many of the contributions reviewed analyse the law in the aim to promote the use of a carbon tax to remedy climate change.[209] The following statement illustrates this point: 'This *Journal* has

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[204] D.M. DRIESEN, 'Putting a Price on Carbon', *op. cit.*, p. 698. Similar with an ETS, a regulation may establish a quantitative limit on the level of emissions that is allowed as would an ETS, but with the difference that a regulation will not be associated with transferable rights. Both mechanisms will generate costs for economic agents to abate emissions, so as to comply with the quantity constraint set. Consequently, as the author contends, if an ETS is viewed as a carbon pricing system, so must be traditional regulation.
[205] *Ibid.*, p. 703 & f.
[206] *Ibid.*
[207] B. LANGE, *Regulatory Transformations*, *op. cit,* 155. S. BOGOJEVIĆ, 'Trading Schemes', *op. cit.*, p. 934.
[208] M. PEETERS et R. UYLENBURG, 'Concluding observations', *op. cit.*, p. 240.
[209] Fall in this category: D.A. WEISBACH et G.E. METCALF, 'The Design of a Carbon Tax', *SSRN Electronic Journal*, 2009, available at http://www.ssrn.com/abstract=1327260 (Last consulted 2 June 2022); HSU, *The Case for a Carbon Tax Getting Past Our Hang-Ups to Effective Climate Policy*, *op. cit.* ; H. ASHIABOR, 'Fostering the Development of Renewable Energy through Green Taxes and Other Instruments', *IBFD*, June 2005, vol. 59, n° 7, pp. 295-305 ; J. CORKERY, 'A Carbon Tax - Onwards', *Revenue Law Journal*, January 2009, vol. 19, n° 1, available at https://rlj.scholasticahq.com/article/6713-a-carbon-tax-onwards (Last consulted on 2 June 2022); N. SHURTZ,

expressed its support for a carbon tax as the best way to control excess carbon and other "warming" gases in the atmosphere."[210] Implicit in this promotion is that the law should be revised to implement such a tax. This may be either the starting point or the conclusion of such analyses. As a starting point, authors assume that a carbon tax should be implemented in law. This includes statements such as 'tax reforms might be needed to better internalize the environmental costs'.[211] In this sense, Amy Christian's position is to 'assume that instituting an energy tax would be wise policy' and consequently the author focuses on its design.[212] Other scholars 'examine how the implementation of environmental taxes could build on the success of value-added tax (VAT) to become more efficient and consistent'.[213] In a similar vein, another study highlights that it 'will help proponents of the carbon tax better tailor their advocacy efforts'[214]

This kind of exercise is often prospective, as it is the possibility to introduce a carbon tax that is under study. It requires authors to develop scenarios, involving specific design elements, and therefore to imagine what a carbon tax could look like. For instance, Bourgeois and Bouhon developed ten scenarios/variants of how a carbon tax could be introduced in Belgium.[215] Some of these writings put forward what has been referred to as a 'generic step-by-step design model'.[216] They present each step as technical issues that can be resolved according to external criteria (often on the basis of efficiency or simplicity objectives).[217] The result is that, in some cases, the

'Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy', *op. cit.* ; A.C. CHRISTIAN, 'Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)', *op. cit.* ; K. DEKETELAERE, 'European environmental tax policy: Proposal for policy vision and legal framework', *European Environmental Law Review*, 1996, vol. 5, n° 1, pp. 9-15 ; D.H. DENG, 'Improving the Legal Implementation Mechanisms for a Carbon Tax in China', *op. cit.* ; D.M. DRIESEN, 'Emissions Trading versus Pollution Taxes: Playing Nice with Other Instruments', *op. cit.* ; J. MASUR et E.A. POSNER, 'Toward a Pigouvian State', *op. cit.* ; S. SEWALK, 'Europe Should Dump Cap-and-Trade in Favor of Carbon Tax with Reinvestment to Reduce Global Emissions', *op. cit.* ; E. TRAVERSA et B. TIMMERMANS, 'Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives', *op. cit.* ; M. WAGGONER, 'Why and How to Tax Carbon', *op. cit.*

[210] J. CORKERY, 'A Carbon Tax - Onwards', *op. cit.*, p. 1.

[211] A. PIRLOT & S. WOLFF, 'The Impact and Role of Indirect Taxes Surrounding the Aviation Sector in Mitigating Climate Change: A Legal and Economic Analysis', *World Tax Journal*, 2017, p. 392.

[212] A.C. CHRISTIAN, 'Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)', *op. cit.*, p. 223.

[213] E. TRAVERSA et B. TIMMERMANS, 'Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives', *op. cit.*, p. 871.

[214] G.M. LUCAS, 'Behavioral public choice and the carbon tax', *op. cit.*, p. 115.

[215] M. BOURGEOIS et F. BOUHON, 'L'introduction d'un mécanisme de tarification du carbone (« taxe carbone ») en droit belge : contraintes juridiques et scénarios institutionnels concevables', *Revue de fiscalité régionale et locale*, 2021, vol. 3, pp. 245-270.

[216] Expression used by Sanja Bogojevic in the context of emission trading. S. BOGOJEVIC, 'Trading Schemes', *op. cit.* p. 11.

[217] See notably I. BURGERS et S. WEISHAAR, 'Designing Carbon Taxes Is Not an Easy Task Legal Perspectives', *op. cit.* ; D.A. WEISBACH & G.E. METCALF, 'The Design of a Carbon Tax', *op. cit.* ; M. WAGGONER, 'Why and How to Tax Carbon', *op. cit.* ; R.S. AVI-YONAH & D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.* ; A.C. CHRISTIAN, 'Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)', *op. cit.* ; L. XYNAS, 'Climate Change Mitigation: Carbon Tax - Is it the Better Answer for Australia', *op. cit.* ; S. WEISHAAR *& al.*,

design proposed is framed as apolitical; it requires little debate.[218] This embeds the idea that it is possible to craft an ideal tax.

Metcalf & Weisbach's acclaimed contribution illustrates this point. They argue, '[w]e do not generally consider the political concessions that will be necessary to enact the tax, leaving that to the give and take of the political process. Although we understand that a tax as actually enacted will likely be different than an ideal tax, a model tax is still useful; it can act as a baseline that the political process can work off of and as a comparison.'[219] In another contribution, Weisbach claims that '[a]n ideal carbon price system would impose the same price on all emissions of greenhouse gases regardless of the source'.[220] This design is often based on criteria of efficiency or administrative simplicity. By the same token, other authors discussing whether a carbon tax should be adopted upstream (regulation at the beginning of the production process) or downstream (regulation at the end of the production process), build on the criterion of what is 'the most straightforward' option to address climate change.[221]

A different approach is to evaluate whether the law effectively and/or efficiently responds to climate change. That is to say legal systems are screened as to the effectiveness and efficiency of their response to climate change. For example, studying the EU Energy Taxation Directive, one scholar highlights that it 'is only moderately successful in its efforts to protect the environment and sustainable development' and that 'more effectiveness could and have been achieved'. [222] Thus, the Directive is assessed according to an external criterion, i.e. its effectiveness. Similarly, analysing the interaction between the EU-ETS and energy taxes, Soares submits that 'such casuistic approach would not guarantee emissions price uniformity as required by the economic rational', adding that 'Efficiency in CO_2 emissions reduction cannot justify the regulatory overlap'.[223]

In some cases, the conclusion of these analyses is that the law should be amended to provide a better solution to climate change. Discussing, the 2011 Proposal for a CO_2/energy tax from an

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'Designing carbon taxes : economic and legal considerations', *in* M. VILLAR EZCURRA (ed.), *Environmental fiscal challenges for cities and transport*, Critical issues in environmental taxation series, n° Volume XXI, Cheltenham, UK, Edward Elgar Publishing, 2019, pp. 213-225.

218 E. FISHER, « Imagining Technology and Environmental Law », *op. cit.*, p. 366.

219 D.A. WEISBACH et G.E. METCALF, 'The Design of a Carbon Tax', *op. cit.*, p. 4.

220 D.A. WEISBACH, 'Carbon Taxation in the EU: Expanding the EU Carbon Price', *Journal of Environmental Law*, July 2012, vol. 24, n° 2, p. 191.

221 R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.*, p. 32.

222 J. VAN EIJNDTHOVEN, 'Energy Taxation at European Level: What does it do for the Environment and Sustainability?', *EC Tax Review*, 2011, n° 6, pp. 283-290.

223 C.D. SOARES, 'Energy tax treatment of undertakings covered by emissions trading', *EC Tax Review*, 2007, vol. 16, n° 4, p. 187.

efficiency point of view, Weisbach's conclusion was that 'there are strong arguments for expanding the carbon pricing base' but that this 'should be done through a unified system'.[224] The author ascertained that unlike what was proposed by the EU, 'A single system, however, would be more efficient because it would impose a uniform price on all emissions'.[225] We thus see that economic criteria are used as a tool for assessing the law and making alternative proposals. Comparative analyses across legal systems may also be conducted with a promotional intent. In this sense, one author concludes, from the screening of 'successes and failure' with carbon taxation across several countries, that 'local jurisdictions (…) should pass broad-based carbon taxes'.[226]

Having said that, legal scholarship varies across jurisdictions. The divergence between EU and US legal scholarship provides a useful illustration of this point.[227] In the US, a sizable literature continues to promote the use of carbon taxes. This can be linked to the 'obsession' of US legal scholarship to search for a perfect tax system.[228] In the EU, on the contrary, authors usually do not engage in such promotion; their contributions are generally descriptive, even if certain contributions do offer a more prescriptive approach.[229] Moreover, with the adoption of the EU-ETS, interest in a harmonised carbon tax has faded,[230] and legal scholarship on the topic is now marginal compared to the extensive literature surrounding the EU-ETS.[231]

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[224] D.A. WEISBACH, 'Carbon Taxation in the EU', *op. cit.* p. 183.
[225] *Ibid.*, pp. 191 & 199.
[226] N. SHURTZ, 'Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy', *op. cit.*, p. 124. By contrast, Gillis does not have such an intent in mind. R. GILLIS, 'Carbon Tax Shifts and the Revenue-Neutrality Dilemma', *op. cit.*
[227] About the diverging reception of some economic ideas in the US and in the EU see D.M. DRIESEN et S. BOGOJEVIC, 'Economic Thought and Climate Disruption: Neoclassical and Economic Dynamic Approaches in the USA and the EU', *Journal of Environmental Law*, November 2013, vol. 25, n° 3, pp. 463-483.
[228] B.I. MORAN, *Taxation*, Oxford, Oxford University Press, 30 June 2005, available at http://oxfordhandbooks.com/view/10.1093/oxfordhb/9780199248179.001.0001/oxfordhb-9780199248179-e-018 (Last consulted 2 June 2022) in particular 388.
[229] In this sense Kurt Deketelaere argues in favour of a European environmental tax policy, contending that is is necessary to ensure 'the increase of the effectiveness and efficiency of the European environmental policy, since the instruments of direct regulation have proven their ineffectiveness and inefficiency'. K. DEKETELAERE, 'The European Union and fiscal environmental policy instruments', *Environmental Taxation and Accounting*, 1997, vol. 3, p. 12. See also K. DEKETELAERE, 'European environmental tax policy: Proposal for policy vision and legal framework', *op. cit.* Other contributions include A. PIRLOT et S. WOLFF, 'The Impact and Role of Indirect Taxes Surrounding the Aviation Sector in Mitigating Climate Change: A Legal and Economic Analysis', *op. cit.*
[230] See inter alia P. THIEFFRY, *Handbook of European environmental and climate law*, Collection European union law, n° 9, Bruxelles, Bruylant, 2021 ; A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', in *Research Handbook on European Union Taxation Law*, s.l., Edward Elgar Publishing, 2020, pp. 359-388, available at https://www.elgaronline.com/view/edcoll/9781788110839/9781788110839.00025.xml (Last consulted 2 June 2022); J. VAN EIJNDTHOVEN, 'Energy Taxation at European Level: What does it do for the Environment and Sustainability?', *op. cit.* ; C.D. SOARES, 'Energy tax treatment of undertakings covered by emissions trading', *op. cit.* ; K. DEKETELAERE, 'EC transport policy and environment and energy taxation.', *op. cit.*
[231] For a critical take on legal scholarship surrounding the EU-ETS see S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*

2.3.2. *The prevalence of non-legal elements*

A common feature of the scholarship analysed is to refer to other disciplines, primarily economics. The response of legal scholars as to why carbon taxes take a variety of shapes has largely been focused on the influence of non-legal elements. For instance, the role of pressure groups or lobbies in defining some design elements of a carbon tax, primarily through exemptions or tax reductions, is often mentioned.[232] Another legal study explains 'how an environmental tax proposal is inevitably shaped by issues of economic impact, equity, and politics', and draws on this analysis to discuss carbon taxation.[233] Surprisingly, however, the contribution in question does not investigate the role of legal elements in this equation. In the same vein, legal scholarship frequently explains the difficulty in adopting carbon taxes by relaying explanations from disciplines other than the law.[234]

One of these explanations is that citizens are unwilling to pay for the harm they cause, or they have an aversion for taxes or distrust government.[235] In this sense some commentators purport, 'a carbon tax cannot get enacted because it is a tax'[236], whilst another claims that '[a] government that implements carbon pricing risks political defeat'.[237] Concerns about fairness and competitiveness, the visibility of the costs incurred and the role of lobbying is also pointed out as

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[232] R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.*, p. 48. (note that the author argues that these should not be viewed as inherent to carbon taxation); G.M. LUCAS, 'Voter Psychology and the Carbon Tax', *op. cit.*, pp. 40 & 42.K. BUBNA-LITIC et N. CHALIFOUR, 'Are climate change policies fair to vulnerable communities - the impact of british columbia's carbon tax and australia's carbon pricing policy on indigenous communities', *Dalhousie Law Journal*, 2012, vol. 35, n° 1, pp. 144-145 ; A.C. CHRISTIAN, 'Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)', *op. cit.*, p. 276.

[233] J.E. MILNE, 'Carbon taxes in the United States: the context for the future', *op. cit.*, p. 17.

Milne the context for p 17

[234] For non-legal contributions on the topic see *inter alia*, D. KLENERT *et al.*, 'Making carbon pricing work for citizens', *op. cit.* ; D. KLENERT et L. MATTAUCH, 'Carbon Pricing for Inclusive Prosperity: The Role of Public Support', s.d., p. 13 ; A. BARANZINI, J. GOLDEMBERG et S. SPECK, 'A future for carbon taxes', *Ecological Economics*, 2000, vol. 32, n° 3, pp. 395-412 ; S. KALLBEKKEN, S. KROLL & T.L. CHERRY, 'Do you not like Pigou, or do you not understand him? Tax aversion and revenue recycling in the lab', *Journal of Environmental Economics and Management*, July 2011, vol. 62, n° 1, pp. 53-64.

[235] S.-L. HSU, *The case for a carbon tax*, *op. cit.*, p. 165. The author makes a detailed analysis of cognitive bias. See also M. JEFFERY et Y. SHEN, 'The Likelihood of a Carbon Tax in China: Wishful Thinking or a Real Possibility?', *Tulane Environmental Law Journal*, 2012, vol. 25, n° 2, p. 439 & f. ; A.L. KINDE, 'Let's Make a Green New Deal:', *Northeastern University Law Review*, 2017, vol. 11, n° 2, pp. 498-503 ; K. NICASIO, 'States Rise to the Front of Climate Legislation, but Can a State-Level Carbon Tax Work?', *op. cit.*, p. 761 ; M. WAGGONER, 'Why and How to Tax Carbon', *op. cit.* ; J. FREEMAN, 'Efficacy of Carbon Taxes and Recommendations for Cutting Carbon Emissions', *op. cit.*, p. 292.

[236] R.S. AVI-YONAH et D.M. UHLMANN, 'Combating Global Climate Change', *op. cit.*, p. 44. Similarly Kerr underlines 'The word tax triggers a knee-jerk reaction in much of the American public.'. See A. KERR, 'Why we need carbon tax', *op. cit.*, p. 88. See also S.-L. HSU, *The case for a carbon tax*, *op. cit.*, p. 8.

[237] R. GILLIS, 'Carbon Tax Shifts and the Revenue-Neutrality Dilemma', *op. cit.*, p. 295.

obstacles to the introduction of carbon taxes in practice.[238] A carbon tax, it is noted, 'makes it clear that society is paying the costs of carbon pollution, and the very word 'tax' raises American hackles'.[239] In the EU, the impossibility to pass the 1992 Proposal for carbon tax has been explained *inter alia* by pressure from industrial lobbies.[240]

To overcome these problems and foster the adoption of carbon taxes, legal scholars have promoted specific design elements. More precisely, they have encouraged the design of carbon taxes so as to recycle revenues, that is to redistribute revenues that the tax collects, to enhance their feasibility.[241] Revenue distribution is often praised by economists to overcome resistance to carbon taxes.[242] Revenues from a carbon tax can be used to reduce other taxes, be sent back to citizens and/or firms (e.g. lump-sum transfers) or be spent in climate mitigation or adaptation policies.[243] When they promote these strategies, legal scholars do not necessarily conduct an analysis of the implications of revenue recycling from a legal standpoint.[244] Consequently, those strategies may appear as technical fixes that can be used in all contexts, being advocated without due diligence into the legal particularities of the context in which they (would) take place.

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238 G.M. LUCAS, 'Behavioral public choice and the carbon tax', *op. cit.* ; A.C. CHRISTIAN, 'Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)', *op. cit.* ; D.A. WEISBACH et G.E. METCALF, 'The Design of a Carbon Tax', *op. cit.* ; HSU, *The Case for a Carbon Tax Getting Past Our Hang-Ups to Effective Climate Policy*, *op. cit.*

239 A. KERR, 'Why we need carbon tax', *op. cit.*, p. 94.

240 Sylvie Caudal explains the failure of 1992 Proposal of carbon tax in the EU inter alia pressure of industrial lobbies. S. CAUDAL, *La fiscalité de l'environnement*, 2014, p. 82.

241 For example T. FALCÃO, 'Highlights of the United Nations Handbook on Carbon Taxation', *op. cit.*, pp. 911-912. M. WAGGONER, 'Why and How to Tax Carbon', *op. cit.* ; J.E. MILNE, 'How Durable is a Lockbox for Carbon Tax Revenue?', *op. cit.* ; HSU, *The Case for a Carbon Tax Getting Past Our Hang-Ups to Effective Climate Policy*, *op. cit.* ; N. SHURTZ, 'Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy', *op. cit.* ; S.-L. HSU, 'A Complete Analysis of Carbon Taxation: Considering the Revenue Side', *op. cit.* ; R. GILLIS, 'Carbon Tax Shifts and the Revenue-Neutrality Dilemma', *op. cit.*, p. 306 ; A.C. CHRISTIAN, 'Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT)', *op. cit.* ; S. GEROE, 'Addressing Climate Change Through a Low-Cost, High-Impact Carbon Tax', *op. cit.* ; D.M. DRIESEN, 'Toward a populist political economy of climate disruption', *Environmental law*, 2019, vol. 49, n° 2, pp. 379-406 ; M. JEFFERY & Y. SHEN, 'The Likelihood of a Carbon Tax in China: Wishful Thinking or a Real Possibility?', *op. cit.* ; A.L. KINDE, 'Let's Make a Green New Deal:', *op. cit.* ; J. CORKERY, 'A Carbon Tax - Onwards', *op. cit.* ; S. WEISHAAR, *Introducing carbon taxes at Member State level: issues and barriers*, WIFO Working Papers 556, 2018.

242 See Infra, Chapter 3, 2.4.

243 J.E. MILNE, 'How Durable is a Lockbox for Carbon Tax Revenue?', *op. cit.* ; C.D. SOARES, 'Earmarking revenues from environmentally related taxes', in *Handbook of Research on Environmental Taxation*, Cheltenham, Edward Elgar Publishing, 2014.

244 On the contrary, Milne analyses the legal status of commitments to use revenues in a particular way (or 'lockbox'), that is, to explore 'the lockbox's design, who controls the keys to the lockbox as revenue goes in and comes back out, whether all the revenue that flows into the lockbox comes back out, the timing for revenue flows, and accountability for the revenue flows' J.E. MILNE, 'How Durable is a Lockbox for Carbon Tax Revenue?', *op. cit.*

2.3.3. *The law as a constraint*

A second consequence of seeing the law as an instrument is to project it as a 'constraint', 'hurdle',[245] 'limit'[246] or 'barrier' to the adoption of carbon taxes[247]. These limits can be tied to procedural requirements, competence allocation or substantive obligations.

A commonly advanced reason why EU carbon tax has been impossible to adopt is the unanimity voting requirement that applies in tax matters.[248] According to one contribution 'The key difficulty to an EU-wide carbon tax is that it cannot overcome the unanimity requirements needed to enact an EU-wide tax'.[249] As another scholar underlines, '[f]rom a policy perspective, one can regret that voting requirements may influence policy choice, such as the one that was made in favour of the EU ETS over the adoption of a CO_2 tax.'.[250] What the author suggests is that the EU has opted for introducing the ETS instead of a carbon tax because it requires less stringent voting requirements. The focus is thus on instrument category to which voting requirements are tied while it neglects the substantial differences between the carbon tax proposals and the EU-ETS in terms of gas and sector coverage.

In a similar vein, other contributions suggest interpretations of the law under which a carbon tax could be enacted (e.g. a restrictive interpretation of voting requirements in tax matters in EU law).[251] The role of the law in shaping the design elements of carbon taxes has also been relegated to a mere question of constraints.[252] For instance, the influence that the EU law concerning state

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[245] J. MASUR et E.A. POSNER, 'Toward a Pigouvian State', *op. cit.*

[246] J.E. MILNE, 'Carbon tax choices: the tale of four states', in *The Green Market Transition*, Chelthenam, Edward Elgar Publishing, 2017, pp. 3-16, available at https://www.elgaronline.com/view/9781788111164.00011.xml (Last consulted on 2 June 2022).

[247] S. WEISHAAR, 'Carbon Taxes at EU Level Introduction Issues and Barriers', 2018 ; S. WEISHAAR, *Introducing carbon taxes at Member State level: issues and barriers*, *op. cit.* ; A.L. KINDE, 'Let's Make a Green New Deal:', *op. cit.*, p. 487.

[248] E. TRAVERSA et B. TIMMERMANS, 'Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives', *op. cit.*, p. 874 ; A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.* ; S. VIESSENT, 'La fiscalité environnementale de l'Union européenne in Fumaroli', *op. cit.*, pp. 128-132 ; S. WEISHAAR, 'Carbon Taxes at EU Level Introduction Issues and Barriers', *op. cit.* ; P. THIEFFRY, *Handbook of European environmental and climate law*, *op. cit.* ; R. ISMER et M. HAUSSNER, 'Inclusion of Consumption into the EU ETS: The Legal Basis under European Union Law', 2016, p. 13 ; S. CAUDAL, *La fiscalité de l'environnement*, *op. cit.*, p. 82 ; C. STRECK et D. FREESTONE, 'The EU and climate change', in *Reflections on 30 years of EU environmental law. A high level of protection?*, , n° 7, Zutphen, Europa Law Publishing, 2005, p. 98 ; M. LEE, *EU environmental law*, *op. cit.*, p. 191 & f. Similarly in other disciplines see J. WETTESTAD, 'The Making of the 2003 EU Emissions Trading Directive: An Ultra-Quick Process due to Entrepreneurial Proªciency?', *Global Environmental Politics*, 2005, vol. 5, n° 1, p. 8. C. FISCHER *et al.*, 'The Legal and Economic Case for an Auction Reserve Price in the EU Emissions Trading System', *SSRN Electronic Journal*, 2019, pp. 12-13, available at https://www.ssrn.com/abstract=3477716 (Last consulted on 2 June 2022).

[249] D.A. WEISBACH, 'Carbon Taxation in the EU', *op. cit.*, p. 184.

[250] A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*

[251] R. ISMER et M. HAUSSNER, 'Inclusion of Consumption into the EU ETS: The Legal Basis under European Union Law', *op. cit.*

[252] For instance, M. BOURGEOIS et F. BOUHON, 'L'introduction d'un mécanisme de tarification du carbone (« taxe carbone ») en droit belge : contraintes juridiques et scénarios institutionnels concevables', *op. cit.* ; T. SCHIEBE,

aids has on the design elements of national carbon taxes has been assessed.[253] In the same vein, several contributions have examined how the case law of the French Constitutional Council has shaped the design (and fate) of the French carbon tax.[254] In federal countries, much discussion has been undertaken regarding which level of government has the power to enact a carbon tax.[255] In these countries, the question arises as to whether it is the central authority or the decentralised authorities that have the power to levy a carbon tax and should spend the revenues.[256]

Seeing the law only as a matter of constraints tends to attribute it a limited role. Following this view, the law is not envisaged 'as an end in itself' but is studied only insofar as it can impede the adoption of a carbon tax or of a specific design element.[257] It is given 'an instrumental function, or a so-called 'technical-servant role' to translate policies into 'operational language'.[258] Therefore, the legal aspects of carbon taxes become merely instrumental. The following statement illustrates this point:

> "Pigouvian taxation, reinforces rather than solves the puzzle of why regulators never, or very rarely, use Pigouvian taxes. In this Article, we attempt to solve the puzzle. We suggest that the principal reason regulators do not employ Pigouvian taxes is that they do not believe they have the authority to do so under existing law."[259]

What this stipulation suggests is that the author's purpose is to foster the adoption of carbon taxes by clarifying the legal rules relating to the competence to adopt a carbon tax.

'Designing environmental taxes to promote biofuels from a State aid perspective', *Eastern and Central European Journal on Environmental Law*, 2019, vol. 26, n° 2, p. 71 ; S. WEISHAAR, *Introducing carbon taxes at Member State level: issues and barriers*, *op. cit.* ; WEISHAAR, 'Carbon Taxes at EU Level Introduction Issues and Barriers', *op. cit.*

253 T. SCHIEBE, 'Designing environmental taxes to promote biofuels from a State aid perspective', *op. cit.* S. WEISHAAR, 'EU Law limits to climate transition in EU Member States', *Milieu&Recht*, 2020, vol. 2, pp. 2-11.

254 W. MASTOR, 'La contribution carbone à la lumière de la décision du Conseil constitutionnel du 29 December 2009 : chronique d'une mort - et d'une renaissance ? - annoncées', *op. cit.* ; BIN, F., « Les taxes carbones à l'épreuve du principe d'égalité dans la jurisprudence du Conseil constitutionnel », in « La fiscalité environnementale a-t-elle toujours un avenir ? », Faculté de droit de Toulon, 1 October 2015, p. 9. See also O. PFEIFFERT, 'La protection de l'environnement et le principe d'égalité', *RFDA*, 2011, p. 319.

255 D.N.J. CHALIFOUR, « Making Federalism Work for Climate Change: Canada's Division of Powers over Carbon Taxes », *National Journal of Constitutional Law*, 2008, vol. 22, n° 2, pp. 119-225 ; N. CHALIFOUR, 'Jurisdictional Wrangling over Climate Policy in the Canadian Federation: Key Issues in the Provincial Constitutional Challenges to Parliament's Greenhouse Gas Pollution Pricing Act', *Ottawa Law Review*, 2019, vol. 50, n° 2, pp. 197-254 ; D. ELLIOTT, 'EPA's Existing Authority to Impose a Carbon "Tax"', *op. cit.* ; D. GICK, 'Fracking in the Badlands: Can Levying a Carbon Tax Against Oil and Gas Companies Help Native American Tribes Raise Revenue While Preserving Cherished Tribal Lands?', *Georgetown Environmental Law Review*, 2017, vol. 29, n° 2, vol. 29, p. 21 ; M. MELTON, 'The Constitutionality of Taxing Agricultural and Land Use Emissions', s.d., p. 20 ; A.L. KINDE, 'Let's Make a Green New Deal:', *op. cit.* ; J.E. MILNE, 'Carbon tax choices', *op. cit.*

256 For instance M. BOURGEOIS & F. BOUHON, 'L'introduction d'un mécanisme de tarification du carbone (« taxe carbone ») en droit belge : contraintes juridiques et scénarios institutionnels concevables', *op. cit.*

257 S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 154.

258 *Ibid.*

259 J. MASUR et E.A. POSNER, 'Toward a Pigouvian State', *op. cit.*

2.3.4. *The legal context as a 'clean clinic'*

As a final point, there is a tendency from some – but not all[260] – contributions to relegate the legal context to a 'clean clinic', that is to ignore the contextual particularities of legal systems.[261] The 'step-by-step design approach' mentioned above is often based on criteria of effectiveness and efficiency, leading to a universal one-size-fits-all conceptualisation of carbon taxes. This tends to miss the possible contingencies of a carbon tax with its legal context. Furthermore certain comparative studies are conducted instrumentally, with a view to enhancing the feasibility of carbon taxes.[262] With this intent, authors have aimed to identify 'best practices' and 'success stories' so as to learn lessons from them so they can be transplanted to other contexts.[263] In this sense, one scholar draws the conclusion that 'recent French experience indicates that carbon tax increases not based on substantial revenue and distributional neutrality may not be viable', making revenue distribution a recipe for all legal contexts.[264]

With this approach, authors tend to relegate design options to a technical matter. These contributions fail to highlight the 'distinct and culturally bounded nature of jurisdiction'.[265] This perpetuates the risk of 'naïve regulatory transplantation'[266], whilst another strand of the literature

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[260] For instance Burger and Weishaar underline need to pay attention to legal context. I. BURGERS et S. WEISHAAR, 'Designing Carbon Taxes Is Not an Easy Task Legal Perspectives', *op. cit.* In the same vein, Gillis contribution is not conducted instrumentally. R. GILLIS, 'Carbon Tax Shifts and the Revenue-Neutrality Dilemma', *op. cit.*

[261] Expression borrowed from M. PEETERS et R. UYLENBURG, 'Concluding observations', *op. cit.*

[262] This is observed by Sanja Bogojevic as regards emissions trading. S. BOGOJEVIC, 'Trading Schemes', *op. cit.*, pp. 927-928.

[263] Examples incude S. GEROE, 'Addressing Climate Change Through a Low-Cost, High-Impact Carbon Tax', *op. cit.* ; D.H. DENG, 'Improving the Legal Implementation Mechanisms for a Carbon Tax in China', *op. cit.* ; N. SHURTZ, 'Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy', *op. cit.* ; L. XYNAS, 'Climate Change Mitigation: Carbon Tax - Is it the Better Answer for Australia', *op. cit.* ; WEISHAAR, 'Carbon Taxes at EU Level Introduction Issues and Barriers', *op. cit.* ; A. GILDER et G. STILES, 'Comparative Approaches to Carbon Taxation in Canada and South Africa: Balancing National Aspirations with Global Realities', *Carbon & Climate Law Review*, 2019, vol. 13, n° 4, pp. 270-279 ; L. HOFFMANN, 'The Role of Economic Instruments to Reduce Carbon Emissions and their Implementation: A Comparison of Environmental Policies in New Zealand and Germany', 2006, p. 41.

[264] S. GEROE, 'Addressing Climate Change Through a Low-Cost, High-Impact Carbon Tax', *op. cit.*, p. 3.

[265] Expression borrowed from E. FISHER, 'Through 'Thick' and 'Thin'', *op. cit.* One example is L. HOFFMANN, 'The Role of Economic Instruments to Reduce Carbon Emissions and their Implementation: A Comparison of Environmental Policies in New Zealand and Germany', *op. cit.*

[266] *Ibid*, About the fundamental debate on legal transplants see the debates between Watson and Legrand. Legrand is very critical of the idea of Transplants (P. LEGRAND, 'The Impossibility of 'Legal Transplants'', *Maastricht Journal of European and Comparative Law*, June 1997, vol. 4, n° 2, pp. 111-124.). Watson is a believer (A. WATSON, 'Legal Transplants and European Private Law', *Electronic Journal of Comparative Law*, 2006, vol. 4.) About the issue of transplant in environmental matters see inter alia N. AFFOLDER, 'Contagious Environmental Lawmaking', *Journal of Environmental Law*, July 2019, vol. 31, n° 2, pp. 187-212. J.B. WIENER, 'Something Borrowed for Something Blue: Legal Transplants and the Evolution of Global Environmental Law', *Ecology Law Quarterly*, 2001, vol. 27, pp. 1295-1372 ; A. BOUTE, 'The Impossible Transplant of the EU Emissions Trading Scheme: The Challenge of Energy Market Regulation', *Transnational Environmental Law*, 2017, vol. 6, n° 1, pp. 59-85.

has emphasised the need to question 'the implications of thinking about environmental law ideas as inherently transferable and transposable'.[267] As a consequence, these legal writings are not that helpful in making sense of the role that law plays in explaining why, in practice, carbon taxes assume different shapes. In particular, they do not depict how the concept of carbon tax travels in different legal settings, in other words, how particular legal environment or culture affects the definition of a carbon tax.[268]

3. A 'SUBSTANTIVE' APPROACH TO THE RELATIONSHIP BETWEEN THE RESPONSE TO CLIMATE CHANGE AND THE LAW

There are possible alternatives to the instrumental approach that predominates carbon taxes in legal scholarship. Another approach is 'substantive'. This substantive approach is a not self-proclaimed strand of the literature; rather it is the result of my own grouping of the legal contributions around a common perspective: an attraction to the substance (what is regulated) as opposed to the instrument, and how the law contributes to defining both *what* is being regulated and *how*. It embeds the proposal that the law has a 'substantive and constitutive role to play in shaping our understanding' of the world.[269] This Section first clarifies what I take as the main elements of this approach and the conditions of its emergence in legal scholarship (3.1.). It also discusses the promises and challenges of this approach (3.2). I conclude that a substantive approach offers an engaging avenue to analyse the topic of carbon taxes in law but that so far, this strand of legal scholarship has not covered this topic.

3.1. A 'substantive approach' in environmental law scholarship

In reaction to the portrayal of the law as a tool to remedy environmental problems, an increasing number of scholarly contributions have paved the way for an alternative understanding of this relationship.[270] These contributions examine this relationship in more substantive terms. This approach generally embeds a dialogue with other social sciences, primarily geography, sociology and science and technology studies (STS)[271] and less prominently with economics. In this sense,

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[267] N. AFFOLDER, 'Contagious Environmental Lawmaking', *op. cit.*, p. 189.
[268] The idea is borrowed from E. FISHER, 'Through 'Thick' and 'Thin'", *op. cit.*
[269] E. FISHER, *Imagining Technology and Environmental Law*, 1, *op. cit,* p. 369..
[270] In particular, S. BOGOJEVIC, 'Ending the Honeymoon: Deconstructing Emissions Trading Discourses', *Journal of Environmental Law*, January 2009, vol. 21, n° 3, pp. 443-468 ; E. FISHER, *Imagining Technology and Environmental Law*, 1, *op. cit.* ; S. BOGOJEVIĆ, 'Trading Schemes', *op. cit.* ; A. PIRLOT, 'Carbon Border Adjustment Measures', *op. cit.* ; N. AFFOLDER, 'Beyond law as tools', *op. cit.* B. LANGE, 'Searching for the best available techniques – open and closed norms in the implementation of the EU Directive on Integrated Pollution Prevention and Control', *op. cit.* ; B. LANGE, *Implementing EU pollution control*, *op. cit.*
[271] STS is a research field that studies the relationship between scientific knowledge, technological systems, and society. STS seek to probe 'how scientific discovery and its technological applications link up with other social

Bettina Lange in her elaborated study of pollution control casts doubt on the predominant conceptions of the law in EU integration, including as an 'instrument capable of affecting societal change'.[272] She responds to these traditional approaches by conducting a sociological analysis of the law. In the same vein, Liz Fisher offers an original reading of Hardin's Tragedy of the Commons that builds on STS to respond to the instrumental story prevailing in environmental law scholarship.[273]

There is no unique conception of what a substantive approach entails. The literature that embraces this approach is plural. It uses a variety of analytical tools and methods, such as the STS concepts of co-production[274] and socio-technical imaginaries[275], of frames,[276] narratives[277] and stories[278] to illuminate the interactions between the law and the problems it regulates. The common element of these tools is that they shed light on plurality of conceptions behind environmental problems and their remedies or to put it another way, they discard the 'uniform and straightforward' prism through with environmental law policies are projected.[279] Several

developments, in law, politics, public policy, ethics, and culture. Retrieved from https://sts.hks.harvard.edu/about/whatissts.html. See *inter alia* S. JASANOFF (ed.), *States of knowledge: the co-production of science and social order*, International library of sociology, London, Routledge, 2004.

272 B. LANGE, *Implementing EU pollution control*, *op. cit,* p. 38.

273 E. FISHER, « Imagining Technology and Environmental Law », *op. cit.*

274 E. FISHER, 'Chemicals as Regulatory Objects: Chemicals as Regulatory Objects', *Review of European, Comparative & International Environmental Law*, July 2014, vol. 23, n° 2, pp. 163-171. A. FAULKNER, B. LANGE et C. LAWLESS, 'Introduction: Material Worlds: Intersections of Law, Science, Technology, and Society', *Journal of Law and Society*, 2012, vol. 39, n° 1, pp. 1-19. See also A. LIS, K. KAMA et L. REINS, 'Co-producing European knowledge and publics amidst controversy: The EU expert network on unconventional hydrocarbons', *Science and Public Policy*, October 2019, vol. 46, n° 5, pp. 721-731. (although the analysis is not focused on the law directly but on the relationship between experts and public)

275 E. FISHER, « Imagining Technology and Environmental Law », *op. cit.*

276 See references in this section. See also A. NOLLKAEMPER, 'Aligning Frames for Elephant Extinction: Towards a New Role for the United Nations', *AJIL Unbound*, 2014, vol. 108, pp. 158-161.

277 N. ROGERS, *Law, fiction and activism in a time of climate change*, Abingdon, Oxon ; New York, NY, Routledge, 2020; M.-C. PETERSMANN, 'Narcissus' Reflection in the Lake: Untold Narratives in Environmental Law beyond the Anthropocentric Frame', *Journal of Environmental Law*, January 2018, available at https://academic.oup.com/jel/advance-article/doi/10.1093/jel/eqy001/4831050 (Last consulted 2 June 2022); C. HILSON, 'Law, courts and populism: climate change litigation and the narrative turn', in *Research Handbook on Law and Courts*, Chelthenam Edward Elgar Publishing, 2019, pp. 81-94, available at https://www.elgaronline.com/view/edcoll/9781788113199/9781788113199.00011.xml (Last consulted on 2 June 2022); E. FISHER, 'Environmental Law as "Hot" Law', *op. cit.* ; 'frame_burger_Michael Burger, 'Environmental LawEnvironmental Literature'.pdf', s.d. ; M. BURGER, 'Environmental Law/Environmental Literature', *Ecology Law Quarterly*, 2013, vol. 40, pp. 1-59. G. NOSEK, 'Climate Change Litigation and Narrative: How to Use Litigation to Tell Compelling Climate Stories', 2018, vol. 42, p. 73 ; E. ROUGH, 'Nuclear narratives, environmental discourse and UK energy policy and legislation, 1970–2008', *in* B. JESSUP et K. RUBENSTEIN (eds.), *Environmental Discourses in Public and International Law*, Cambridge, Cambridge University Press, 2012, pp. 170-192, available at https://www.cambridge.org/core/product/identifier/9781139094610%23c01942-2462/type/book_part (Last consulted on 2 June 2022).

278 A. PIRLOT, 'Carbon Border Adjustment Measures', *op. cit.*

279 As used by S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 20 ; A. PIRLOT, 'Carbon Border Adjustment Measures', *op. cit,* p. 1.

scholarly contributions have discussed the variety of *frames* that exist in the field of waste law[280], climate litigation[281] and energy law.[282] Other scholars have unearthed the multiple representations of technology or substances that exist in environmental law, showing that environmental law and the problems it regulates are *co-produced*.[283]

Some of these writings have focused on the constitutive role of the law in the definition of market-based regulations. In an important contribution, Sanja Bogojevic has shown that the legal design of the EU-ETS corresponds to distinct '*portrayals'* of climate change and its solution, distinguishing between three 'models' (the *Economic Efficiency*, the *Private Property Rights*, and the *Command-and-Control* models).[284] These models frame climate change respectively as the result of a lack of incentive to internalise negative externalities, a lack of private property rights to govern the commons and a lack of administratively flexible and effective regulatory strategies. They distribute the roles between the market and the State and shape the legal status of allowances in different ways.[285] Her study is conducted through 'discourse analysis' of environmental law scholarship which she deconstructs by showing that authors view emission trading through different lenses. On the same topic, Lange examines how carbon markets are 'discursively performed' through various economic discourses.[286]

In a similar vein, Alice Pirlot makes the argument that CBAMs should better be viewed as an 'umbrella term encompassing a wide range of measures, which can each achieve different types of purposes depending on their specific legal design'.[287] This argument rests on the demonstration that CBAMs involve several '*stories',* which the author defines as the 'combination of facts and events that policymakers and legal scholars – as storytellers – put forward to explain the problems that CBAMs are supposed to solve'.[288] She distinguishes the following stories that define the problems CBAMs are supposed to solve: *Paris Agreement* (Promotion role of

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[280] C. BRADSHAW, 'England's Fresh Approach to Food Waste: Problem Frames in the Resources and Waste Strategy', *SSRN Electronic Journal*, 2019, available at https://www.ssrn.com/abstract=3499698 (Last consulted on 2 June 2022).
[281] C. HILSON, 'Framing Time in Climate Change Litigation', *Oñati Socio-legal Series*, August 2019, vol. 9, pp. 361-379. G. NOSEK, 'Climate Change Litigation and Narrative: How to Use Litigation to Tell Compelling Climate Stories', *op. cit.*
[282] C. HILSON, 'Framing Fracking: Which Frames Are Heard in English Planning and Environmental Policy and Practice?', *Journal of Environmental Law*, July 2015, vol. 27, n° 2, pp. 177-202. E. ROUGH, 'Nuclear narratives, environmental discourse and UK energy policy and legislation, 1970–2008', *op. cit.*
[283] E. FISHER, 'Chemicals as Regulatory Objects', *op. cit.* ; B. LANGE, *Implementing EU pollution control*, *op. cit.* ; S. JASANOFF et I. METZLER, 'Borderlands of Life: IVF Embryos and the Law in the United States, United Kingdom, and Germany', *Science, Technology, & Human Values*, November 2020, vol. 45, n° 6, pp. 1001-1037.
[284] S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, chap. 2.
[285] *Ibid.*, p. 29.
[286] B. LANGE, *Regulatory Transformations*, *op. cit.*
[287] A. PIRLOT, 'Carbon Border Adjustment Measures', *op. cit.*
[288] *Ibid.*, p. 2.

compliance with the Paris Agreement), c*limate leadership* (leadership role for the implementing country), *consumption-based* (internalising role of GHG emissions linked to consumption), and *budgetary* (revenue collecting role). In her contribution, the author opposes studying the role of the 'purpose' underpinning CBAMs in their design, as opposed to the role of 'legal constraints of international trade law'.[289] This suggests that her aim is to go beyond an instrumental approach that portrays the law as a mere constraint.

3.2. **The promises and challenges of a substantive approach**

A substantive approach to the relationship between carbon taxes and the law can indeed be promising. Its significance for the present study can be summarised as follows. First, a substantive approach offers an understanding of law that is 'thicker' than seeing it as a mere instrument or constraint.[290] By 'thicker', I mean in-depth accounts of the multiple layers and complex interactions that the law underpins, as opposed to superficial (or 'thin') descriptions.[291] Thick analyses can help make sense of how regulatory concepts move across jurisdictions and legal cultures. A substantive approach could thus be useful in explaining why the shape and success of carbon taxes vary across legal settings. This approach can also make legal texts appear less 'dry' and hence facilitate their comprehension, e.g. by casting light on the narrative or frame they convey.[292] This is useful in particular technical areas as carbon pricing.

Furthermore, a substantive approach enables a dialogue between the law and other social sciences. In particular, building bridges between legal analyses and STS opens up new horizons:

> 'Rather than conducting an external critique of the law, deemed to serve the interests of a dominant group, the analysis becomes a vehicle for (internal) critique, in that it provides an understanding of the elements that make up the legal object under study. In this way, the capacity of the legal categories to make full use of social objects is fully taken into account. (...) It is no longer just a question of indicating the content of the meaning of legal rules (present or future), but of *helping to deconstruct objects that are held, in part, by the law*.'[293]

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[289] *Ibid.*, p. 3.
[290] As used by E. FISHER, 'Through 'Thick' and 'Thin'', *op. cit.*
[291] *Ibid.*
[292] C. HILSON, 'The Role of Narrative in Environmental Law: The Nature of Tales and Tales of Nature', *Journal of Environmental Law*, 2022, vol. 34, n° 1, pp. 1-24.
[293] S. JASANOFF et O. LECLERC, *Le droit et la science en action*, Rivages du droit, Paris, Dalloz, 2013, p. 23. This is my own translation : "Plutôt que de mener une critique externe du droit, réputé servir les intérêts d'un groupe dominant, l'analyse devient un vecteur de critique (interne), ce qu'elle fait comprendre certains des éléments qui composent l'objet étudié. La capacité des catégories juridiques à faire tenir des objets sociaux est ainsi pleinement prise en compte. (…) il ne s'agit plus seulement d'indiquer quelle est la teneur et la signification des règles de droit (actuelles ou futures), mais de contribuer à déconstruire des objets qui tiennent, en partie, par le droit."

What this statement suggests is that STS concepts can serve to conduct a critical legal analysis. In contrast with traditional critical legal studies, the critique provided is not external but internal. That is, the analysis is not conducted in light of specific policy goals (e.g. efficiency); it aims to make visible the given assumptions underpinning how the law understands things. This approach is useful because inputs from economic theory do not fully help elucidate the contradiction between the theory behind carbon taxes and actual practice.

This said, approaching the relationship between climate change and the law through a substantive lens is challenging as well. To begin with, legal scholars are not necessarily familiar with the analytical tools mentioned above and the methodologies they involve. For instance, the main methods to detect the STS concept of socio-technical imaginaries are discourse analyses, visuals or other non-verbal forms of representations, ethnography, cases and controversies, utopias and dystopias, and comparison.[294] Whilst comparisons between legal settings are well known to lawyers, other methods are not as usual in legal scholarship. In addition, there is no commonly agreed definition of the concepts of 'frame', 'narrative' or 'story' which are sometimes used interchangeably.[295] This can make use of these tools somewhat tricky. The law can be seen has a narrative, but it can also be viewed as resulting from pre-existing narratives.[296] Similarly, external cost internalisation is sometimes defined as a narrative while at other times it is presented as a frame.[297]

In all, finding the right balance between opening up legal research to other disciplines and ensuring scientific rigour is tricky. It requires honesty and transparency. It is arguable that the literature above is not fully mature in this regard.[298] It is not always clear how frames, stories or narratives are identified and why these tools are used and not others. Establishing a clear methodology to construct the frame or narrative (e.g. inductive – deductive approach)[299] is crucial to enable the scientific community to verify that these are not 'merely a figment of a researcher's imagination'.[300] This does not discard the worth of following this substantive approach. Instead,

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294 As explained at https://sts.hks.harvard.edu/research/platforms/imaginaries/ii.methods/methodological-pointers/(Last consulted on 2 June 2022).
295 K. FLØTTUM et Ø. GJERSTAD, 'Narratives in climate change discourse', *WIREs Climate Change*, January 2017, vol. 8, n° 1, available at https://onlinelibrary.wiley.com/doi/10.1002/wcc.429 (Last consulted 2 June 2022).
296 As observed by C. HILSON, 'The Role of Narrative in Environmental Law', *op. cit.*, p. 5.
297 *Ibid.*
298 The word 'mature' refers to E. FISHER *& al.*, 'Maturity and Methodology: Starting a Debate about Environmental Law Scholarship', *Journal of Environmental Law*, January 2009, vol. 21, n° 2, pp. 213-250.
299 As used by M. HULME *et al.*, 'Framing the challenge of climate change in Nature and Science editorials', *Nature Climate Change*, June 2018, vol. 8, n° 6, pp. 515-521.
300 CH. DE VREESE, *Framing Europe : television news and European integration*, Amsterdam, Amsterdam School of Communication Research (ASCoR), 2003, p. 33.

it calls for an increased methodological robustness. For that reason, this research will pay a central attention to methodology.

4. CONCLUSION: THE NEED FOR A REVISED ANALYTICAL FRAMEWORK TO LOOK BEYOND INSTRUMENTS

This Chapter has deconstructed the way in which legal scholars have discussed the relationship between carbon taxes and the law. It has made clear that this relationship has often been understood in instrumental terms. That is, both carbon taxes and the law have been presented as instruments in reducing GHG emissions. Following this approach, carbon taxes have been promoted through the following angles: as an instrument of external cost internalisation when implementing the polluter-pays principle, as a market-based instrument, a fiscal instrument and a carbon pricing instrument. The existence of different angles to think about carbon taxes in law further tends to discard the assumptions that a carbon is a simple and straightforward strategy to mitigate climate change. Instead, there are different ways through which it is projected.

Through these analyses, I have identified the main limits of this approach. That is not to say these scholarly contributions are of limited value or of poor quality; many of them have provided key insights and critical thoughts about climate change, taxes and the law. My point is rather that the tendency to portray taxes and the law as instruments to address climate change does not fully appreciate the role of the law in the contradiction between theory surrounding carbon taxes and their implementation in practice. More importantly, I have shown that this instrumental approach has not sufficiently questioned the assumption that a carbon tax is a simple and straightforward strategy to climate change and thus has played a role in perpetuating it.

I have singled out the following reasons why an instrumental approach entails a gap in explaining the role of the law in the above contradiction. The first one is that it tends to attribute a minor role to the law in the design and fate of carbon taxes. Non-legal elements, primarily deriving from economic contributions have superseded legal ones. As such, in this dialogue between disciplines, legal scholarship has been dominated by other disciplines and in some cases lost its identity. Similarly, the law has been relegated to a mere constraint that can impede the adoption and/or the ideal design of a carbon tax. Likewise, authors have not always paid due caution to the legal context and the culturally bounded nature of legal systems.

I then turned to the substantive approach to the relationship between the response to climate change and the law. I have noted that this scholarship has not tended to illuminate the role of the

law in the design or fate or carbon taxes because, so far, its interest has been elsewhere. Nonetheless, I have argued that such a substantive approach has the ability to fill the gaps of this instrumental perspective but on condition that it follows a clear and robust methodology. Consequently, the next Chapter will establish an analytical framework that embraces such a substantive approach.

Annex to Chapter 2: Legal Scholarship on Carbon Taxes

A-Z author's name	Year	Jurisdiction	Coverage	Research question
ASHIABOR, H., « Fostering the Development of Renewable Energy through Green Taxes and Other Instruments », *IBFD*, June 2005, vol. 59, n° 7, pp. 295-305.	2005	National	Environmental taxes	Challenges and how to address them Instrument mix
AVI-YONAH, R.S. & UHLMANN, D.M., « Combating Global Climate Change: Why a Carbon Tax is a Better Response to Global Warming than Cap and Trade », *SSRN Electronic Journal*, 2008.	2008	National - US	Carbon tax	Instrument choice Promotion
BIN, F., « Les taxes carbones à l'épreuve du principe d'égalité dans la jurisprudence du Conseil constitutionnel », in, Faculté de droit de Toulon, October 2015.	2015	National – France	Carbon tax	Legal constraints surrounding design – case law on equal treatment
BOURGEOIS, M. & BOUHON, F., « L'introduction d'un mécanisme de tarification du carbone (« taxe carbone ») en droit belge : contraintes juridiques et scénarios institutionnels concevables », *Revue de fiscalité régionale et locale*, 2021, vol. 3, pp. 245-270.	2021	National – Belgium	Carbon tax	Best design Legal constraints surrounding design
R. LYAL, Including Carbon Taxation and the European Union 321 in BROKELIND, C. & THIEL, S. van (eds.), Tax sustainability in an EU and international context / editors: Cécile Brokelind, Servaas van Thiel, GREIT series, Amsterdam, IBFD, 2020.	2020	Regional – EU	Carbon tax	Promotional Legal constraint Opposition
BURGERS, I. et WEISHAAR, S., « Designing Carbon Taxes Is Not an Easy Task Legal Perspectives », WIFO Working Papers 556, 2018.	2018	National – EU countries		Legal constraints surrounding design
BUBNA-LITIC, K. et CHALIFOUR, N., « Are climate change policies fair to vulnerable communities - the impact of British Columbia's carbon tax and Australia's carbon pricing policy on Indigenous communities », *Dalhousie Law Journal*, 2012, vol. 35, n° 1, pp. 127-178.	2012	(Sub) national – Canada, Australia	Carbon pricing	Instrument choice (tax – ETS) Assessment based on fairness (impact on Indigenous communities)
CAUDAL, S., « Un nouvel obstacle pour l'écotaxe sur l'énergie. Commentaire de l'extrait de la décision du Conseil constitutionnel n° 2000-441 DC du 28 December 2000, concernant l'extension de la taxe générale sur les activités polluantes à l'énergie », *Revue Juridique de l'Environnement*, 2001, vol. 26, n° 2, pp. 215-230.	2001	National – France	Carbon tax	Legal constraints surrounding design – case law on equal treatment
CAUDAL, S., « Equité et fiscalité environnementale », in, La Rochelle (France), 2011.	2011	National – France	Environmental taxes	Tension between equity and efficacy
CHALIFOUR, N., « Making Federalism Work for Climate Change: Canada's Division of Powers over Carbon Taxes », 2008, p. 96.	2008	National – Canada	Carbon tax	Legal constraints surrounding design – allocation of competence
CHALIFOUR, N., « Jurisdictional Wrangling over Climate Policy in the Canadian Federation: Key Issues in the Provincial Constitutional Challenges to Parliament's Greenhouse Gas Pollution Pricing Act », *Ottawa Law Review*, 2019, vol. 50, n° 2, pp. 197-254.	2019	National – Canada	Carbon pricing	Legal constraints surrounding design – caselaw allocation of competence
CHALIFOUR, N.J., « A Feminist Perspective on Carbon Taxes », *Canadian Journal of Women and the Law*, January 2010, vol. 22, n° 1, pp. 169-212.	2010	National (Canada)	Carbon tax	Impact of carbon taxes on women, by defining a gender equality analytical framework
CHALIFOUR, N.J. et BESCO, L., « Taking Flight: Federal Action to Mitigate Canada's GHG Emissions from Aviation », 2016, p. 50.	2016	National – Canada	Mitigation policies (aviation)	Instrument choice
CHRISTIAN, A.C., « Designing a Carbon Tax: The Introduction of the Carbon-Burned Tax (CBT) », *UCLA Journal of Environmental Law and Policy*, 1992, vol. 10, n° 2, pp. 221-282.	1992	National – US	Carbon tax	Promotion Best design

CORKERY, J., « A Carbon Tax - Onwards », *Revenue Law Journal*, January 2009, vol. 19, n° 1.	2009	National, global	Carbon tax	Promotion
DEKETELAERE, K., « European environmental tax policy: Proposal for policy vision and legal framework », *European Environmental Law Review*, 1996, vol. 5, n° 1, pp. 9-15.	1996	Regional – EU	Environmental taxation	Gap between political discourse and implementation in law
DEKETELAERE, K., « The Use of Fiscal Instruments in European Environmental Policy: Review Essay », *Energy & Environment*, March 1999, vol. 10, n° 2, pp. 181-207.	1999	Regional – EU	Environmental taxation	Description of design
DEKETELAERE, K., « European Environmental Tax Law and Policy: Greenspeak ! », *in* S. BELKIN (ed.), *Environmental Challenges*, Dordrecht, Springer Netherlands, 2000, pp. 361-377.	2000	Regional – EU	Transport policy instruments	Gap between political discourse and implementation in law
DEKETELAERE, K., « EC transport policy and environment and energy taxation. », *Richmond Law & Tax*, Critical issues in environmental taxation: international and comparative perspectives, 2005, pp. 99-134.	2005	Regional – EU	Environmental taxation	Description of design
DENG, D.H., « Improving the Legal Implementation Mechanisms for a Carbon Tax in China », *Pace Environmental Law Review*, 2015, vol. 32, n° 3, pp. 665-700.	2015	National – China	Carbon tax	Interaction between instruments Promotion Best design (inter alia based on comparative analysis)
DOTSON, G., « The Carbon Tax Vote You've Never Heard of and What It Portends », Journal of Environmental Law and Policy, vol. 36, n° 2, p. 65.	2018	National – US	Carbon tax	Promotion Legal constraint surrounding adoption (competence)
DRIESEN, D., « Alternatives to Regulation? Market Mechanisms and the Environment », *in* R. BALDWIN, M. CAVE et M. LODGE (eds.), *The Oxford Handbook of Regulation*, Oxford, Oxford University Press, 9 September 2010, pp. 202-222.	2010	Unspecified	Environmental policy instruments	Instrument choice
DRIESEN, D.M., « Putting a Price on Carbon: The metaphor », *Environmental Law*, 2014, vol. 44, pp. 696-722.	2014	Unspecified	Carbon pricing	Instrument choice Conceptual distinctions
DRIESEN, D.M., « Emissions Trading versus Pollution Taxes: Playing Nice with Other Instruments », *Environmental Law*, 2017, vol. 48, pp. 29-80.	2017	National (US)	Carbon pricing	Instrument choice Promotion
DRIESEN, D.M., « Toward a populist political economy of climate disruption », *Environmental law*, 2019, vol. 49, n° 2, pp. 379-406.	2019	National (US)	Carbon tax	Promotion Best design (revenues)
ELLIOTT, D., « EPA's Existing Authority to Impose a Carbon "Tax" », *Environmental Law Reporter News & Analysis*, 2019, vol. 49, n° 10, pp. 10919-10924.	2019	National (US)	Carbon tax	Competence for adopting a carbon tax
ESTRADA, I. et PISTONE, P., « Global CO2 tax », *Intertax*, 2013, vol. 41, n° 2, pp. 2-14.	2013	Global	Carbon tax	Issues for adopting a carbon tax (legal and design)
FALCÃO, T., « Highlights of the United Nations Handbook on Carbon Taxation », 2021., p. 18.	2021	National	Carbon tax	Best design
FALCÃO, T., *A proposition for a multilateral carbon tax treaty*, IBFD doctoral series, n° v. 47, Amsterdam, The Netherlands, IBFD, 2019.	2019	Global	Carbon tax	Promotion Best design Legal constraint surrounding design
FREEMAN, J., « Efficacy of Carbon Taxes and Recommendations for Cutting Carbon Emissions », *Houston Business and Tax Law Journal*, 2015, vol. 15, n° 2, pp. 268-299.	2015	General	Carbon tax	Instrument choice in environmental matters – analysis of the effectiveness of a carbon tax to tackle climate change
GEROE, S., « Addressing Climate Change Through a Low-Cost, High-Impact Carbon Tax », *The Journal of Environment & Development*, March 2019, vol. 28, n° 1, pp. 3-27.	2019	National	Carbon tax	Design based on comparative analysis between countries
GICK, D., « Fracking in the Badlands: Can Levying a Carbon Tax Against Oil and Gas Companies Help Native American Tribes Raise Revenue While Preserving Cherished Tribal Lands? », 2017, vol. 29, p. 21.	2017	Sub-national	Carbon tax	Legal constraint – allocation of competence

GILDER, A., « To Tax or Trade (or Both or Neither)? The Confusing South African Status Quo on Carbon Taxation and Emissions Trading », 2012., p. 8.	2012	National (South Africa)	Economic instruments	Description design
GILDER, A. et STILES, G., « Comparative Approaches to Carbon Taxation in Canada and South Africa: Balancing National Aspirations with Global Realities », *Carbon & Climate Law Review*, 2019, vol. 13, n° 4, pp. 270-279.	2019	National - Canada & South Africa	Carbon tax	Comparison design Best design
GILLIS, R., « Carbon Tax Shifts and the Revenue-Neutrality Dilemma », *Florida Tax Review*, April 2020, vol. 23, n° 1, pp. 293-348.	2020	National	Carbon tax	Conceptual distinctions
HAITES, E. *& al.*, « Experience with Carbon Taxes and Greenhouse Gas Emissions Trading Systems », *Duke Environmental Law & Policy Forum*, 2018, vol. 29, n° 1, pp. 109-182.	2018	National/ regional	Carbon pricing	Pluri-disciplinary assessment of design Comparison between countries
HOFFMANN, L., « The Role of Economic Instruments to Reduce Carbon Emissions and their Implementation: A Comparison of Environmental Policies in New Zealand and Germany », 2006, p. 41.	2006	National – New Zealand, Germany	Economic instruments	Comparison between countries Promotion
HSU, S.-L., « A Complete Analysis of Carbon Taxation: Considering the Revenue Side », *Buffalo Law Review*, 2017, vol. 65, n° 4, pp. 857-[vi].	2017	General	Carbon tax	Promotion Opposition and solution to overcome it
HSU, S.-L., *The case for a carbon tax: getting past our hang-ups to effective climate policy*, Washington, Island Press, 2011.	2011	National – US	Carbon tax	Instrument choice Promotion Opposition
JEFFERY, M. & SHEN, Y., « The Likelihood of a Carbon Tax in China: Wishful Thinking or a Real Possibility? », *Tulane Environmental Law Journal*, 2012, vol. 25, n° 2, pp. 419-452.	2012	National – China	Carbon tax	Instrument choice Promotion
KERR, A., « Why we need carbon tax », *Environs: Environmental Law and Policy Journal*, 2010, vol. 34, n° 1, pp. 69-98.	2010	National – US	Carbon tax	Instrument choice Promotion
KINDE, A.L., « Let's Make a Green New Deal: », *Northeastern University Law Review*, 2017, vol. 11, n° 2, pp. 474-522.	2017	National – US	Carbon tax	Instrument choice Promotion Legal constraint, allocation of competence
LEE, M., *EU environmental law: challenges, change and decision-making*, Modern studies in European law, n° v. [6], Oxford ; Portland, Oregon, Hart Pub, 2005.	2005	Regional – EU	Environmental law	General contribution on environmental law
LUCAS, G.M., « Behavioral public choice and the carbon tax », *Utah Law Review*, 2017, vol. 1, pp. 115-158.	2017	National – US	Carbon tax	Opposition to tax – behavioural public choice
LUCAS, G.M., « Voter Psychology and the Carbon Tax », *Temple Law Review*, 2017, vol. 90, n° 1, pp. 1-52.	2017	National – US	Carbon tax	Opposition to tax – behavioural public choice
MAGNANT, A., « La taxe carbone en France : la troisième tentative est la bonne », *Revue française de finances publiques*, 2015, vol. 131, p. 239.	2015	National – France & regional – EU	Carbon tax	Description design, legal constraints
MANN, R.F., « To Tax or Not to Tax Carbon-Is That the Question? », *Natural Resources & Environment*, 2009, vol. 24, n° 1, pp. 44-46.	2009	National – US	Carbon tax	Instrument choice Promotion Design
MANN, R.F., « How to Overcome Politics and Find Our Green Destiny », *Environmental Law Reporter News & Analysis*, 2009., vol. 39, n° 2, pp. 10118-10126.	2009	National – US	Carbon tax	Instrument choice Promotion Opposition
MARGALIOTH, Y., « Tax Policy Analysis of Climate Change », *Tax Law Review*, 2010, vol. 64, p. 37.	2010	Global	Carbon tax	Instrument choice Promotion
MARRANI, D., « How to End an Attempt to Institute a Carbon Tax, *Environmental Law Review*, February 2011, vol. 13, n° 1, pp. 50-55.	2009	National – France	Carbon tax	Legal constraint surrounding design – case law on equal treatment
MASTELLONE, D.P., « The Emergence and Enforcement of Green Taxes in the European Union – Part », European Taxation, 2004, pp. 478-490.	2014	Regional – EU	Environmental taxes	Description of design
MASTOR, W., « La contribution carbone à la lumière de la décision du Conseil constitutionnel du 29 December 2009:	2009	National – France	Carbon tax	Legal constraints surrounding design – case law on equal treatment

chronique d'une mort - et d'une renaissance ? - annoncées », AJDA, 2010, p. 277-286.				
MASUR, J. et POSNER, E.A., « Toward a Pigouvian State », *University of Pennsylvania Law Review*, 2014, vol. 164, pp. 93-147.	2014	National – US	Environmental taxes	Instrument choice Promotion Legal constraints surrounding design
MELTON, M., « The Constitutionality of Taxing Agricultural and Land Use Emissions », Environmental Law Reporter News & Analysis, 49(10), 10953-10971.		National – US	Carbon tax (agriculture)	Legal constraints surrounding design
MILNE, J.E., « Carbon tax choices: the tale of four states », in *The Green Market Transition*, Cheltenham, Edward Elgar Publishing, 2017, pp. 3-16, available at https://www.elgaronline.com/view/9781788111164.00011.xml (Last consulted, 2 June 2022).	2017	National – US	Carbon tax	Legal constraints surrounding design
MILNE, J.E., « How Durable is a Lockbox for Carbon Tax Revenue? », *Pittsburgh Tax Review*, April 2020, vol. 17, n° 1.	2020	National (US)	Carbon tax	Legal constraints surrounding design Opposition
MILNE, J.E., « Carbon taxes in the United States: the context for the future », *Vermont Journal of environmental law*, 2010, vol. 10, n° 1, pp. 1-30.		National (US)	Carbon tax	Lessons learnt from other energy taxes and analyses proposals (design)
NICASIO, K., « States Rise to the Front of Climate Legislation, but Can a State-Level Carbon Tax Work? », *Indiana Law Journal*, 2019, vol. 95, n° 2, pp. 751-772.	2019	Sub-national (states in US)	Carbon tax	Instrument choice – promotion of carbon tax; description of proposals
PIRLOT, A., « Exploring the impact of EU law on energy and environmental taxation », in *Research Handbook on European Union Taxation Law*, Northampton, Edward Elgar Publishing, 2020, pp. 359-388.	2020	Regional – EU	Energy & environmental taxes	Legal constraint (of EU law on Member States)
PIRLOT, A., « International taxation and environmental protection », in *Research Handbook on International Taxation*, Cheltenham, Edward Elgar Publishing, 2020, pp. 258-277.	2020	International	Environmental taxation	Mutual interactions between taxes and SDGs
PIRLOT, A. et WOLFF, S., « The Impact and Role of Indirect Taxes Surrounding the Aviation Sector in Mitigating Climate Change: A Legal and Economic Analysis », *World Tax Journal*, 2017, pp. 392-429.	2017	Regional – EU	Carbon tax (aviation)	Legal constraint Economic analysis
SCHIEBE, T., « Designing environmental taxes to promote biofuels from a State aid perspective », *Eastern and Central European Journal on Environmental Law*, 2019, vol. 26, n° 2, pp. 103-172.	2019	National (Finland and Sweden)	Carbon tax (biofuels)	Legal constraint (of EU law on Member States)
SCHLEGEL, I., « The Future of European Energy Taxes in the Context of Environmental Policy Instruments », *Carbon & Climate Law Review*, 2014, vol. 2, pp. 115-124.	2014	Regional – EU	Energy – carbon tax	Description of design Assessment of design in light of environment
SEWALK, S., « Europe Should Dump Cap-and-Trade in Favor of Carbon Tax with Reinvestment to Reduce Global Emissions », 2014, p. 63.	2014	Regional – EU	Carbon tax	Instrument choice Promotion Best design
SHURTZ, N., « Carbon Pricing Initiatives in Western North America: Blueprint for Global Climate Change Policy », *San Diego Journal of Climate & Energy Law*, 2016 2015, vol. 7, pp. 61-140.	2014-2015	National	Carbon tax	Instrument choice Promotion Best design Comparative analysis
SOARES, C.D., « Energy tax treatment of undertakings covered by emissions trading », *EC Tax Review*, 2007, vol. 16, n° 4, pp. 184-188.	2007	Regional – EU	Energy taxes	Interaction between instrument Promotion Best design
SOARES, C.A.D., *The design features of environmental taxes*, London School of Economics, 2011.	2011	National	Environmental taxes	Assessment of design in light of environment
SOARES, C.D., « Earmarking revenues from environmentally related taxes », in *Handbook of Research on Environmental Taxation*, Cheltenham, Edward Elgar Publishing, 2014.	2014	Unspecified	Environmentally -related taxes	Opposition Best design
STRECK, C. & FREESTONE, D., « The EU and climate change », in *Reflections on 30 years of EU environmental law. A high level of protection?*, , n° 7, Zutphen, Europa Law Publishing, 2005.	2005	Regional – EU	Mitigation policies	Description of policies Legal constraint carbon tax (unanimity)

THIEFFRY, P., *Mutation et intégration des instruments du droit européen de l'environnement*, Paris, Paris 2, 1998.	1998			
THIEFFRY, P., « Les nouveaux instruments juridiques de la politique communautaire de l'environnement, le Traité de l'Union européenne et le cinquième programme communautaire d'action pour l'environnement », *RTD Eur.*, 1992, p. 669.	1992	Regional – EU	Economic regulation environment	Description of policies Legal constraint carbon tax (unanimity)
THIEFFRY, P., « La taxe carbone contraire à l'objectif de lutte contre le changement climatique », *AJDA*, 2010, pp. 1-12.	2010	National – France	Carbon tax	Legal constraints surrounding design – case law on equal treatment
THIEFFRY, P., *Handbook of European environmental and climate law*, Collection European union law, n° 9, Brussels, Bruylant, 2021.	2021	Regional – EU	Economic regulation environment	Description of policies Legal constraint carbon tax (unanimity)
TRAVERSA, E. et TIMMERMANS, B., « Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives », *Intertax*, 2021, vol. 49, n° 11, pp. 871-884.	2021	Regional – EU	Environmental taxation	Promotion Best design Legal constraints surrounding this design
VAN EIJNDTHOVEN, J., « Energy Taxation at European Level: What does it do for the Environment and Sustainability? », *EC Tax Review*, 2011, n° 6, pp. 283-290.	2011	Regional – EU	Energy taxation	Assessment of EU tax law in light of environmental objectives, including climate change
VIESSENT, S. « La fiscalité environnementale de l'Union européenne in Fumaroli », in *La fiscalité environnementale: Entre attentes, doutes et pragmatisme*, Aix-en-Provence, Presses univesitaires d'Aix Marseille, 2018, pp. 128-132.	2018	Regional – EU	Environmental taxation	Legal constraints surrounding adoption Opposition
WAGGONER, M., « Why and How to Tax Carbon », *Colorado Journal of International Environmental Law and Policy*, 2008, vol. 20, pp. 1-34.	2008	National – US	Carbon tax	Design (revenue recycling) – opposition to tax
WARA, M.W., « Instrument Choice, Carbon Emissions, and Information », *Michigan Journal of Environmental & Administrative Law*, 2015, vol. 4, n° 2, pp. 261-302.	2015	National – US	Mitigation strategies	Instrument choice Promotion carbon tax
WEISBACH, D.A., « Carbon Taxation in the EU: Expanding the EU Carbon Price », *Journal of Environmental Law*, July 2012, vol. 24, n° 2, pp. 183-206.	2012	Regional – EU	Carbon pricing	Best design
WEISBACH, D.A. et METCALF, G.E., « The Design of a Carbon Tax », *SSRN Electronic Journal*, 2009.	2012	National – US	Carbon tax	Best design
WEISHAAR, S., « EU Law limits to climate transition in EU Member States », *Milieu&Recht*, 2020, vol. 2, pp. 2-11.		Regional – EU	Carbon tax & support schemes	Legal constraint surrounding design
WEISHAAR, S. & *al.*, « Designing carbon taxes: economic and legal considerations », *in* M. VILLAR EZCURRA (ed.), *Environmental fiscal challenges for cities and transport*, Critical issues in environmental taxation series, n° Volume XXI, Cheltenham, UK, Edward Elgar Publishing, 2019, pp. 213-225.	2019	Regional – EU	Carbon tax	Best design Legal constraint surrounding design
WEISHAAR, S., *Introducing carbon taxes at Member State level: issues and barriers*, WIFO Working Papers 556, 2018.	2018	National – EU Member States	Carbon tax	Legal constraint surrounding design/adoption
WEISHAAR, « Carbon Taxes at EU Level Introduction Issues and Barriers », 2018.	2018	Regional – EU	Carbon tax	Legal constraint surrounding design/adoption Comparative analysis (success stories)
XYNAS, L. (2011) Climate Change Mitigation: Carbon Tax - Is it the Better Answer for Australia 2. 59	2011	National – Australia	Carbon tax	Instrument choice Promotion Comparative analysis

Chapter 3
Unearthing the relationship between climate change and the law: a revised analytical framework

1. INTRODUCTION

In Chapter 2, I reviewed how legal scholarship has explained the contradiction between the assumed simplicity and straightforwardness of carbon taxes and their implementation in practice. I found that the instrumental approach prevailing in this area does not sufficiently illuminate the role of the law in this contradiction. I identified an alternative 'substantive' approach to appraise the relationship between climate change and its legal response. My conclusion was that this approach is worth following to study the carbon taxes from a legal standpoint but that to do so requires establishing a dedicated analytical framework. There is in effect a method ready to use that is capable of using a substantive approach to apprehend the role of the law in the above contradiction. The establishment of such an analysis framework is the purpose of this third Chapter. With this revised analytical framework, my aim is to establish a robust methodology that can be used to analyse these interactions systematically.

Following Eloise Scotford and Stephen Minas, I 'approach methodology for legal scholarship as a pluralistic enterprise that is concerned with adopting 'systematic procedure[s]' that are 'best suited' to the 'special kinds of problems that are discovered in the study of laws and legal systems'.[301] This analytical framework is based on input from various disciplines. It has been imagined in light of personal work experience outside the scope of this research and has been fine-tuned multiple times during its course.

The starting point of this analytical framework has roots in economics, which enables a dialogue between law and economics (Section 2). The reason I start from economics is that promoting carbon taxes as a solution to remedy climate change has its origins in economic theory. What I consider to be the most central feature in the definition of a carbon tax from a substantive viewpoint is the conclusion that climate change should be addressed by pricing all additional tonnes of CO_{2eq} emitted in the atmosphere at the same level, namely the level of their marginal

[301] E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law', *op. cit.*, p. 3.

external costs. In short, this means imposing a uniform carbon price. Then, in Section 3, I question the straightforwardness and simplicity of this conclusion, by referring to several strands of the literature including on framing and on transitions. This approach engages the research more deeply in an interdisciplinary approach. This aims to enrich legal analyses as to the understanding of the problem of climate change and its response.

Sections 4-5 constitute the core of this Chapter. In Section 4, I outline the building blocks of the analytical framework, i.e. the concepts of co-production, of legal response and of legal environment. My contention is that the response to climate change and its legal environment play mutually constitutive roles; they shape each other. Accordingly, I propose to define the concept of carbon tax as *a categorising structure of GHG emission activities (e.g. cement production) and/or products (e.g. energy), the design of which is determined by the frame employed to depict climate change as well as by mutual interactions it entertains with its legal context*. To illustrate the interactions between a carbon tax and its legal environment, Section 5 sets out a two-step methodology. It consists of (1) mapping prevailing legal categories and the frames underpinning them and (2) detecting divergence or convergence as to the way situations are categorised and problems are framed across the various frameworks. Finally, in Section 6, I single out the categorisation of situations as being comparable or different as the most relevant type of category in this research and expose how the legal principle of equal treatment will be used in this research.

The establishment of this analytical framework has been a challenging exercise for several reasons. The first reason is that the problem of climate change and its remedies call for multi- or interdisciplinary analyses, in reason of both its nature and its impacts.[302] Furthermore, the economic origin of carbon taxes calls for a dialogue between the law and economics. But economics is only one of the fields studying this issue; as we have seen, other fields (*e.g.* sociology, geography) can also be relevant. The risk, however, is getting lost in interdisciplinarity. While legal scholars must avoid losing their legal identity and must remain critical, there is no magical formula to establish such a dialogue. The second challenge arises from the breadth of the climate change problem. To apprehend the interplay between this problem and the law in its entirety, a 'whole system approach' is needed.[303] By the same token, climate change calls for a multi-level and multi-scale response; limiting oneself to one level will render it impossible to grasp the global picture.[304] This challenge is reinforced by the pace at which the law, including

[302] E. FISHER *et al.*, 'Maturity and Methodology', *op. cit.*, p. 231 & f.
[303] E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law', *op. cit.*, p. 3.
[304] See notably E. FISHER, E. SCOTFORD et E. BARRITT, 'The Legally Disruptive Nature of Climate Change: Climate Change and Legal Disruption', *The Modern Law Review*, 2017, vol. 80, n° 2, pp. 173-201; M. NIEHAUS et K. DAVIES,

climate legislation evolves. These features pose practical difficulties in terms of scope. All these elements underline the ambition of this research.

2. AN ECONOMIC RESPONSE TO CLIMATE CHANGE: A UNIFORM CARBON PRICE

Chapter 2 emphasised that carbon taxes are not projected through a uniform prism. However, it also made clear that the promotion of carbon taxes is often linked to their capacity to internalise the external costs of GHG emission. This approach portrays climate change as a problem of uncosted externalities that should be internalised through a tax (2.1.). At the heart of this response lies the objective to address climate change in a cost-effective and economically efficient way. An efficient policy maximises the net social benefits for society, that is, it maximises the social benefits minus the social costs.[305] Cost-effectiveness is a necessary, yet insufficient, condition for economic efficiency. Cost-effectiveness means achieving a policy goal at the lowest social cost. This is a specific way to frame climate change, which I will refer to as the 'economic efficiency' frame.[306] Framing climate change in this manner entails conceptualising its response according to a particular 'model design'. The features of this model design are summarised in *Table 3*.

To attain cost effectiveness, each additional tonne of CO_{2eq} should be priced at the same level (uniform carbon price) (2.2.). This is because a uniform carbon price makes it possible to equalise the marginal costs of emission reduction, i.e. the cost of reducing an extra unit of emissions, and thus distribute emission reductions where they are the cheapest. It is generally considered that traditional regulation is incapable of equalising marginal abatement costs and therefore, that the regulatory strategy in question should take the form of a market-based instrument. In addition, the coverage of the scheme should be as broad as possible. To ensure economic efficiency, an additional condition is required: the carbon price should correspond to the marginal external costs of GHG emissions (2.3). A uniform carbon price distributes emission reduction efforts among emitters according to abatement costs and the financial burden on the basis of emission levels.

'Voices for the voiceless: climate protection from the streets to the courts', *Journal of Human Rights and the Environment*, October 2021, vol. 12, n° 2, pp. 228-253; A. JORDAN *et al.*, 'Understanding the Paradoxes of Multilevel Governing: Climate Change Policy in the European Union', *Global Environmental Politics*, May 2012, vol. 12, n° 2, pp. 43-66.

[305] K.R. RICHARDS & J.A.W. van ZEBEN (eds.), *Policy instruments in environmental law*, *op. cit.*

[306] *Infra* 3.2. and 5.1.1.

Imposing a uniform carbon price can generate distributional impacts, in particular in terms of competitiveness and regressivity for low income categories. Furthermore, in the absence of a global level playing field, it can lead to carbon leakage. From an efficiency viewpoint, these impacts should be addressed through revenue recycling rather than relieving emitters of their obligations and, as far as carbon leakage is concerned, through a CBAM (2.4).

	Model design	
Underlying rationale	GHG emissions as source of externalities – have the same impact on society	
Policy goal	Economic efficiency and cost-effectiveness	
Design elements	Instrument form	Market-based instrument (as opposed to traditional regulation)
	Carbon price across sources	As uniform as possible across countries, firms and sectors
	Coverage	As broad as possible
	Carbon price level	Marginal external costs of GHG emissions
	Revenues	Recycle them to address distributional impacts
Categorisation	Emitters are in a comparable situation	They should be treated in the same way (i.e. subject to the same price for all additional tonnes of CO_{2eq} emitted in the atmosphere.
	Distribution of emission reduction	According to abatement cost
	Distribution of financial burden	According to emission level

Table 3 Optimal response to climate change according to economic efficiency frame

2.1. **Framing the problem – external cost internalisation**

The conventional approach in economic theory depicts climate change as a problem of uncosted negative externalities.[307] Negative externalities result from the differences between private costs, namely the costs borne by economic agents, and social costs, i.e. those borne by society as a whole. Un-costed negative externalities result in market failure, which justifies State intervention.[308] The rationale underpinning the need to internalise negative externalities is that, in the absence of internalisation, it is society as a whole that bears the costs of pollution and not the polluter. This is considered to be an inefficient market outcome, as the marginal social cost of pollution exceeds marginal social benefit. The objective behind external costs internalisation is thus to ensure economic efficiency. As concluded by Pigou, a tax can correct negative

[307] For a simple explanation B.J. CONDON et T. SINHA, *The Role of Climate Change in Global Economic Governance*, Oxford, Oxford University Press, 22 August 2013, available at http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199654550.001.0001/acprof-9780199654550 (Last consulted 2 June 2022). See also M.G. FAURE et R.A. PARTAIN, *Environmental Law and Economics*, 1st ed., *op. cit.*
[308] About the possible 'frames' of climate change see *Infra* 3.2.

externalities but taxes are not the only possible strategy possible; those externalities can also be (partially) internalised through other strategies including economic and traditional regulations.

Economists' preference for pricing instruments can be explained as follows: 'The reason is simple: market efficiency requires equating private and social returns, the presence of an externality means that there is a gap between the two, and a price intervention can close the gap, restoring efficiency'.[309] It is a conventional wisdom in neoclassical economics that 'the price of carbon should be (approximately) the same for all uses, at all places and at all dates'.[310] In particular, 'To be cost-effective, such a tax would cover all sources, and to be efficient, the carbon price would be set equal to the marginal benefits of emission reduction'.[311] While this theory is clear, it does not fit totally in real world. For that reason, a number of economists, including the Nobel Prize Joseph Stiglitz, have contended that in a second-best world, i.e. where optimal conditions are not satisfied, one should deviate to some extent from a uniform carbon price.[312]

A first limit is that a uniform carbon price is only recommendable if the marginal damage cost is known.[313] The problem of climate change, however, is associated with a high degree of uncertainty. In addition, in a world where other market failures than uncosted externalities exist, for example asymmetry in information, complementary policies may be needed; as Stiglitz states,

> 'In short, in the second-best world in which we live, there is no presumption that a carbon tax alone can suffice to address optimally the problem of climate change. To the contrary, there is a presumption that additional interventions can increase societal welfare'.[314]

These arguments are significant because they already stress notable cracks in the widespread conclusion that a uniform carbon price should be implemented.

2.2. **Framing the solution – ensuring cost-effectiveness**

The first objective attributed to a uniform carbon price is to ensure cost-effectiveness. Cost-effectiveness results from the equalisation of marginal abatement costs (cost of reducing

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[309] J.E. STIGLITZ, 'Addressing climate change through price and non-price interventions', *European Economic Review*, October 2019, vol. 119, p. 594.
[310] *Ibid.* See also *Infra* footnote 329.
[311] J. ALDY et R. STAVINS, *The Promise and Problems of Pricing Carbon*, *op. cit.*, p. 4. See also J. ELBEZE et C. DE PERTHUIS, *Vingt ans de taxation du carbone en Europe : les leçons de l'expérience*, Les Cahiers de la Chaire Economie du Climat, 2011, p. 34.
[312] J.E. STIGLITZ, 'Addressing climate change through price and non-price interventions', *op. cit.*
[313] M.L. WEITZMAN, 'Prices vs. Quantities', *Review of economic studies*, October 1974, vol. 41, n° 4, pp. 477-491.
[314] J.E. STIGLITZ, 'Addressing climate change through price and non-price interventions', *op. cit.*, p. 595.

emissions of CO_2 by one unit) across the different sources of emissions.[315] The abatement cost function varies across sectors and countries and by quantity; that is, the more emissions need to be abated, the costlier.[316] Requiring firms to reduce their emissions by the same levels will not be cost-effective, as it ignores that some of them may abate emissions more cheaply than others.[317] Take the following illustration. It may cost 30 euros for a steel company to abate the ten first tonnes of CO_{2eq} and 45 euros to abate the next ten tonnes of CO_{2eq}. By contrast, it may cost 15 euros for a power generator to abate the first five tonnes of CO_{2eq} and 20 euros to abate the next ten tonnes of CO_{2eq} and 35 euros to abate its remaining emissions. We see that the abatement costs are very different. If we ask both firms to abate the same levels (*e.g.* 20 tonnes of CO_{2eq}), it will be costlier than if the power generator were required to abate more emissions than the steel company.

The equalisation of marginal abatement costs addresses this issue, by ensuring that each emitter reduces its emissions 'to the point where the next ton of emissions reduction is the same for every firm'.[318] As Metcalf explains:

> 'That's because each firm reduces its costs by reducing carbon emissions wherever the cost per ton of eliminating the emissions is less than the tax rate. To minimise costs, a firm will reduce emissions until the cost of the next ton reduced equals the tax rate. Since every firm faces the same tax rate, the cost for the next ton of emission reduction is the same for all.'[319]

This enables emission reductions to be distributed where abatement costs are the lowest and therefore ensure cost-effective emissions cuts.

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315 I.W.H. PARRY & *al.*, *Getting energy prices right: from principle to practice*, Washington, DC, International Monetary Fund, 2014, p. 36.; A. QUINET, 'What Value Do We Attach to Climate Action?', *Economie et Statistique / Economics and Statistics*, January 2020, n° 510-511-512, pp. 165-179; J. ALDY et R. STAVINS, *The Promise and Problems of Pricing Carbon*, *op. cit.*, p. 175; T.H. TIETENBERG, 'ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL REGULATION', *Oxford Review of Economic Policy*, 1990, vol. 6, n° 1, p. 21; I.W.H. PARRY *et al.* (eds.), *Fiscal policy to mitigate climate change: a guide to policymakers*, Washington, D.C., International Monetary Fund, 2012, p. 29.

316 For an overview see https://www.mckinsey.com/business-functions/operations/our-insights/net-zero-or-bust-beating-the-abatement-cost-curve-for-growth; https://www.mckinsey.com/about-us/new-at-mckinsey-blog/a-revolutionary-tool-for-cutting-emissions-ten-years-on (Last consulted 2 June 2022).

317 As Metcalf explains: 'Mandating the same percentage reduction for all firms seems fair. But, it ignores the wide variation in costs of power plants and the fact that some might be able to reduce pollution more easily (and cheaply) than others. Here's why the uniform percentage reduction rule would be more costly than necessary. (…) A uniform mandate to cut emissions is not cost-effective.' G.E. METCALF, *Paying for pollution*, *op. cit.*, p. 57. See also A. QUINET, 'What Value Do We Attach to Climate Action?', *op. cit.*, p. 175; J. ALDY et R. STAVINS, *The Promise and Problems of Pricing Carbon*, *op. cit.*

318 G.E. METCALF, 'Why Do Economists Like a Carbon Tax?', 2020, p. 58.

319 *Ibid.*

Marginal abatement costs are equalised by guaranteeing that the price of each additional unit of CO_{2eq} is the same for all emitters; that is, a uniform carbon price.[320] Thus, the more uniform the carbon price, the more cost-effective the solution will be. Along the same lines, the scope of the scheme should be as broad as possible. Indeed, the wider the coverage, the more opportunities exist to abate emissions at low cost.[321] Economists generally discard traditional regulation as being able to equalise the marginal costs of emission reductions and therefore be a cost-effective mitigation solution.[322] In its place, they promote the use of market-based strategies such as an ETS or a carbon tax. It is worth noting that imposing a uniform carbon price is different from requiring that polluters pay for the harm they cause (polluter-pays principle).

2.3. **Framing the solution – ensuring economic efficiency**

Economic efficiency requires cost effectiveness but also having the carbon price equal to the marginal benefits of emission reduction. The economically efficient level of pollution is the point where the marginal benefits[323] of emission reduction and the marginal abatement costs of emission reduction meet.[324] At other levels, the cost will either exceed the social benefits or the benefits will exceed the costs; in the last case, higher levels of emission reduction could be achieved. To put it another way,

> 'If prices are less than environmental damage, some socially desirable environmental improvements will be forgone; if prices exceed environmental damage, some environmental improvements will be made that are not justified by their cost.'[325]

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[320] In this sense, it is noted that "Carbon prices are a cost-effective instrument. Emitters of GHG emissions will reduce emissions as long as the costs associated with the emissions reduction, i.e. the marginal abatement costs, are smaller than paying the carbon price. A uniform carbon price, thus, equalises the marginal costs of reducing emissions across all emitters in an economy, so that the aggregate abatement cost is minimised'. *Improving economic efficiency and climate mitigation outcomes through international co-ordination on carbon pricing*, OECD Environment Working Papers, 22 May 2019, available at https://www.oecd-ilibrary.org/environment/improving-economic-efficiency-and-climate-mitigation-outcomes-through-international-co-ordination-on-carbon-pricing_0ff894af-en (Last consulted 2 June 2022), p. 11 (see also p. 61). See also *Carbon pricing and COVID-19: Policy changes, challenges and design options in OECD and G20 countries*, OECD Environment Working Papers, 10 March 2022, p. 17, available at https://www.oecd-ilibrary.org/environment/carbon-pricing-and-covid-19_8f030bcc-en (Last consulted on 2 June 2022); A. QUINET, 'What Value Do We Attach to Climate Action?', *op. cit.*, p. 175; UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.*, p. 113.; C. HEPBURN, N. STERN et J.E. STIGLITZ, "'Carbon pricing" special issue in the European economic review', *op. cit.* p. 2; J. TIROLE (2009). Politique climatique: une nouvelle architecture internationale. Conseil d'analyse économique, *Report* n° 87, https://www.cae-eco.fr/staticfiles/pdf/087.pdf, p. 15 & 324.

[321] A. QUINET, 'What Value Do We Attach to Climate Action?', *op. cit.*, p. 175; UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developping Countries', *op. cit.*, p. 113.

[322] M.G. FAURE et R.A. PARTAIN, *Environmental Law and Economics: Theory and Practice*, 1st ed., Cambridge, Cambridge University Press, 31 October 2019, p. 122, available at https://www.cambridge.org/core/product/identifier/9781108554916/type/book (Last consulted on 2 June 2022); J. ALDY et R. STAVINS, *The Promise and Problems of Pricing Carbon*, *op. cit.*, p. 154.

[323] This is the same as saying that it equal marginal exeternal cost.

[324] For further details see Annex I to this Chapter.

[325] I.W.H. PARRY *& al.*, *Getting energy prices right*, *op. cit.*, p. 58.

Therefore, price level is the key to ensuring that the response is economically efficient.

While the starting point is straightforward – marginal external costs of those emissions are the same for all units of CO_{2eq}, as 'they all cause the same environmental damage regardless of how they are generated or in which location' – this solution encounters a number of challenges.[326]

The first challenge is associated with the types of instrument used. Not all regulatory instruments are equally capable of guaranteeing that carbon price corresponds to the marginal external cost of the additional unit of GHGs emitted. This is linked to the distinction between the (strict) pricing and the quantities instruments. With traditional regulation and emission trading, the State sets the quantities and not the price.[327] The State, in effect, establishes the level of GHG emissions allowed and the market will determine at which price emissions are abated. Therefore, there is no guarantee that the carbon price will equal the marginal benefits of emission reduction and therefore, that economic efficiency is attained. On the contrary, with a tax, the State can set the rate at the level of marginal benefit of emission reduction and therefore ensure economic efficiency.

The second difficulty regards determination of the carbon price level. This has led to the emergence of two approaches: the traditional *cost-effectiveness* approach and the *cost-benefit* approach.[328] The *cost-effectiveness* approach requires determining the marginal external costs of GHG emissions. This implies assigning a monetary value to a variety of costs, including market (*e.g.* loss of productivity and GDP) and non-market costs (*e.g.* biodiversity loss). Due to climate change's peculiar features, estimating those costs is challenging.[329] Climate change has been said to generate negative impacts that 'exceed all other known externalities in terms of their scale and impact',[330] which makes it hard to measure these externalities. This challenge is reinforced by remaining scientific uncertainty, *e.g.* as to the correlation between increased concentration of GHGs in the atmosphere, temperature increases and their impacts. In addition, estimating the

[326] I.W.H. PARRY *& al.* (eds.), *Fiscal policy to mitigate climate change: a guide to policymakers*, Washington, D.C., International Monetary Fund, 2012, p. 29.
[327] On the debate between prices and quantities see Infra, Chapter 2, 2.2.4.
[328] The cost-benefit approach was notably followed in N. STERN, *The Economics of Climate Change*, *op. cit.*; I.W.H. PARRY *et al.* (eds.), *Fiscal policy to mitigate climate change*, *op. cit.*, chap. 4. On these two approaches see J. ELBEZE et C. DE PERTHUIS, *Vingt ans de taxation du carbone en Europe : les leçons de l'expérience*, *op. cit,* p. 22 & f..
[329] The following explanations in the two next paragraphs is based on A. QUINET, 'What Value Do We Attach to Climate Action?', *op. cit.*
[330] *Ibid.*, p. 166.

cost of species or habitat loss poses ethical issues, even though similar questions arise in the context of liability actions.[331]

Determination of the marginal external costs of GHG emission implies estimating the marginal cost both of all present and all *future* damages of those emissions.[332] This raises the knotty question of discount rates.[333] Discounting helps decide whether to invest now or in the future. It is a way to value time, so as to weigh future costs and benefits. The lower the discount rate, the more a future generation is taken into consideration in the valuation of carbon. Determining the adequate discount rate is a tricky question in economics because it entails ethical choices for which economics do not have a straightforward response. This question led to heated debates between the economists Nicolas Stern and William Nordhaus.[334] Stern was in favour of a 'prescriptive approach', where discounting conforms to an 'ethical ideal, with a low rate, while Nordhaus pursued a 'descriptive approach', with a much higher rate.[335]

In light of these difficulties, a second method has emerged to establish the price of carbon: the *cost-effectiveness* method.[336] This alternative method implies setting the carbon price at the level that will ensure achievement of a determined emission reduction target.[337] As this level differs from marginal external costs per unit of pollution, it will not attain economic efficiency. The cost-effectiveness approach does not require setting the social cost of carbon nor the discount rate, which overcomes some of the difficulties embedded by the cost-benefit approach.[338] One can also argue that this approach is also closer to the reality of climate change law and policy. The implementing acts of the UNFCCC have determined a level of emission reduction that needs to

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331 For a criticism see M. FOURCADE, 'Cents and Sensibility: Economic Valuation and the Nature of "Nature"', *American Journal of Sociology*, May 2011, vol. 116, n° 6, pp. 1721-77. Examples include MC KINSEY, *A methodology for quantifying the benefits of protecting the planet's natural capital*, 22 September 2020, available at https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/Valuing%20nature%20conservation/Valuing-nature-conservation.pdf (Last consulted on 2 June 2022).

332 Commission presided by A. QUINET, *La valeur de l'action pour le climat. Une valeur tutélaire du carbone pour évaluer les investissements et les politiques publiques*, February 2019, pp. 50-51, available at https://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/atoms/files/fs-2019-rapport-la-valeur-de-laction-pour-le-climat_0.pdf. (Last consulted on 2 June 2022).

333 On discount rates see C. GOLLIER et M.L. WEITZMAN, 'How should the distant future be discounted when discount rates are uncertain?', *Economics Letters*, June 2010, vol. 107, n° 3, pp. 350-353. See also C. GOLLIER, *Le climat après la fin du mois*, Paris, PUF, 2019.

334 Stern uses a discount of 1,4% and Nordhaus 5%. W. NORDHAUS, 'Critical Assumptions in the Stern Review on Climate Change', *Science*, July 2007, vol. 317, n° 5835, pp. 201-202; N. STERN, *The Economics of Climate Change*, *op. cit.*

335 Explanation borrowed from S. JASANOFF, 'A New Climate for Society', *op. cit.*, pp. 242-243. See also M. HULME, *Why we disagree about climate change*, *op. cit.*, chap. 4.

336 The cost-benefit approach was notably followed in N. STERN, *The Economics of Climate Change*, *op. cit.*; I.W.H. PARRY *& al.* (eds.), *Fiscal policy to mitigate climate change*, *op. cit.*, chap. 4. On these two approaches see J. ELBEZE et C. DE PERTHUIS, *Vingt ans de taxation du carbone en Europe : les leçons de l'expérience*, *op. cit,* p. 22 & f..

337 HIGH-LEVEL COMMISSION ON CARBON PRICES, *Report of the high level commission on carbon prices*, *op. cit.*

338 A. QUINET, 'What Value Do We Attach to Climate Action?', *op. cit.*, p. 167.

be attained to prevent the dangerous effects of climate change.[339] However, the *cost-effectiveness* method requires estimating the abatement cost level, which is also difficult because it calls for scenarios about technological development.[340]

This second method is increasingly followed.[341] It was used in the notorious report of the High-Level Commission on Carbon Prices, a group of economists convened by the Carbon Pricing Leadership Coalition.[342] These were charged to:

> 'explore explicit carbon-pricing options and levels that would induce the change in behaviours — particularly in those driving the investments in infrastructure, technology, and equipment — *needed to deliver on the temperature objective of the Paris Agreement*, in a way that fosters economic growth and development, as expressed in the Sustainable Development Goals (SDGs). This report does not focus on the estimation and evaluation of the climate change impacts that would be avoided by reducing carbon emissions.' [343]

The reference to a carbon price needed to achieve the Paris Agreement target is reminiscent of the cost-effectiveness approach.

2.4. **Framing the solution – addressing the distributional impacts**

The desirability of imposing a uniform carbon price across emission sources from an efficiency viewpoint poses the question of its distributional impacts. Given the diversity of emission sources and of strategies to mitigate climate change, a uniform carbon price is likely to result in

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[339] In this sense 'There is an urgency to act as only a limited *carbon budget* remains available to keep global temperature change well below 2°C'. HIGH-LEVEL COMMISSION ON CARBON PRICES, *Report of the high level commission on carbon prices*, *op. cit.*, p. 6. My emphasis. The concept of carbon budget refers to 'different concepts and can be used at different geographical levels. At the global level, the term "global carbon budget" refers to an assessment of carbon cycle sources and sinks on a global level and the resulting change in the concentration of atmospheric CO2.The term "total carbon budget" is used to refer to the maximum amount of cumulative net global anthropogenic CO2 emissions, starting from the pre-industrial period, that would result in limiting global surface temperature to a given level with a given probability, taking into account the effect of other anthropogenic climate forcers. (…). At the national or sub-national level, the term "carbon budget" refers to the setting of GHG emission caps for different sectors or sources for successive, pre-defined periods (i.e. 5 years) or an overall limit on GHGs to be emitted over a specified period (i.e. between 2020-2030) in order to reach a longer-term emission reduction target.' *Understanding countries' net-zero emissions targets*, OECD/IEA Climate Change Expert Group Papers, 27 October 2021, p. 12, available at https://www.oecd-ilibrary.org/environment/understanding-countries-net-zero-emissions-targets_8d25a20c-en (Last consulted on 2 June 2022).

[340] HIGH-LEVEL COMMISSION ON CARBON PRICES, *Report of the high level commission on carbon prices*, *op. cit.*

[341] As observed by A. QUINET, *La valeur de l'action pour le climat. Une valeur tutélaire du carbone pour évaluer les investissements et les politiques publiques*, *op. cit.*

[342] The Carbon Pricing Leadership Coalition is a voluntary partnership of national and sub-national governments, businesses, and civil society organizations that agree to advance the carbon pricing agenda. See https://www.carbonpricingleadership.org/.

[343] HIGH-LEVEL COMMISSION ON CARBON PRICES, *Report of the high level commission on carbon prices*, *op. cit.*

large distributional impacts.[344] To put it differently, it implies 'winners and losers'.[345] Some sectors are high emitters of GHGs, other have little or costly alternatives and therefore will have to pay more than others. The distributional impacts resulting from a uniform carbon price raise concerns regarding fairness and competitiveness, issues that are widely studied in the literature.[346] In the absence of revenue redistribution, carbon pricing tends to be regressive, because it affects a larger share of expenditure by low-income categories than by high-income ones.[347] In addition, carbon pricing can impact firms' competitiveness by raising their costs and, in the absence of a global playing field, lead to carbon leakage.[348]

Contributions that cover these interrelated issues generally point to the conclusion that differentiation between emissions sources should be avoided.[349] As noted by Bye and Nyborg, 'such differentiated taxes will not equalize marginal abatement costs between polluters, which was, after all, one main reason for advocating market-based instruments in the first place'.[350] This stipulation suggests that options reducing the uniformity of the carbon price (*e.g.* tax exemptions or reduced tax rates) should be avoided as they reduce the efficiency of this strategy. From an efficiency viewpoint, the impacts of a carbon tax are best addressed by adopting compensatory

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344 In this sense J.E. STIGLITZ, 'Addressing climate change through price and non-price interventions', *op. cit.*, p. 599 & f.

345 M. BRUDER (2021). 'Lex in-depth: how carbon prices will transform industry', February, 3rd, retrieved from https://worldnewsera.com/news/finance/lex-in-depth-how-carbon-prices-will-transform-industry.

346 About these distributional impacts see inter alia; D. KLENERT *et al.*, 'Making carbon pricing work for citizens', *op. cit.* For a review see G.R. TIMILSINA, *Where Is the Carbon Tax after Thirty Years of Research?*, s.l., World Bank, Washington, DC, June 2018, available at http://hdl.handle.net/10986/29946 (Last consulted 2 June 2022).

347 B. BUREAU, 'Distributional effects of a carbon tax on car fuels in France', *Energy Economics*, January 2011, vol. 33, n° 1, pp. 121-130; A. BERRY, 'The distributional effects of a carbon tax and its impact on fuel poverty: A microsimulation study in the French context', *Energy Policy*, January 2019, vol. 124, pp. 81-94; S. RAUSCH, G.E. METCALF et J.M. REILLY, 'Distributional impacts of carbon pricing: A general equilibrium approach with micro-data for households', *Energy Economics*, December 2011, vol. 33, pp. S20-S33. J.A. CRONIN, D. FULLERTON et S. SEXTON, *Vertical and Horizontal Redistributions from a Carbon Tax and Rebate*, Cambridge, MA, National Bureau of Economic Research, March 2017, p. w23250, available at http://www.nber.org/papers/w23250.pdf (Last consulted 2 June 2022).

348 M.S. ANDERSEN et P. EKINS, *Carbon-Energy Taxation*, s.l., Oxford University Press, 29 October 2009, available at http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199570683.001.0001/acprof-9780199570683 (Last consulted 2 June 2022); J. ALDY et W. PIZER, *The Competitiveness Impacts of Climate Change Mitigation Policies*, Cambridge, MA, National Bureau of Economic Research, December 2011, p. w17705, available at http://www.nber.org/papers/w17705.pdf (Last consulted on 2 June 2022); J. ALDY, *Frameworks for Evaluating Policy Approaches to Address the Competitiveness Concerns of Mitigating Greenhouse Gas Emissions*, Harvard Project on Climate Agreements, Cambridge, Mass., 2016; « Competitiveness and Exemptions From Environmental Taxes in Europe », *Environmental and Resource Economics*, 1999, vol. 3, pp. 369-396.

349 For instance, D.A. WEISBACH et G.E. METCALF, 'The Design of a Carbon Tax', *op. cit.*, p. 15; G.E. METCALF, *Paying for pollution*, *op. cit.*, p. 112. By contrast, Piketty and Chancel call for a progressive carbon tax to finance climate adaptation; they note 'Given the enormous inequality of the world distribution of carbon emissions, we feel that the at tax can hardly be regarded as an equitable solution.' L. CHANCEL et T. PIKETTY, 'Carbon and inequality: from Kyoto to Paris', *op. cit.*, p. 38.

350 B. BYE et K. NYBORG, 'Are Differentiated Carbon Taxes Inefficient? A General Equilibrium Analysis', *The Energy Journal*, April 2003, vol. 24, n° 2, p. 97, available at http://www.iaee.org/en/publications/ejarticle.aspx?id=1408 (Last consulted on 2 June 2022).

measures accompanying the carbon pricing scheme.[351] A widely praised solution is to recycle the revenue collected (e.g. through lump sum transfers or tax reductions).[352] Where compensatory transfers are not possible though, a part of economic scholarship concludes that fairness justifies differentiating the carbon price among high- and low-income countries.[353]

In the absence of uniform carbon price globally, a final issue is carbon leakage.[354] Carbon leakage is regarded as a problem as it annihilates mitigation efforts, through their displacement, whilst harming the economy of the country implementing the carbon pricing scheme.[355] To ensure efficiency, this issue is preferably addressed through CBAMs (as currently proposed in the EU), as opposed to reliefs for firms at risk of carbon leakage, such as through tax reductions exemptions or in the case of an ETS through free allocation of allowances.[356] As far as emission trading is concerned, it is worth noting that economic theory concludes that in perfect market conditions, free allocation does not undermine the price signal sent by the system.[357] However, in real life, markets do not function properly and free allocation in the case of the EU-ETS has

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351 G.E. METCALF, *Paying for pollution*, *op. cit.*, p. 113. I.W.H. PARRY *et al.* (eds.), *Fiscal policy to mitigate climate change*, *op. cit.*, pp. 34-37.

352 A. BARANZINI, J. GOLDEMBERG et S. SPECK, 'A future for carbon taxes', *op. cit.*; D. KLENERT *et al.*, 'Making carbon pricing work for citizens', *op. cit.*; D. KLENERT et L. MATTAUCH, 'Carbon Pricing for Inclusive Prosperity: The Role of Public Support', *op. cit.*

353 For instance, d'Autume & al. underline: 'Chichilnisky and Heal (1994) have stressed that the impossibility of international redistribution should lead us to reject the principle of equalizing worldwide abatement costs, that is, having a uniform world carbon price (…). International differentiation of the price of carbon sometimes provides a useful instrument to reach a more equitable allocation. However, when it comes to climate change, international transfers (whether monetary or techno- logical or in terms of allocating permits) are in the picture already." A. D'AUTUME, K. SCHUBERT et C. WITHAGEN, 'Should the Carbon Price Be the Same in All Countries?: Should the Carbon Price be the Same?', *Journal of Public Economic Theory*, October 2016, vol. 18, n° 5, pp. 723. See also L. SHIELL, 'Equity and efficiency in international markets for pollution permits', *Journal of Environmental Economics and Management*, July 2003, vol. 46, n° 1, pp. 38-51.; HIGH-LEVEL COMMISSION ON CARBON PRICES, *Report of the high level commission on carbon prices*, *op. cit.*

354 As defined before, carbon leakage is the displacement of emissions due to relocation of firms where climate policies are less stringent B. LOCKWOOD et J. WHALLEY, 'Carbon-motivated Border Tax Adjustments: Old Wine in Green Bottles?':, *World Economy*, June 2010, vol. 33, n° 6, pp. 810-819; M.S. ANDERSEN et P. EKINS (eds.), *Carbon-energy taxation: lessons from Europe*, Oxford ; New York, Oxford University Press, 2009; T. BARKER *et al.*, 'Carbon leakage from unilateral Environmental Tax Reforms in Europe, 1995–2005', *Energy Policy*, December 2007, vol. 35, n° 12, pp. 6281-6292.

355 Y. SPASSOV, 'EU ETS', *op. cit,* p. 315.

356 About border adjustment mechanisms see M. HAFSTEAD, R. WILLIAMS et G.E. METCALF, 'Adding Quantity Certainty to a Carbon Tax: The Role of a Tax Adjustment Mechanism for Policy Pre-Commitment', *Harvard Environmental Law Review Forum*, 2017, vol. 41, pp. 41-57; C. KAUFMANN et R.H. WEBER, 'Carbon-related border tax adjustment', *op. cit.* S. KORTUM et D. WEISBACH, 'The design of border adjustment mechanisms for carbon prices', *National Tax Journal*, 2017, p. 26.

357 W.D. MONTGOMERY, 'Markets in licenses and efficient pollution control programs', *Journal of Economic Theory*, December 1972, vol. 5, n° 3, pp. 395-418. As explained by Steward, the reason is that both cases, the price of an extra-unit of CO_{2eq} at a given moment is the same for all covered installations. R.B. STEWART, 'Instrument Choice', *op. cit.*, p. 151.

been claimed to undermine its effectiveness.[358] By contrast, it is disputed whether free allocation complies with the polluter-pays principle.[359]

3. QUESTIONING THE STRAIGHTFORWARDNESS AND SIMPLICITY OF A UNIFORM CARBON PRICE

When one thinks about the nature of climate change as well as the wide range of emission sources and their intrinsically different features, the idea of applying the same pricing level to all additional units of CO_{2eq} emitted does not seem all that obvious. A series of arguments arising from multidisciplinary fields of study support this point. These fields of study bring a different perspective on the problem of climate change and its possible remedies than economic theory. They constitute a body of evidence that converges on the conclusion that complexity and controversies are inherent both to the problem of climate change and to its response. To put it another way, complex problems like climate change cannot be addressed in the blink of an eye. This literature thus provides grounds to discard the assumption that there exists such a thing as a simple and straightforward response to climate change, including through a carbon tax.

The first argument is based on the characterisation of climate change as a (super)wicked problems, that is, a problem that is not univocally defined or understood (3.1). This casts doubt on the existence of a simple solution to this problem. This argument is related to another. One consequence of regarding climate change as a wicked problem is that multiple frames can be used to understand the nature of this problem and its solution(s) (3.2). In this context, viewing climate change as a problem of uncosted externalities that should be internalised is only one possible frame. The third argument is that there are different ways in which people ascribe value to things. Therefore, pricing all additional GHG emissions at the level of their marginal costs is not the only approach possible (3.3). Finally, a transition perspective to climate change is an incitement

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358 C. DE PERTUIS, '15 ans de marché carbone : Six leçons pour renforcer le système', *Confrontations Europe*, 2021, p. 28. In the same vein, it has been noted that taxes with uniform carbon rates for all emissions and emission trading systems with full permit auctioning provide stronger incentives for investment in clean technologies than taxes with tax-free allowances and emission trading systems with benchmarking or grandfathering. *Carbon pricing design: Effectiveness, efficiency and feasibility: An investment perspective*, OECD Taxation Working Papers, 22 June 2020, p. 35, available at https://www.oecd-ilibrary.org/taxation/carbon-pricing-design-effectiveness-efficiency-and-feasibility_91ad6a1e-en (Last consulted on 2 June 2022).

359 On this question see J.R. NASH, 'Framing Effects and Regulatory Choice', *Notre Dame Law Review*, 2006, vol. 82, p. 61; N. DE SADELEER, 'Consistency between the Granting of State Aid and the Polluter pays Principle: Aid Aimed at Mitigating Climate Change', *Climate Law*, March 2020, vol. 10, n° 1, pp. 28-49. Woerdman & al. argue that the grandfathering is consistent with the efficiency dimension of the polluter pays principle but not with 'an extended form of that principle'. E. WOERDMAN, A. ARCURI et S. CLÒ, 'Emissions Trading and the Polluter pays Principle: Do Polluters Pay under Grandfathering?', *SSRN Electronic Journal*, 2007, available at http://www.ssrn.com/abstract=1271843 (Last consulted on 2 June 2022).

to embrace a systemic approach that emphasises the inherently complex interplay between the solution to this problem and existing systems (3.4).

3.1. **Climate change as a wicked problem**

Climate change has been recognised as a peculiar problem. It is often presented as an exceptional challenge and has been characterised as a 'wicked', 'super wicked' or 'hot' problem.[360] Common to all these terms is that they involve disagreement about the nature of the problem and its possible remedies and they are also sometimes criticised for lacking a sufficient degree of abstraction or delineation (aren't most problems wicked?).[361] This implies that 'the problem itself is impossible to incontrovertibly define'.[362]As Hulme explains: 'Climate change is not simply a 'fact' waiting to be discovered, proved or disproved using the tenets and methods of science. Neither is climate change a problem waiting for a solution, any more than the clashes of political ideologies or the disputes between religious beliefs are problems waiting to be solved.'[363] It is better grasped as 'forceful idea which divides people'.[364]

Climate change has several unique features which, combined, distinguish it from other problems. It is global and involves scientific uncertainty.[365] Its causes are diffuse – most daily acts contribute to climate change – and largely invisible, and its worst impacts are yet to come, being spread territorially and accumulated over time. Climate change also summons up conflicting interests and responsibilities; those who (will) suffer the most from its effects are not those who bear the higher responsibility for the problem, and those who are in measure to address it may not have

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360 K. LEVIN *& al.*, 'Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change', *Policy Sciences*, June 2012, vol. 45, n° 2, pp. 123-152; C. HILSON, 'It's All About Climate Change, Stupid! Exploring the Relationship Between Environmental Law and Climate Law', *Journal of Environmental Law*, November 2013, vol. 25, n° 3, pp. 359-370; K. LEVIN *et al.*, 'Playing it forward: Path dependency, progressive incrementalism, and the "Super Wicked" problem of global climate change', *IOP Conference Series: Earth and Environmental Science*, February 2009, vol. 6, n° 50, p. 502002; R.J. LAZARUS, « Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future », *Cornell law review*, 2009, vol. 94, p. 83; E. FISHER, E. SCOTFORD et E. BARRITT, 'The Legally Disruptive Nature of Climate Change: Climate Change and Legal Disruption', *The Modern Law Review*, 2017, vol. 80, n° 2, pp. 173-201.

361 M. HULME, *Why we disagree about climate change*, *op. cit.*

362 M. HULME, *Climate change*, Key ideas in geography, London New York, Routledge, Taylor & Francis Group, 2022, p. xxix.

363 *Ibid.*, p. xxvi.

364 M. HULME, '(STILL) DISAGREEING ABOUT CLIMATE CHANGE: WHICH WAY FORWARD?: with Mike Hulme, "(Still) Disagreeing about Climate Change: Which Way Forward?"; Annick de Witt, "Climate Change and the Clash of Worldviews, December 2015, vol. 50, n° 4, pp. 893-905.

365 Even though advances in scientific knowledge reduce the degree of uncertainty, as the last IPCC report highlights. IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press.

an incentive to do so. In particular, the contribution of developing countries to GHG accumulation in the atmosphere is marginal compared to the impacts they (will) face.[366] For Small Island States, drastically curbing climate change is a matter of survival, as rising sea levels will engulf entire territories.[367] Consequently (in)justice lies at the heart of the climate question.[368]

Figure 1 Tuvalu Minister's speech at COP26, retrieved from https://globeecho.com/news/europe/germany/strong-image-at-climate-conference-tuvalus-minister-gives-speech-in-the-sea/

Another relevant feature of climate change, is that the causes of this problem and its possible remedies are interconnected with other problems. In his powerful book 'Slow Violence and the

366 In this sense Y. OSWALD, A. OWEN et J.K. STEINBERGER, 'Large inequality in international and intranational energy footprints between income groups and across consumption categories', *Nature Energy*, 2020, vol. 5, n° 3, pp. 231-239; OXFAM, *Confronting carbon Inequality. Putting climate justice at the heart of the COVID-19 recovery*, September 2020, available at https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621052/mb-confronting-carbon-inequality-210920-en.pdf. (Last consulted on 2 June 2022). The higher responsibility of industrialised countries is recognised by UN Framework Convention on Climate Change (9 May 1992) 1771 UNTS 107 (hereinafter UNFCCC), Article 3, § 1.

367 UNFCCC (2005) climate change, small island developing States, Bonn, Germany.

368 In this sense, Report of the Office of the United Nations High Commissioner for Human Rights (2015). Analytical study on the relationship between climate change and the human right of everyone to the enjoyment of the highest attainable standard of physical and mental health, retrieved from https://documents-dds-ny.un.org/doc/UNDOC/GEN/G16/092/02/PDF/G1609202.pdf?OpenElement, which notes: 'The disproportionate impact of climate change on persons in vulnerable situations raises concerns of climate justice, fairness, equity and access to remedy (…) States should be accountable to rights holders for their contributions to climate change, including for failure to adequately regulate the emissions of businesses under their jurisdiction.' (P. 12, § 38). See also P. HARRIS, *A Research Agenda for Climate Justice*, Cheltenham, Edward Elgar Publishing, 2019, available at https://www.elgaronline.com/view/edcoll/9781788118163/9781788118163.xml (Last consulted 2 June 2022); S. DIETZ, *From Efficiency to Justice: Utility as the Informational Basis of Climate Strategies, and Some Alternatives*, Oxford., Oxford University Press, 18 August 2011, available at http://oxfordhandbooks.com/view/10.1093/oxfordhb/9780199566600.001.0001/oxfordhb-9780199566600-e-20 (Last consulted on 2 June 2022).

Environmentalism of the Poor', Rob Nixon has recounted how many environmental crises have taken place invisibly and gradually.[369] Oil extraction, the very same oil that contributes to global warming, causes catastrophic damages for inhabitants living close to oil spills. The author quotes the testimony of inhabitants of the Ogoni village of Dere in Nigeria in the aftermath of an oil field explosion close to the village: "We can no longer breathe natural oxygen; rather we inhale lethal and ghastly gases. Our water can no longer be drunk unless one wants to test the effect of crude oil on the body'.[370] The story of the indigenous people of Sarayaku who are fighting to preserve their land and with them the rich ecosystem of the Amazon forest is another illustration of such entanglement.[371]

The peculiar nature of climate change, whatever terminology is used, has been associated with a tendency to regard it as exceptional, compared to other problems.[372] This is known as 'climate exceptionalism', which Nagel defines as 'the belief that the problem presented by climate change is different from the air pollution problems that we have addressed in the past'.[373] The (un)exceptionality of climate change is much debated in the literature. Climate exceptionalism has been criticised *inter alia* for presenting climate change as 'as an environmental problem involving greenhouse gases which requires a regulatory technical fix or solution to avoid catastrophe'. Authors have argued that the promotion of technical fixes, such as geoengineering and, arguably, carbon taxes, has diverted the response to this problem from one of a value-laden discussion.[374] Similarly, Cornell and Gupta raise that 'in order to act quickly against this "global threat" to humanity writ large, long-standing distributional justice concerns are marginalised, democratic procedures set aside and/or controversial and high-risk techno-fixes relied upon'.[375]

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[369] R. NIXON, *Slow violence and the environmentalism of the poor*, Cambridge, Massachusetts London, England, Harvard University Press, 2013.
[370] *Ibid.*, pp. 107-108.
[371] See the recent case of Ecuador's Constitutional Court, Revisión de Sentencia de Acción de Protección Bosque Protector Los Cedros, 1 December 2021, 1149-19-JP/21, available at https://www.corteconstitucional.gob.ec/index.php/boletines-de-prensa/item/1262-caso-nro-1149-19-jp-21-revisión-de-sentencia-de-acción-de-protección-bosque-protector-los-cedros.html. For a summary see https://www.centerforenvironmentalrights.org/news/press-release-rights-of-nature-victory-in-ecuador
[372] C. HILSON, 'It's All About Climate Change, Stupid! Exploring the Relationship Between Environmental Law and Climate Law', *Journal of Environmental Law*, November 2013, vol. 25, n° 3, pp. 359-370.
[373] J.C. NAGLE, 'Climate Exceptionalism', *Environmental Law*, 2010, vol. 40, n° 1, p. 53. See also L. HEINZERLING, 'Heinzerling, Thrower Keynote Address: The Role of Science in Massachusetts v. EPA', *Emory Law Journal*, 2008, vol. 58, n° 2, pp. 411-422.
[374] C. HILSON, 'It's All About Climate Change, Stupid! Exploring the Relationship Between Environmental Law and Climate Law', *op. cit.*; S.E. CORNELL et A. GUPTA, 'Is climate change the most important challenge of our times?', *in* M. HULME (ed.), *Contemporary Climate Change Debates*, 1st ed., London, Routledge, 2019, pp. 6-20, available at https://www.taylorfrancis.com/books/9780429821158/chapters/10.4324/9780429446252-2 (Last consulted on 2 June 2022); C.J. PRESTON (ed.), *Climate justice and geoengineering: ethics and policy in the atmospheric Anthropocene*, London ; New York, Rowman and Littlefield International, Limited, 2016.
[375] S.E. CORNELL et A. GUPTA, 'Is climate change the most important challenge of our times?', *op. cit.*, p. 16.

3.2. **The multiple frames of climate change**

One important consequence of climate change being a wicked problem is that a wealth of frames is available to portray this problem and its remedies.[376] These different frames place the emphasis on different elements of the challenge and hence lead to distinct ways to understand its possible remedies. Scholars have identified many frames of climate change, including the 'scientific uncertainty' frame, 'national security' frame, 'polar bear' frame, 'money' frame, 'catastrophe' frame, and 'justice and equity' frame.[377] In this research, I will rely on the framing patterns identified by Hulme & al. in a recent contribution published in Nature concerning editorialising practices of leading international science journals. These frames include economic, developmental, technological and scientific frames.[378] The economic frame corresponds to the 'economic efficiency' frame above. It defines climate change as a problem of externality and responds to this problem by improving quantification of cost benefits and/or the adoption of economic or financial instruments.

But the economic (efficiency) frame is not the only one possible. An 'ethical' frame, they note, depicts climate change as raising issues of procedural and/or distributive justice implying a responsibility/moral duty towards others to mitigate climate change. Framing climate change as a 'developmental challenge', implies portraying it as a 'by-product of pathways and patterns of socio-economic development, whilst 'unequal development inhibits adequate mitigation,

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[376] M. HULME, *Climate change*, *op. cit.*; C. WARREN et D. CLAYTON, 'Climate change, COP26 and the crucible of crisis: editorial introduction to the special issue', *Scottish Geographical Journal*, January 2020, vol. 136, n° 1-4, pp. 1-4; S.C. MOSER, 'Communicating climate change: history, challenges, process and future directions', *WIREs Climate Change*, January 2010, vol. 1, n° 1, pp. 31-53; A. DEWULF, 'Contrasting frames in policy debates on climate change adaptation', *WIREs Climate Change*, July 2013, vol. 4, n° 4, pp. 321-330; A. ROOSVALL et M. TEGELBERG, 'Framing climate change and indigenous peoples: Intermediaries of urgency, spirituality and de-nationalization', *International Communication Gazette*, June 2013, vol. 75, n° 4, pp. 392-409; R.L. NABI, A. GUSTAFSON et R. JENSEN, 'Framing Climate Change: Exploring the Role of Emotion in Generating Advocacy Behavior', *Science Communication*, August 2018, vol. 40, n° 4, pp. 442-468; M. HULME *et al.*, 'Framing the challenge of climate change in Nature and Science editorials', *op. cit.*; C. HILSON, 'Framing Time in Climate Change Litigation', *Oñati Socio-legal Series*, August 2019, vol. 9, pp. 361-379; K. FLØTTUM et Ø. GJERSTAD, 'Narratives in climate change discourse', *WIREs Climate Change*, January 2017, vol. 8, n° 1, available at https://onlinelibrary.wiley.com/doi/10.1002/wcc.429 (Last consulted 2 June 2022); K. O'BRIEN, A.L. ST. CLAIR et B. KRISTOFFERSEN, 'The framing of climate change: why it matters', *in* K. OBRIEN, A.L. ST. CLAIR et B. KRISTOFFERSEN (eds.), *Climate Change, Ethics and Human Security*, Cambridge, Cambridge University Press, 2010, pp. 3-22, available at https://www.cambridge.org/core/product/identifier/CBO9780511762475A011/type/book_part (Last consulted on 2 June 2022); L. FELDMAN et P.S. HART, 'Upping the ante? The effects of "emergency" and "crisis" framing in climate change news', *Climatic Change*, November 2021, vol. 169, n° 1-2, p. 10; M. HULME, *Why we disagree about climate change*, *op. cit.*; M.C. NISBET, 'Communicating Climate Change: Why Frames Matter for Public Engagement', *Environment: Science and Policy for Sustainable Development*, 2009, vol. 51, n° 2, pp. 12-23.

[377] As summarised by K. FLØTTUM et Ø. GJERSTAD, 'Narratives in climate change discourse', *op. cit.*, p. 2; M. HULME, *Why we disagree about climate change*, *op. cit.*; M. HULME *& al.*, 'Framing the challenge of climate change in Nature and Science editorials', *op. cit.*

[378] The following explanations are based on M. HULME *& al.*, 'Framing the challenge of climate change in Nature and Science editorials', *op. cit.*

resilience and adaptation and/or causes uneven distribution of harms to human health, well-being and perceived human security'. Another frame they highlight is 'scientific'; climate change is understood through the prism of insufficient knowledge about this problem and the solution is to invest in science to develop adequate mitigation or adaptation responses. Relatedly, these authors refer to the 'technological' frame as portraying fossil fuel-based technologies as the main cause of climate change and technological innovation (*e.g.* carbon capture and storage) as the key to tackle climate change.

Since these frames define climate change and its remedies in different ways, they may enter into conflict and lead to disagreement.[379] This issue has been beautifully charted by Anil Argawal and Sanita Narain in their seminal paper 'Global Warming in an Unequal World: A Case of Environmental Colonialism'.[380] In this contribution, the authors denounced the blindness of science to the moral weight of GHG molecules:

> 'Can we really equate the CO_2 contributions of gas-guzzling automobiles in Europe and North America or, for that matter, anywhere in the Third World with the methane emissions of draught cattle and rice fields of subsistence farmers in West Bengal or Thailand? Do these people not have a right to live? But no effort has been made (…) to separate out the 'survival emissions' of the poor, from the 'luxury emissions' of the rich. Just what kind of politics or morality is this which masquerades in the name of 'one worldism' and 'high minded internationalism'?'[381]

In other words, in the authors' view not all tonnes of CO_2 have the same value. The reference to the 'right to live' suggests a link with human rights. Consequently, the authors called for a 'normatively inflected, historically aware valuation of carbon emissions' that distinguishes between subsistence and luxury emissions.[382]

The peculiar features of climate change can have consequences in law. This point has made by Liz Fisher who contends that environmental law should be regarded as a 'hot law' given that most environmental problems are 'hot'.[383] This argument is based on Callon's terminology of 'hot' (as opposed to 'cold') situations, that is, situations considered as 'hot' are controversies as to 'the identification of intermediaries and overflows, the distribution of source and target agents,

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[379] M. HULME, *Why we disagree about climate change*, *op. cit.*
[380] A. AGARWAL et S. NARAIN, 'Global Warming in an Unequal World: A Case of Environmental Colonialism', 1991.
[381] *Ibid.*, p. 3.
[382] As summarised by S. JASANOFF, 'A New Climate for Society', *op. cit.*, p. 248.
[383] E. FISHER, 'Environmental Law as "Hot" Law', *op. cit.* See also E. FISHER, E. SCOTFORD et E. BARRITT, 'The Legally Disruptive Nature of Climate Change: Climate Change and Legal Disruption', *The Modern Law Review*, 2017, vol. 80, n° 2, pp. 173-201..

the way effects are measured'.[384] Fisher infers from the view environmental law as hot law that the role of the law is greater but also more chaotic than with respect to 'tame' or 'cold' situations. As a result, controversies lie in the very structure and foundation of environmental law and the response will necessarily be imperfect, leading to 'overflow' or leaks. This will require constant reframing, based on the refined understanding of the problem and its solutions.[385] Other scholars have sustained, in a similar vein, that environmental law is better viewed as an *ad ho*c response to upcoming problems than a well-structured field.[386]

3.3. **Different ways to ascribe value**

Another reason why it is not obvious to impose a uniform carbon price across emission sources is because people have different value systems. This topic is covered by valuation studies.[387] Valuation studies aim to respond to 'the overarching question of how the value of a thing is socially constituted'. [388] This draws attention to the fact that there is not one sole way to value things. According to Hulme, one of the reasons people disagree about climate change is that they ascribe values to activities, resources, etc. in different ways.[389] The distinct ways in which these things are valued plays a key role in deciding what should be done about climate change.[390] The debates between Stern and Nordhaus concerning discounting rates, Sheila Jasanoff has noted, highlight that carbon valuation embeds normative choices and controversies.[391]

Other scholars have cast light on the processes, i.e. series of efforts and interactions that are necessary before a price is placed on carbon.[392] A key conclusion of these contributions is that

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384 E. FISHER, 'Environmental Law as "Hot" Law', *op. cit.*, pp. 350-351. The author refers to M. CALLON, 'An Essay on Framing and Overflowing: Economic Externalities Revisited by Sociology', *The Sociological Review*, May 1998, vol. 46, pp. 244-269.

385 *Ibid* p. 349.

386 M. PEETERS, 'Twenty years of EU Environmental Legislation after Maastricht: The increasing role of the EU as a global green standard-setter', *in* M. VISSER & A. MEI (eds.), *The Treaty on European Union 1993-2013: Reflections from Maastricht*, Ius Commune Europaeum, n° 123, Mortsel, Intersentia, 2013, pp. 335-346.

387 I would like to thank the fellows of the Center for Design, Innovation and Sustainable Transitions of Aalborg University for having introduced me to this field of research.

388 A. ENGELS et C. WANG, 'The Value of a Valuation Perspective for Theorizing about Social Change and Climate Change: A Study on Carbon Pricing in China', *Valuation Studies*, May 2018, vol. 5, n° 2, p. 96. For a general introduction to valuation studies see C.-F. HELGESSON et F. MUNIESA, 'For What It's Worth: An Introduction to Valuation Studies', *Valuation Studies*, 2013, vol. 1, n° 1, pp. 1-10.

389 M. HULME, *Why we disagree about climate change*, *op. cit.*, p. 112.

390 *Ibid.*

391 S. JASANOFF, 'A New Climate for Society', *op. cit.*, pp. 242-243; M. HULME, *Why we disagree about climate change*, *op. cit.*, chap. 4; R. GERLAGH, R. HEIJMANS & K.T. MAYUMI, 'Can the social cost of carbon be calculated?', *in* M. HULME (ed.), *Contemporary Climate Change Debates*, 1st ed., London, Routledge, 27 November 2019, pp. 65-80, available at https://www.taylorfrancis.com/books/9780429821158/chapters/10.4324/9780429446252-6 (Last consulted on 2 June 2022).

392 A. ENGELS et C. WANG, 'The Value of a Valuation Perspective for Theorizing about Social Change and Climate Change', *op. cit.* S. DALSGAARD, 'The commensurability of carbon', *op. cit.*; L. LOHMANN, 'The Endless Algebra of Climate Markets', *Capitalism Nature Socialism*, December 2011, vol. 22, n° 4, pp. 93-116; M. BRAUN, 'The evolution of

carbon pricing is not simply 'someone attaching a price tag on a material object' but requires intensive work.[393] For that reason, authors have disqualified carbon pricing as the 'most promising' solution to climate change.[394]

3.4. **Transition studies**

The final strand of the literature is Transition Studies.[395] Transitions can be defined as 'transformation processes in which existing structures, institutions, culture and practices are broken down and new ones are established'.[396] A transition implies an idea of rupture or radical change that results from interacting changes in all societal domains, such as economy, institutions or technology.[397] Transition studies stress that transition is anything but pedestrian. They are viewed as non-linear processes that result from interactions at several levels. Geels distinguishes three levels: niches (where radical innovations take place), socio-technical regimes (which comprises established practices and associated rules) and the socio-technical landscape, that is, the meta-level (it includes elements such as ideologies, values, beliefs or macro-economic trends).[398] A transition perspective emphasises that radical changes do not take place overnight;

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emissions trading in the European Union – The role of policy networks, knowledge and policy entrepreneurs', *Accounting, Organizations and Society*, 2009, vol. 34, n° 3-4, pp. 469-487; D. MACKENZIE, 'Making things the same: Gases, emission rights and the politics of carbon markets', *Accounting, Organizations and Society*, 2009, vol. 34, n° 3-4, pp. 440-455; M. CALLON, 'Civilizing markets: Carbon trading between in vitro and in vivo experiments', *Accounting, Organizations and Society*, 2009, vol. 34, n° 3-4, pp. 535-548.

393 A. ENGELS et C. WANG, 'The Value of a Valuation Perspective for Theorizing about Social Change and Climate Change', *op. cit.*, p. 100.

394 *Ibid.*, p. 94.

395 See among others F.W. GEELS, 'A socio-technical analysis of low-carbon transitions: introducing the multi-level perspective into transport studies', *Journal of Transport Geography*, September 2012, vol. 24, pp. 471-482; J. KÖHLER *et al.*, 'An agenda for sustainability transitions research: State of the art and future directions', *Environmental Innovation and Societal Transitions*, June 2019, vol. 31, pp. 1-32; A. SMITH, J.-P. VOß et J. GRIN, 'Innovation studies and sustainability transitions: The allure of the multi-level perspective and its challenges', *Research Policy*, May 2010, vol. 39, n° 4, pp. 435-448; J. (Hans) DE HAAN et J. ROTMANS, 'Patterns in transitions: Understanding complex chains of change', *Technological Forecasting and Social Change*, January 2011, vol. 78, n° 1, pp. 90-102; B. TURNHEIM et F.W. GEELS, 'Regime destabilisation as the flipside of energy transitions: Lessons from the history of the British coal industry (1913–1997)', *Energy Policy*, November 2012, vol. 50, pp. 35-49; F.W. GEELS *et al.*, 'Sociotechnical transitions for deep decarbonization', *Science*, September 2017, vol. 357, n° 6357, pp. 1242-1244; T. DE ROMPH, *The legal transition towards a Circular Economy – EU environmental law examined.*, KULeuven, 2018; G. VERBONG et F. GEELS, 'The ongoing energy transition: Lessons from a socio-technical, multi-level analysis of the Dutch electricity system (1960–2004)', *Energy Policy*, February 2007, vol. 35, n° 2, pp. 1025-1037; T. SCHWANEN, 'Thinking complex interconnections: Transition, nexus and Geography', *Transactions of the Institute of British Geographers*, June 2018, vol. 43, n° 2, pp. 262-283; R. KEMP & D. LOORBACH, 'Transition Management: A Reflexive Governance Approach', in *Reflexive Governance for Sustainable Development*, Cheltenham, Edward Elgar Publishing, 2006, available at http://www.elgaronline.com/view/9781845425821.00015.xml (Last consulted on 2 June 2022); F.W. GEELS et J. SCHOT, 'Typology of sociotechnical transition pathways', *Research Policy*, 2007, vol. 36, n° 3, pp. 399-417.

396 D. LOORBACH, *Transition management: new mode of governance for sustainable development: nieuwe vorm van governance voor duurzame ontwikkeling = Transitiemanagement*, Utrecht, Internat. Books, 2007, p. 17.

397 *Ibid.*

398 F.W. GEELS, 'A socio-technical analysis of low-carbon transitions', *op. cit.*, p. 472.

they are the result of long-term processes and of multiple interactions, requiring several decades before a new system can be established.[399]

The reason is that socio-technical systems are embedded into well-rooted trajectories. They are indeed stabilised by *lock-in* mechanisms, which engenders path dependency. For instance, cultural preferences in favour of private property or infrastructure stabilise the existing system in favour of automobile use. *Lock-on* mechanisms, by contrast, highlight cracks in the system and contribute to destabilising it. As the IPCC as noted, climate change requires 'rapid and far-reaching transitions in energy, land, urban and infrastructure', which are 'unprecedented in terms of scale'.[400] Appraising climate change through a transition perspective argues that there is no quick fix to climate change; instead, a series of complex interactions that take place throughout years are needed before radical change can emerge. This perspective is also an invitation to consider the existing system in which the response to climate change is implemented.

4. THE MUTUALLY CONSTITUTIVE ROLES OF THE LEGAL RESPONSE TO CLIMATE CHANGE AND ITS LEGAL ENVIRONMENT

The previous Section shed light on the mainstream economic response to the problem of climate change, that is, the imposition of a uniform carbon price. I then questioned this conclusion, based on several strands of the literature. Drawing on this literature, I now wish to provide a framework of analysis to study these questions from a legal standpoint. This analytical framework starts from a two-fold hypothesis. Firstly, I argue that the legal response to climate change and its legal environment play mutually consecutive roles. Secondly, I submit that these interactions could contribute to illuminating the role of the law in the discrepancy between theory surrounding carbon taxes and their implementation in practice. There are thus three core elements, which this Section aims to clarify: the concept of the mutually constitutive roles (4.1) of legal response (4.2) and of legal environment (4.3). The next Section will specify how to unveil these interactions.

[399] T. DE ROMPH, *The legal transition towards a Circular Economy – EU environmental law examined.*, *op. cit.*, p. 72; D. LOORBACH, *Transition management*, *op. cit.*, p. 17.
[400] IPCC, 2018: Summary for Policymakers. In: Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. In Press, p. 18.

4.1. **Mutually constitutive roles**

The central argument of this research is that the relationship between climate change and the law is not merely instrumental. Instead, the law plays a more substantive or constitutive role in defining the response to climate change.[401] The idea of mutually constitutive roles played by climate change and the law builds on the STS concept of co-production.[402] Co-production refers to the proposal that 'the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it.'[403] STS posits that scientific knowledge or technology are not a 'transcendent mirror', they both 'embed and are embedded in the social'.[404] Therefore this links 'what is' with 'what shall be'.[405] Co-production, Jasanoff specifies, is better seen as an idiom, that is 'a way of interpreting and accounting for complex phenomena', than a fully-fledge theory.[406] This approach aims to 'fill between frames of analysis espoused by the traditional social sciences'.[407]

The idiom of co-production has proved useful in formulating critical accounts of purportedly straightforward and universal solutions. In a contribution on the 'MIT model' of innovation, Pfotenhauer and Jasanoff have shown 'how implementations of the "same" innovation model (…) are co-produced with locally specific diagnoses of a societal deficiency and equally specific understandings of acceptable remedies'.[408] Based on these analyses, they conclude that 'the "successes" and "failures" of innovation models are not a matter of how well societies are able to implement a sound, universal model, but more about how effectively they articulate their imaginaries of innovation and tailor their strategies accordingly'.[409] Innovation and taxes have much in common. They are both presented as a 'go to answer' (or 'panacea') to cure problems regardless of what problem exactly is concerned.[410]

The law can be viewed as a site for co-production. In particular, STS scholars have demonstrated that science and technology entertain mutual interactions with the law (e.g. through the figure of

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401 See to that that effect E. FISHER, *Imagining Technology and Environmental Law*, 1, *op. cit.*; E. FISHER, 'Chemicals as Regulatory Objects', *op. cit.*
402 About STS see *Infra*, Chapter 2, Section 3.
403 S. JASANOFF (ed.), *States of knowledge*, *op. cit.*, p. 2.
404 S. JASANOFF (ed.), *States of knowledge*, *op. cit.*
405 S. JASANOFF et O. LECLERC, *Le droit et la science en action*, *op. cit.*, p. 49.
406 S. JASANOFF (ed.), *States of knowledge*, *op. cit.*, p. 3.
407 *Ibid.*, p. 15.
408 S. PFOTENHAUER et S. JASANOFF, 'Panacea or diagnosis? Imaginaries of innovation and the 'MIT model' in three political cultures', *Social Studies of Science*, December 2017, vol. 47, n° 6, pp. 783-810.
409 *Ibid.*
410 *Ibid.* See also E. OSTROM, M.A. JANSSEN et J.M. ANDERIES, 'Going beyond panaceas', *op. cit.*

experts).[411] Several contributions, discussed previously, have made the point that environmental law and the problems it regulates are co-produced.[412] My contention, after regarding the legal response to climate change and the law as being co-produced, is that the law can define the law can shape the response to climate change. This definitional role attributes a greater role to the law in the conceptualisation of climate legislation, which distinguishes it from a mere matter of constraint or limit. The relationship between the response to climate and the law is also thought to be reciprocal. This means that the response to climate change may also affect legislation that is already in place. The burning question, which is addressed next, is of course how to unveil these mutual interactions.

4.2. **Legal response to climate change**

The second element is the *legal response* to climate change. In line with the substantive approach, I define the legal response to climate change with reference to the objective pursued, that is, mitigating GHG emissions. To avoid being trapped in instrument categories, I find it relevant to compare carbon taxes and other regulatory strategies (*e.g.* emission trading or traditional regulation). With this approach, while I do not discard the possible importance of the instrument category in law I do intend to isolate other factors in the reason why some strategies fail while others succeed. In light of this objective, the case studies include initiatives that have either been adopted or else have remained at the stage of the proposal. To emphasise the role of the changing legal environment, it is also relevant to select strategies that have different temporal contexts. Showing that discrepancies exist between such legal response and the model design above is a first step to determine the role of the law into this.

4.3. **Legal environment**

The reference to the legal environment starts from the observation that regulatory strategies, including carbon taxes, do not develop in a legal vacuum. They are instead implemented in a pre-existing legal setting. I contend that the mutual interactions between the legal response to climate

411 S. JASANOFF, *Science at the bar: law, science, and technology in America*, A Twentieth Century Fund book, Cambridge, Mass, Harvard University Press [u.a.], 1997; S. JASANOFF, 'A New Climate for Society', *op. cit.* See also K. GUZIK, 'Taking Hold of the Wheel: Automobility, Social Order, and the Law in Mexico's Public Registry of Vehicles (REPUVE)', *Law & Society Review*, 2013, vol. 47, n° 3, pp. 523-554; P. CORNUT ST-PIERRE, 'La qualification juridique des swaps comme site d'une lutte globale pour le droit', *McGill Law Journal*, January 2017, vol. 62, n° 1, pp. 79-109; K. WINTER, 'Coproduction of Scientific Addiction Knowledge in Everyday Discourse', *Contemporary Drug Problems*, 2016, vol. 43, n° 1, pp. 25-46.

412 E. FISHER, 'Chemicals as Regulatory Objects', *op. cit.*; S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*; B. LANGE & M. SHEPHEARD, 'Changing Conceptions of Rights to Water?--An Eco-Socio-Legal Perspective', *Journal of Environmental Law*, July 2014, vol. 26, n° 2, pp. 215-242.

change and its this legal environment can explain (among other factors) why carbon taxes take a variety of shapes and are difficult to adopt in practice. My proposal is to apprehend the law as an ecosystem that is the site of multiple interactions between new and existing frameworks, instead of a sterile environment. To put it differently, I argue that law is better viewed as a 'regulatory jungle' than a white sandy beach.[413] I define the term legal environment as the set of rules that compose the legal system in which a response to climate change is implemented.

Defined as such, the legal environment encompasses forms of legislation (*e.g.* constitutional or primary law) but also higher norms and judiciary interpretation that shape the content of the legislation or the exercise of power by public authorities. The aim is to place laws into their own institutional settings and to acknowledge the role of interpretive communities.[414] It is important to note that I do not include in these terms the external environment or 'context',[415] that is 'all the "external macro-social", which has an influence on the law' including various social, political and economic forces.[416] This is what distinguishes this research from a socio-legal study.[417] In the absence of a clear structure for thinking about this legal environment, it appears as a shapeless whole. As a result, its potential interactions with the legal response to climate change are unclear and its scope is not ill-defined but also potentially (too) broad.

To address these issues, I build on Scotford & Minas' distinction between 'direct' (or 'explicit') and 'indirect' (or 'implicit)' climate legislations.[418] These authors define 'direct legal intersections' with climate change as 'those national laws that explicitly address or consider climate change causes or impacts within their operative sections.[419] The Flemish act differentiating the taxation of motor vehicle taxes based on CO_2 emissions is one example, as it explicitly aims to reduce CO_2 emissions from vehicles.[420] By contrast, 'indirect legal intersections' are referred to as 'those national laws and regulations that have the capacity to affect climate change mitigation or

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413 Expression borrowed from N. de SADELEER, *EU environmental law and the internal market*, *op. cit.*
414 E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law', *op. cit.*, p. 23.
415 A. BAILLEUX et F. OST, 'Droit, contexte et interdisciplinarité : refondation d'une démarche', *Revue interdisciplinaire d'études juridiques*, 2013, vol. 70, n° 1, p. 25.
416 *Ibid.*, p. 28.This is my own translation from the following extract: "Le droit se présente à la fois comme intrinsèquement *distinct* de son environnement (il ressortit à l'univers du *Sollen* par opposition au monde du *Sein*) et inextricablement *lié* à ce dernier, qui en constitue l'alpha (le droit *émerge* de la société) et l'oméga (le droit *influe* sur la société)."
417 L.M. FRIEDMAN, 'The Place of Legal Culture in the Sociology of Law', *in* M. FREEMAN (ed.), *Law and Sociology*, Oxford, Oxford University Press, 9 2006, p. 185, available at https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199282548.001.0001/acprof-9780199282548-chapter-11 (Last consulted on 2 June 2022).
418 E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law', *op. cit.*, p. 14 & f.m
419 *Ibid.*, p. 14.
420 See https://www.vlaanderen.be/bedrag-van-de-biv-voor-personenwagens-autos-voor-dubbel-gebruik-en-minibussen (Last consulted on 2 June 2022).

adaptation through their operation, including by providing climate 'co-benefits' or by setting up regulatory tensions in policy terms. Such laws do not address climate change issues explicitly but intersect with climate change because of the subject matter that they regulate'.[421] Given the ubiquitous nature of GHG emissions, multiple subject matters intersect with climate change. Examples include areas such as energy, planning, industrial permits, vehicles.

This line of distinction is useful in thinking about the possible interactions between the legal response to climate change and its legal environment. The legal response to climate change, as I define it, falls in the category of direct climate legislations. This means that it will converge in terms of objectives pursued with the direct climate legislations prevailing in its legal environment. On the contrary, from that perspective, it will differ from indirect climate legislations. I argue that it is relevant to study both direct and indirect climate law because they could either facilitate or obstruct the response to climate change.[422] This argument can be linked to transition studies above, and in particular to lock-in and lock-on mechanisms. Nevertheless, circumscribed as such, the legal environment would remain very broad, which poses practical issues in terms of the feasibility of the analyses. Therefore, it will be necessary to circumscribe the scope of study to focus on the most central pieces of this legal environment.

In effect, studying direct climate law alone is already challenging; it has been noted that 'given its breadth, complexity, and dynamic nature, it is a huge challenge (...) to acquire a good overview, let alone develop a comprehensive and in-depth analysis of current climate law'.[423] If indirect climate laws are added to this, the scope of analysis will soar. This challenge is reinforced by the fact that the law is not static; rather it is in constant evolution. Therefore, the analysis of the legal environment entails a time issue. The legal environment of a given response is prone to variations over time. This justifies following a historical approach, which places the response in question into its temporal legal context. In this context, scrutinising initiatives that have different temporal contexts will better assess the role of the legal environment, by shedding light on the possible consequences of a (partial) change of this environment due to time.

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421 E. SCOTFORD & S. MINAS, 'Probing the hidden depths of climate law', *op. cit.*, p. 14.
422 *Ibid.*
423 M. PEETERS & D. MISONNE, 'The European Union and its rule creating force at the European continent for moving to climate neutrality in 2050', *in* L. REINS et J. VERSCHUUREN (eds.), *Research Handbook on Climate Change Mitigation Law*, 2, Cheltenham, Edward Elgar Publishing, In press.

4.4. The focus on horizontal interactions within a single legal system

Before clarifying the method that can unearth the relevant interactions, it is useful to clarify their nature. I do so by distinguishing several types of interactions. These are pictured in Figure 2 below. The first line of distinction is between *horizontal* and *vertical* interactions. Vertical interactions can arise from a legal obligation, i.e. where a higher norm influences the content of an act adopted at a lower echelon or conversely (*e.g.* influence of EU or international law on national law).[424] Vertical interactions, as Wiener says, may also result from 'vertical' or 'trans-echelon' borrowing; that is the borrowing concepts or an approach from other legal systems at a higher or lower level. Integration of the concept of emission trading into the Kyoto Protocol is an example of vertical borrowing.[425] It was borrowed from the US SO_2 cap and trade system thanks to US advocacy efforts.

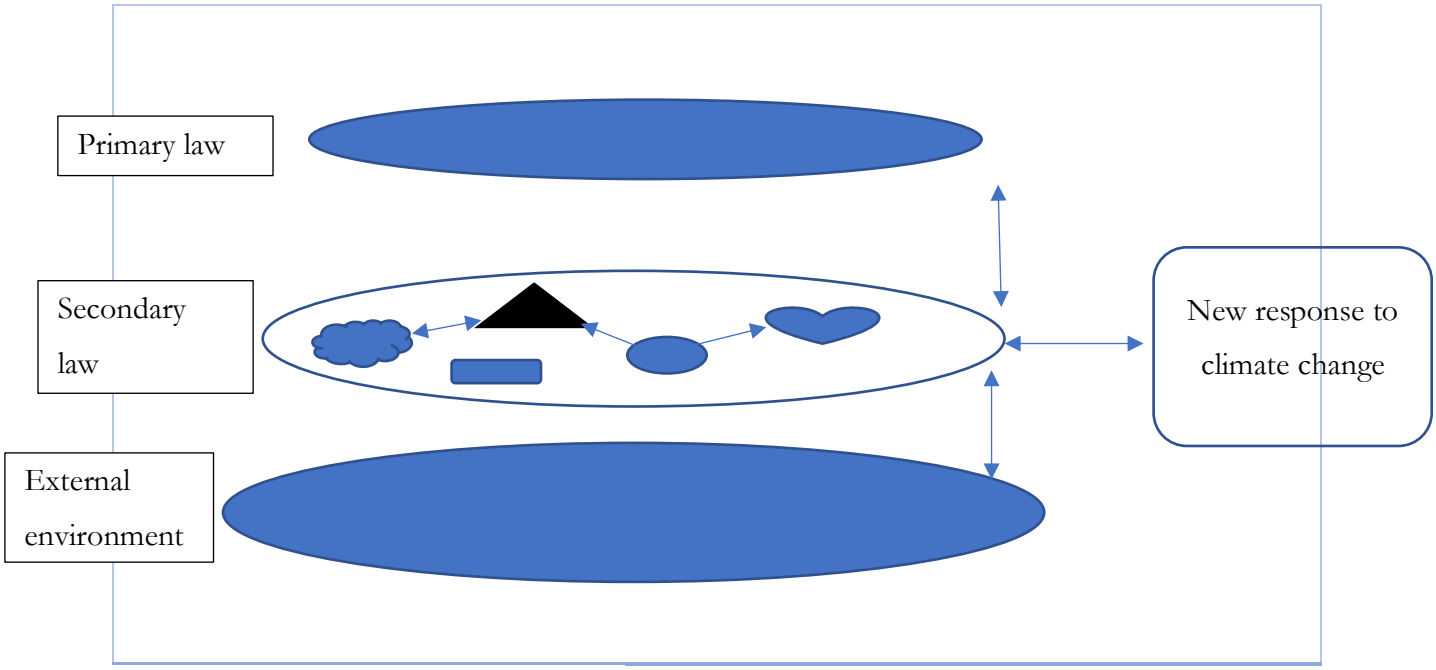

Figure 2 Multilevel interactions, inspired by Geels

Vertical interactions differ from horizontal ones. I define horizontal interactions as those that take place between frameworks, in particular legislation, having the same level or rank. This includes, for instance, the interplay between the law enacting the French carbon tax and the legal framework on energy taxation or energy law (*e.g.* energy efficiency measures, bans on heating pumps, etc.). These interactions are not a matter of legal obligation but are better seen as a matter

[424] For instance A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*; S. WEISHAAR, 'EU Law limits to climate transition in EU Member States', *op. cit.*; T. SCHIEBE, 'Designing environmental taxes to promote biofuels from a State aid perspective', *op. cit.*
[425] J.B. WIENER, 'Something Borrowed for Something Blue: Legal Transplants and the Evolution of Global Environmental Law', *op. cit.*

of legal borrowing. Horizontal legal borrowing has received attention by comparative law scholarship, which has discussed desirability of 'transplanting' legal concepts or mechanisms from one legal setting to another.[426] The reform of the vehicle registration tax by the Walloon region in Belgium illustrates this point. It aimed to implement a bonus malus depending on a vehicle's CO_2 emissions, a choice inspired by French legislation.[427] By contrast, borrowing within one legal setting seems largely ignored by legal scholars.

One can also distinguish between *explicit* and *implicit* interactions. Explicit interactions can be referred to as those involving explicit choices or legal obligations. In the example above, the choice to differentiate vehicle tax based on CO_2 emission, instead of other parameters such as the 'ecoscore', was explicitly justified by the capacity of this criterion to be precisely and unequivocally defined.[428] Similarly, it has been pointed out that the design of the Swedish carbon tax, as far as the treatment of biofuels is concerned, has been shaped by EU State aid law.[429] This is an example of explicit interaction that results from a legal obligation imposed by EU law on Member States' laws. Implicit interactions, by contrast, imply a hidden influence of the legal response to climate change on its legal environment or *vice versa*; to put it differently, the interaction is not readily identifiable and hence, needs to be unveiled.

The final distinction is between *facilitative* or *obstructive* interactions.[430] This perspective must be linked to inputs from transition studies.[431] The law is part of the socio-technical systems defined previously.[432] Accordingly, the law can also play two opposite roles. The law can act as an enabler of transition (or as a lock-on). I define these 'facilitative interactions' as those implying that the newly implemented response to climate change benefits from existing laws. To put it differently, there are synergies between the legal response to climate change and the laws composing its legal environment. Climate laws and climate litigation can be viewed as having enabling roles, as

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426 P. LEGRAND, 'The Impossibility of 'Legal Transplants'', *op. cit.*

427 Walloon Parliament, Project of Decree containing the general revenue budget of the Walloon Region for the 2013 financial year, 2012-2013, IV a, p. 4

428 Walloon Parliament, Project of Decree creating an eco-malus on CO2 emissions from motor vehicles of natural persons in the Code of taxes assimilated to income taxes, 2007-2008, 730(1), p. 5.

429 S. WEISHAAR, 'EU Law limits to climate transition in EU Member States', *op. cit.*; T. SCHIEBE, 'Designing environmental taxes to promote biofuels from a State aid perspective', *op. cit.*; P. NICOLAIDES, 'In Search of Economically Rational Environmental State Aid: The Case of Exemption from Environmental Taxes', *European Competition Journal*, 2014, vol. 10, n° 1, p. 12; F. PITRONE, 'Design of Energy Taxes in the European Union: Looking for a Higher Level of Environmental Protection', *in* P. PISTONE et M. VILLAR EZCURRA (eds.), *Energy taxation, environmental protection and state aids: tracing the path from divergence to convergence*, Amsterdam, IBFD, 2016.

430 E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law: Analysing national climate change legislation', *Review of European, Comparative & International Environmental Law*, 2019, vol. 28, n° 1, p. 13.

431 *Infra* 3.4.

432 T. DE ROMPH, *The legal transition towards a Circular Economy – EU environmental law examined.*, KULeuven, 2018, p. 70. See also E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law', *op. cit.*

drivers of changes. On the contrary, interactions regarded as 'obstructive' are those where existing legislation prevents the legal response to be climate change from being adopted or designed in a certain way (lock-in). For instance, environmentally harmful subsidies (*e.g.* in favour of company cars or fossil fuels) can be considered to obstruct transitions, by maintaining investments in favour of emitting activities.

The variety of possible interactions poses a methodological challenge that is central to this research. All these interactions may not be unearthed using the same method. While explicit interactions seem relatively easy to detect, identifying implicit interactions is trickier. Explicit interactions can be spotted as follows. Legal borrowing, on the one hand, can be pinpointed by scrutinising how parliamentary work and/or legal provisions refer to existing legal frameworks. Legal obligations arising from a higher norm, on the other side, can be identified through a classical legal reasoning, by determining which rule applies to a given situation.[433] This methodology, however, cannot be used to detect implicit interactions. In addition, there can be an array of explicit interactions, given that they can be vertical or horizontal and within one or several legal settings.

My focus will be primarily on horizontal legal interactions within a single legal system. The reason underpinning this choice is based on the originality of this approach to study the relationship between the law and the response to climate change. As explained before, the legal obligations surrounding the adoption of a carbon tax, including at EU level, are well studied but, in my view, do not seem to fully explain the role of the law in the design of a carbon tax nor the difficulty in adopting such a tax. Conducting legal comparisons between different legal settings could help further illuminate this role but I prefer to study in greater depth interactions within a single legal system. Nevertheless, the analytical framework developed in this Chapter could be used to draw comparisons between different legal systems as well. It could also be used to study trans-echelon legal borrowing. In order to provide a comprehensive analysis of horizontal interactions within one legal setting, it will cover both explicit and implicit interactions.

5. A TWO-STEP METHODOLOGY

To determine whether the response to climate change and its legal environment play mutually constitutive roles and if so how, I establish a two-step methodology. The first step is to map, according to a common framework, the three elements above: the response of economic theory

[433] J. COLEMANS et B. DUPRET, 'Présentation du dossier thématique « Droit, justice et catégorisations »', *Revue interdisciplinaire d'études juridiques*, December 2021, n° 2, pp. 123-149.

to climate change, the legal response to climate change and the legal environment in which this response takes place. These three levels are mapped according to the way they frame the problem of climate and categorise situations. The second step consists in unearthing the mutual interactions between the response of economic theory to the problem of climate change, the legal response to climate change and the legal environment of this response; that is whether and if so, how they shape each other. I do so in two ways: through comparison and with the aid of a taxonomy of the possible explicit interactions. These two steps are summarised in Table 4 below.

Main steps	**Sub-steps**
Step 1: mapping categories and frames	Element 1. Response of economic theory to climate change
	Element 2. Legal response(s) to climate change
	Element 3. Legal environment of the legal response to climate change
Step 2: unearthing the interactions through comparisons	Comparison between response of economic theory to the problem of climate change (1) and legal response to this problem (2)
	Comparison between legal response to climate change (2) and its legal environment (3)
	Comparison between the different legal responses to climate change (within 2) as to their relationship with their legal environment (3)

Table 4 Methodology – Two-step reasoning

5.1. **Step 1: mapping categories and frames**

The first step aims to map the *frames* employed in law (5.1.1) and the *legal categories* that correspond to these frames (5.1.2). In this Sub-Section, I clarify these concepts and the methodology used to identify these elements.

5.1.1. *Framing problems*

The first building block is the concept of frame. A frame is the outcome of framing, that is the 'the process which implies a strategic *selection* (conscious or not) of language features for a particular purpose'.[434] Framing is not univocally defined in the literature. According to Entman, 'Framing essentially involves *selection* and *salience*'.[435] It 'highlights some aspects of a perceived

[434] K. FLØTTUM et Ø. GJERSTAD, 'Narratives in climate change discourse', *op. cit.*, p. 2. See also S.C. MOSER, 'Communicating climate change', *op. cit.*
[435] R.M. ENTMAN, 'Framing: Toward Clarification of a Fractured Paradigm', *Journal of Communication*, December 1993, vol. 43, n° 4, p. 52.

reality and enhances a certain interpretation or evaluation of reality'.[436] To put it another way, framing entails isolating what features are relevant or not in conceptualising a problem, to construct an 'interpretative view of a phenomenon or issue'.[437] In this study, I define the concept of frame as 'a *categorising* or taxonomising structure (…) which allows actors to make sense of an "amorphous, ill-defined problematic situation".'[438] To put is another way, it consists of a lens through which a given situation is understood and structured. This definition is telling for legal scholars because it emphasises the interplay between frames and categories, which are well known in law.

The worth of using the concept of frame has an analytical tool is well-emphasised by Gordon Walker. In a contribution on Environment Justice, the author has submitted that:

> 'What is interesting about the frames that come to be is where they have come from, what they include and leave out, and what difference they make (…) Framing is a notion that recognizes that the world is not just out there waiting to be unproblematically discovered, but has to be given meaning, labelled and categorized, and interpreted through ideas, propositions and assertions about how things are and how they ought to be.'[439]

The reference to categories and the distinction between how things are and how they ought to be underlines the strong interconnections between framing and the law.

Frames have been recognised to have three core functions: to diagnose, evaluate and prescribe. In particular, frames:[440]

> *'Define problems-determine* what a causal agent is doing with what costs and benefits, usually measured in terms of common cultural values; *diagnose* causes-identify the forces creating the problem; *make moral judgments-evaluate* causal agents and their effects; and *suggest remedies-offer* and justify treatments for the problems and predict their likely effects (…)'

Therefore, the way a problem is framed is important, because it 'provides concrete suggestions for action, and serves as a guide for policy making'.[441]

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[436] R. HÄNGGLI et H. KRIESI, 'Frame Construction and Frame Promotion (Strategic Framing Choices)', *American Behavioral Scientist*, 2012, vol. 56, n° 3, p. 266.
[437] C. HILSON, 'Framing Time in Climate Change Litigation', *op. cit.*, p. 365.
[438] My emphasis; C. BRADSHAW, « England's fresh approach to food waste: problem frames in the *Resources and Waste Strategy* », *Legal Studies*, 2020, vol. 40, n° 2, pp. 321-343.
[439] G. WALKER, *Environmental justice: concepts, evidence and politics*, Abingdon, Routledge, 2012, p. 16.
[440] R.M. ENTMAN, 'Framing', *op. cit.*, p. 52.
[441] K. O'BRIEN, A.L. ST. CLAIR et B. KRISTOFFERSEN, 'The framing of climate change', *op. cit.*, p. 6.

Snow and Benford clarify the relationship between the frame of a problem and its remedies by making a distinction between 'diagnostic' attribution, that is, identifying and defining the source of the problem, and prognostic attribution, i.e. determination of the possible 'prescriptions' to solve the problem that is informed by the diagnostic.[442] For instance, Sanja Bogojevic has evidenced that portraying emissions trading as a problem of uncosted externalities has led to a response to climate change where the role of the market is greater than the role of the state compared to cases where other frames are involved.[443] By contrast, where emission trading is understood to remedy the problem of ineffective direct pollution regulation, the respective roles of the market and the state are reversed. Similarly, Liz Fisher has shown that the different conceptualisation of chemicals across legal settings is tied to the definition of the problem that the law is to respond to.[444]

A frame is different from a narrative. Narratives are 'used to represent a specific kind of text/talk structure with a 'storyline' (in contrast to other structures such as argumentative, descriptive, and explicative) which can be realized through different genres such as fairy tales, novels, reportage'.[445] According to Chris Hilson, 'a narrative can be seen as possessing some of the structural features of a story. These might include one or more of: characters; story events, a plot order in which those events unfold; a temporal sequence involving a beginning, middle and an end; a moral of the story; and a narrator (who may be reliable or unreliable)'. Hardin's tragedy of the commons can be seen as one of these narratives.[446] It tells the story of a pasture opened to all, which in reason of individual users maximising their own-self-interest cause the depletion of the resources.[447]

The question is how to detect framing patterns in law? As Hulme & al. explain 'Frame analysis is a discourse analysis method, suitable for dissecting how an issue is defined and problematized'.[448] To construct a frame, the following criteria are important: a frame must have identifiable conceptual and linguistic features, be commonly observed, be easily distinguished from other frames and be recognizable by others.[449] This research starts from the frames of climate change

[442] D. SNOW et R. BENFORD, 'Ideology, Frame Resonance and Participant Mobilization I', *International Social Movement Research ER*, 1998.
[443] See Infra Chapter 2, 4.
[444] E. FISHER, 'Chemicals as Regulatory Objects', *op. cit.*
[445] K. FLØTTUM et Ø. GJERSTAD, 'Narratives in climate change discourse', *op. cit.*, p. 2..
[446] In this sense C. HILSON, 'The Role of Narrative in Environmental Law', *op. cit.*; E. FISHER, *Imagining Technology and Environmental Law*, 1, *op. cit.*; E. FISHER, 'Environmental Law as "Hot" Law', *op. cit.*
[447] G. HARDIN, 'The Tragedy of the Commons', *Science New Series*, 1998, vol. 162, n° 3859, pp. 1243-1248. On this paper see among others D. MISONNE, 'La définition juridique des communs environnementaux', *Annales des Mines - Responsabilité et environnement*, 2018, n° 4, p. 5; E. FISHER, *Imagining Technology and Environmental Law*, 1, *op. cit.*
[448] M. HULME *& al.*, 'Framing the challenge of climate change in Nature and Science editorials', *op. cit.*, p. 522.
[449] *Ibid.*

that have been identified in the literature.[450] It connects these frames to legal principles (*e.g.* sustainable development) or requirements (*e.g.* distribution of competences) that lawmakers must either consider or comply with when they enact legislation. That is, it interprets the frames to which legal principles or requirements could correspond.

This approach is relevant because legal principles and requirements influence which elements of a problem shall or should be selected to respond to this problem.[451] Referring to these legal principles or requirements implies looking at the foundations of statutory norms. In the context of the EU, this means surveying EU primary law. At the national level, it would imply inspecting constitutional law, whether codified (*e.g.* Belgium) or not (*e.g.* United Kingdom). These rules will give content to the frames. Whenever I find that some key rules do not fit in any of the frames identified previously, I paint my own frames, based on the criteria above. In a second step, the frames employed in EU primary law will be used to screen legislation (secondary law). In the event that a frame mentioned in the literature is employed in secondary law but does not have clear foundations in primary law, it will also be highlighted.

5.1.2. *Categorising situations*

The second building block is the concept of legal categories.[452] Categorisation can be referred to as 'the process of putting people or things into categories', categories being 'groups with the same features'.[453] Some authors understand this concept as the operation of characterisation, that is the determination of whether a given object or situation falls into an existing category.[454] By contrast, this research understands the process to be the establishment of categories by lawmakers, not the operations of characterisation that takes places subsequently. By categorising things, the law creates lines of demarcations and delineation among them, making them 'appear hazardous or harmless, safe or risky, natural or unnatural, important or unimportant'.[455] For instance, the EIA Directive establishes a category of projects, namely those that are 'likely to have

[450] As specified *Infra*, Sub-Section 3.2.
[451] *Infra*, Section 6.
[452] In the research, I use the term category or categorisation, as a shortcut of legal category or categorisation.
[453] Definition retrieved from https://dictionary.cambridge.org/dictionary/english/categorize
[454] J. COLEMANS et B. DUPRET, 'Présentation du dossier thématique « Droit, justice et catégorisations »', *op. cit.*
[455] R. LIDSKOG, Y. UGGLA et L. SONERYD, 'Making Transboundary Risks Governable: Reducing Complexity, Constructing Spatial Identity, and Ascribing Capabilities', *AMBIO*, March 2011, vol. 40, n° 2, p. 112. Note that the authors talk about regulation in general, not specifically about the law.

significant effects on the environment'.[456] These are demarcated by reference to a list, comprising for instance crude oil activities and chemical production.

The concept of categories is familiar to legal scholars.[457] Categories, in effect, occupy a central place in legal reasoning. As Frederick Schauer outlines:

> 'Categories are the tools of systematic thinking. They enable us to organize our ideas, to draw analogies, and to make distinctions. In this respect categories are important in law because they are important in life. (...) Legal rules not only prescribe results, but they also create (or recognize) the categories of conduct to which the rules apply. Without categories there could be no rules.'[458]

What this stipulation suggests is that categories and the law are inherently bound. In the absence of categories, the law cannot establish rights and obligations. In this research, the focus is on the categorisation of situations as being comparable or different, as defined in Section 6.

5.2. **Step 2: unearthing the interactions**

To unveil the possible interactions between the response to climate change and its legal environment, this research proceeds as follows. It starts by detecting explicit interactions (5.2.1). I do so by screening parliamentary work and legal provisions in order to spot references to existing frameworks. The purpose of this approach is to identify which categories have been *intentionally* reproduced or maintained or on the contrary, have been changed. To help conduct these analyses, I create a taxonomy of the possible explicit interactions. The purpose of this taxonomy is to theorise the possible reasons why there might be an interaction between those legal frameworks and structure the analyses by distinguishing different hypotheses. Then, in a second step it unveils implicit interactions by conducting comparisons (5.2.2).

5.2.1. *Taxonomising explicit interactions*

I establish a taxonomy that seeks to theorise and structure the analysis of the interactions between frameworks in a systematic way. This tool distinguishes four types of interactions, as the final building block of the analytical framework. The four types of interactions vary as to the reasons why legal frameworks may interact. They are charted in Figure 1. This taxonomy has

[456] Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, *OJ L 26, 28 January 2012, p. 1–21,* Annex I and II.
[457] E. NICOLAS, *L'assimilation en droit: essai de philosophie de la technique juridique*, Méthodes du droit, Paris, Dalloz, 2022.
[458] F. SCHAUER, 'Categories and the First Amendment: A Play in Three Acts', *Vanderbilt Law Review*, 1981, vol. 34, n° 2, p. 265.

been developed on the basis of professional experience in relation to the implementation of environmental and fiscal policies. The validity of these hypotheses will be tested in the case studies. Its value exceeds the context of carbon taxation; it has a sufficient level of abstraction to be used in other areas. As noted before, the purpose of this research is analytical. Therefore, this taxonomy is not intended to prescribe how the legal response to climate change should be integrated in law. In the same vein, it does not allow for prediction on the relationship between such a response and its legal environment.

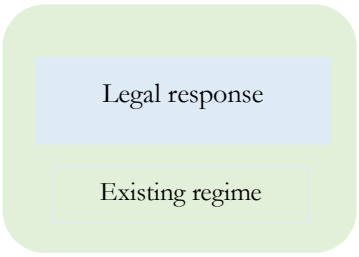
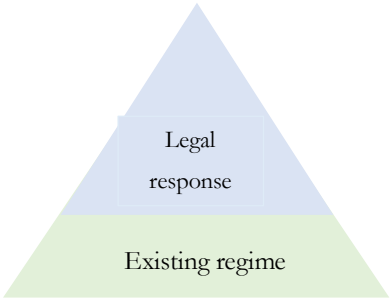
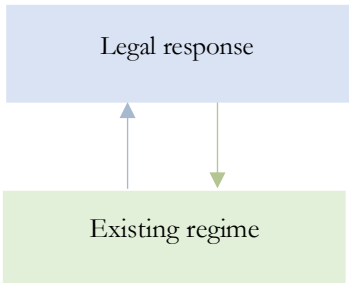
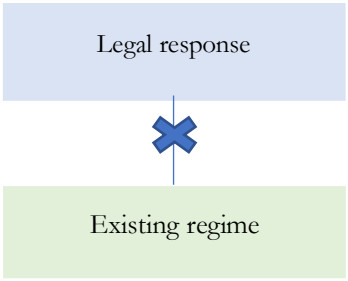
Integration hypothesis	Building blocks hypothesis
	
Legal response merges into a recipient legal framework	Legal response builds on a framework that is already in place
Consistency hypothesis	**Disconnection hypothesis**
	
Legal response interacts with the existing regime(s) to ensure consistency	No visible interaction between legal response and existing regime(s)

Figure 3 Taxonomy of the interactions

The first type of interaction is the '*integration*'[459] hypothesis. It covers situations where the response to climate change is integrated or merged into a recipient legal framework that is already in place. Integration enables synergies to be created with existing frameworks, by taking advantage of existing legislative structures. This can ensure internal consistency, increase administrative simplicity, reduce costs and allow for faster implementation. Insofar as the recipient legal framework does not categorise situations in a way that corresponds to the economic response of climate change, mutually shaping interactions may arise. The French

[459] This is different from internal and external integration of environmental law, which is discussed Infra in Chapter 4.

carbon tax, in its current version, falls in this first hypothesis.[460] It was merged into the existing system of excise duties on energy. CO_2 taxation was designed as an additional component of the tax base.[461] These taxes were not reformed in whole and therefore, the manifold derogations in favour of certain energy uses (*e.g.* agriculture, energy-intensive firms and heavy-duty transport) were maintained.

The '*building blocks'* hypothesis covers situations where the legal response to climate change builds upon an existing framework whilst remaining separate from it. It can be usefully compared to those popular toys that consist of interlocking plastic bricks; the first brick can serve as a foundation for placing the second higher up. Thus, using one brick to place the second, instead of placing them next to each other, gains height. Similar to the previous hypothesis, it can help reduce the administrative burden and reduce the time-lapse.[462] In a previous attempt to implement a carbon tax, French law designed the tax separately from existing excise duties on energy but it built on existing tax arrangement to organise the levying of the tax. [463] This situation falls into the building blocks hypothesis. In the same vein, the Walloon registration tax has built on CO_2 data obtained from vehicle homologation established by EU law.[464]

The '*consistency'* hypothesis is concerned with interactions that aim to guarantee the consistency between a new response to climate change and existing frameworks. Contradictions, gaps and overlaps represent features that are generally considered undesirable in a legal system.[465] In the

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460 As noted in Chapter 1, 3.3.

461 French Parliament, Finance Act for 2014, 29 December 2013, OJ of 30 December 2013, Article 32.

462 As argued by the UNITED NATIONS, 'United Nations Handbook on Carbon Taxation for Developing Countries', *op. cit.*, p. 85.

463 Amending Finance Act for 2000, Article 37; Finance Act for 2010, Article 7.

464 Decree creating an eco-malus on CO_2 emissions by motor vehicles of natural persons in the Code of taxes assimilated to income taxes, Belgian Official Journal 12 March 2008.
Art. 97 ter 'For the purposes of this section, the following definitions shall apply:
1° "CO_2 emissions of the motor vehicle": for vehicles that have been subject to a Community type approval within the meaning of European Directive 70/156/C.E.E. of the Council of 6 February 1970 on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers, the number of grams of carbon dioxide (CO_2) emitted per kilometer (g/km) by the motor vehicle concerned is that measured during a test cycle simulating urban and extra-urban driving modes, in accordance with European Directive 80/1268/EEC. of the Council of 16 December 1980 relating to the carbon dioxide emissions and fuel consumption of motor vehicles, transposed in Belgium by the Royal Decree of 26 February 1981 implementing the Directives of the European Communities relating to the type-approval of motor vehicles and their trailers, wheeled agricultural or forestry tractors, their components and safety accessories; unless otherwise proved by the C. E. type-approval certificate, the figure for these emissions for a given vehicle is the one mentioned as mixed or combined urban-extra-urban emissions on the document referred to in Article 10, §§4 and 5, of the Royal Decree of 15 March 1968 on the general regulations on the technical conditions to be met by motor vehicles and their trailers, their components and safety accessories.'

465 R. BROWNSWORD, 'Law Disrupted, Law Re-Imagined, Law Re-Invented', *op. cit.* (coherentist mindset). See also C.N. FRANKLIN, 'The Burgeoning Principle of Consistency in EU Law', *Yearbook of European Law*, January 2011, vol. 30, n° 1, pp. 42-85.

EU, this is imposed by the Article 7, § 1 of the TFEU.[466] Ensuring consistency is not only a matter of internal coherentism, it can also have an influence on the (cost) effectiveness of the response. As Peeters notes, consistency helps prevent an instrument mix from becoming an 'instrument mess'.[467] With overlapping legal provisions and objectives being pursued, a package of measures may easily lead to conflicts, litigation, and uncertainty. This can be costly, both for public authorities and for firms or individuals. Furthermore, in a complex world, the plurality of objectives the law aims to achieve may lead to contradictions. Possible responses include framework-type legislation, integrated pollution control, impact assessments and integration clauses.[468] Cross-references can also help ensure coordination.[469]

Consistency can be imagined both between frameworks aimed at mitigating climate change or between frameworks addressing different problems (e.g. climate change mitigation and biodiversity loss). The first situation is relevant where the response to climate change is fragmented, as is often the case.[470] The second situation is interconnected to the question of internal integration, which has been a central issue of environmental law. Internal integration 'refers to the question how, through regulatory approaches, all the environmental aspects of a certain activity can be regulated in a coherent way'.[471] This issue also arises between climate change and problems other than environmental (*e.g.* social). The result is that not all climate responses are desirable even though they help reduce climate change. COP Decisions concerning geoengineering or biofuels, as a solution to climate change, support this point.[472] Because climate change intersects with a variety of problems, ensuring a fully consistent response may be particularly challenging.

Finally, the '*disconnection'* hypothesis deals with situations where there is no visible connection between the new legal response to climate change and an existing legal framework. In other words, they exist independently and do not refer to each other. This does not mean that there is

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[466] This provision states that 'The Union shall ensure consistency between its policies and activities, taking all of its objectives into account and in accordance with the principle of conferral of powers
[467] M. PEETERS, 'Instrument mix or instrument mess?', *op. cit.*
[468] Decision 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet', *OJ L 354, 28 December 2013, p. 171–200,* § 89. In the EU, see Article 11 TFEU.
[469] In this sense M. PEETERS, 'Twenty years of EU Environmental Legislation after Maastricht: The increasing role of the EU as a global green standard-setter', *op. cit.*, p. 542.
[470] As noted by E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law', *op. cit.* p. 7.
[471] F. OOSTERHUIS et M. PEETERS, 'Limits to integration in pollution prevention and control', in *EU Environmental Legislation*, Chelthenam Edward Elgar Publishing, 2014, pp. 91-92, available at http://www.elgaronline.com/view/9781781954768.00013.xml (Last consulted on 2 June 2022).
[472] For instance, COP 10 Decision X/33. Biodiversity and climate change, § 8 (w) and (x), available at https://www.cbd.int/decision/cop/?id=12299 (Last consulted on 2 June 2022).

no interaction between these two frameworks but at least that they are not directly visible. This hypothesis is residual; it applies to situations which are not covered previously. The Belgian system of taxation of motor vehicles illustrates this point. At the federal level, a system favourable to company cars is in place.[473] The base CO_2 percentage is set at a level of 102 g/km for petrol cars and 84 g/km for cars equipped with diesel engines. By contrast, at the regional level of Wallonia, an *ecomalus* is due for cars emitting more than 145gr of CO_2. This scheme excludes leasing vehicles, the taxation of which is not differentiated on the basis of CO_2. The different thresholds highlight that there is no apparent connection between the regional and federal systems.

5.2.2. *Unearthing implicit interactions through comparisons*

In a second step, I compare the categories and frames that prevail in the legal response to climate change under study and in its legal environment. By identifying elements of convergence or divergence, my aim is to shed light on the possible implicit interactions. It must be acknowledged that this method cannot evidence with certitude an interaction between the legal response to climate change and its legal environment. Instead, I *assume* that elements of convergence between the legal response to climate change and its legal environment indicate the existence of facilitative interactions. By contrast, elements of divergence would point out obstructive interactions. Direct climate laws and a new legal response to climate change will converge as to the problem addressed but may differ as to the way they frame this problem. Indirect climate laws will differ as to the problem addressed and may or may not differ as to the frame employed to portray such a problem. These points are summarised in Table 5 below.

Shedding light on the facilitative or obstructive roles of the legal environment can help understand its influence on the legal response to climate change. Insofar as this legal environment converges with the 'economic efficiency' frame of climate change, this can facilitate the adoption of a uniform carbon price, including through a carbon tax. By contrast, where the legal environment diverges from the 'economic efficiency' frame of climate change, either because it does not respond to climate change or because it does so according to a different frame than 'economic efficiency', this could have an influence on the design or the possibility to enact the response in question. The legal response proposes could indeed mimic existing categories. In the event that such a response diverges from existing categories or else aims to

[473] On these rules see F. COUTUREAU et O. EVRARD, *Fiscalité et mobilité: ISOC, IPP, TVA*, Limal, Anthemis, 2018.

revise them, the interaction with the legal environment could explain the impossibility to adopt the measure proposed.

	Problem addressed	**Frame employed**	**Interaction**
Direct climate law	Same problem	Same frame	Facilitative
		Different frames	Partly facilitative/obstructive
Indirect climate law	Different problem	Same frame	Partly facilitative/obstructive
		Different frames	Obstructive

Table 5 Facilitative and obstructive interactions

6. CATEGORISING SITUATIONS AS BEING COMPARABLE OR DIFFERENT

This final section is concerned with the principle of equal treatment. In law, imposing uniform carbon price has much to do with the categorisation of situations as being comparable or different. Pricing each additional tonne of CO_{2eq} emitted in the atmosphere at the same level, that is, the level of their marginal external cost, implies treating them in the same way. In law, this idea is captured by the legal principle of equal treatment. Equal treatment constitutes a pillar of our modern democracies; it is an age-old political and philosophical idea,[474] even dating from Aristotle's maxim to treat like cases alike.[475] Equal treatment 'is a value common to many legal orders, the observance of which is imposed on the legislature through judicial review'.[476] It is enshrined in most fundamental rights conventions and in the Constitutions of most national legal

[474] About the principle of equality in the EU see inter alia E. MUIR, *EU equality law: the first fundamental rights policy of the EU*, Oxford studies in European law, Oxford, Oxford University Press, 2018. E. MUIR, 'The Essence of the Fundamental Right to Equal Treatment: Back to the Origins', *German Law Journal*, September 2019, vol. 20, n° 6, pp. 817-839; EUROPEAN UNION AGENCY FOR FUNDAMENTAL RIGHTS., EUROPEAN COURT OF HUMAN RIGHTS. et COUNCIL OF EUROPE (STRASBOURG)., *Handbook on European non-discrimination law :2018 edition.*, LU, Publications Office, 2018, available at https://data.europa.eu/doi/10.2811/58933 (Last consulted on 2 June 2022). C. CHENEVIERE, *Le système d'échange de quotas d'émission de gaz à effet de serre: protéger le climat, préserver le marché intérieur*, Europe(s), Bruxelles, Bruylant, 2018, Chapters 1-2; K. LENAERTS, 'L'égalité de traitement en droit communautaire : un principe unique aux apparences multiples', *Cahiers de droit européen*, 1991, vol. 1-2, pp. 3-41.
See also more broadly J. CROON-GESTEFELD, *Reconceptualising European equality law: a comparative institutional analysis*, Modern studies in European law, n° volume 69, Oxford ; Portland, Oregon, Hart Publishing, 2017; N. PETERSEN, 'The implicit taxonomy of the equality jurisprudence of the UN Human Rights Committee', *Leiden Journal of International Law*, June 2021, vol. 34, n° 2, pp. 421-440.
[475] Aristotle, *Politics* III.13; see also *Nicomachean Ethics* V.3
[476] O. PFEIFFERT, 'La protection de l'environnement et le principe d'égalité', *op. cit.*

systems. A widespread legal appraisal of equality is that '[a]ll persons are equal before the law and are entitled without any discrimination to the equal protection of the law'.[477]

In EU law, the principle of equal treatment entails two dimensions: it stipulates that comparable situations are not treated differently and that different situations are not treated in the same way unless such treatment is objectively justified and the means are proportionate to the objectives.[478] This is also the case in other jurisdictions, such as the ECHR and Belgium. In some countries, there is a specific application of equal treatment in tax matters, alongside the general principles of equality and non-discrimination.[479] This means that it is not irrelevant whether or not the measure scrutinised takes the form a tax, highlighting that the instrument category does indeed also matter in law. In this section, I will concentrate on the definition of equal treatment in EU law as it constitutes the legal background of this research. However, even though this principle is widely recognised, its interpretation varies across legal settings. Therefore, the reader should be aware that using this analytical tool in another legal context may require some fine-tuning.

This research understands the equal treatment structuring principle shaping the categorisation of situations as being comparable or different. It is used as an analytical tool to map prevailing categories in law and their corresponding frames (6.1). In this section, I sketch out the main components of the principle of equal treatment and outline the Court's reasoning in this area. In light of this, I make the point that there is more than one vision of which situations should be regarded as comparable or different (6.2).

6.1. **Equal treatment as a structuring principle that links categories and frames**

This research appraises equal treatment as a structuring principle that shapes the categorisation of situations as being comparable or different. By this, I mean that the principle of equal treatment influences which elements should be selected and considered relevant to determine whether two situations should be treated in the same or in different ways. It will be used to link the frame and the categories that correspond to this frame. Regarding equal treatment as a structuring principle is opposed to seeing it as a mere constraint. My objective is not to assess whether a particular categorisation is lawful or unlawful. That is not to say, however, that this principle does not limit

[477] Article 26 International Covenant on Civil and Political Rights.
[478] About EU law see *Infra*, Chapter 4. In Belgian law see Belgian Constitutional Court, Biorim, 13 October 1989, 23/89
[478] In a case concerning road pricing on heavy duty vehicles, on the contrary, the Court has judged that the legislature could lawfully decide not to distinguish between heavy goods vehicles according to whether or not they carry goods or according to the type of goods that they carry. Belgian Constitutional Court, 23 February 2017, 30/2017, B20.
[479] For instance in Belgium article 172 of the Constitution.

the choice of the legislature to design a carbon tax. Even though it is fair to say that equal treatment leaves a broad margin of appreciation to the legislature, especially in complex policy areas such as the environment, this margin is not absolute and is subject to the control of courts and tribunals.[480]

The French carbon tax illustrates this point. The French law, passed in 2009, was designed as a separate tax on energy products, levied on their CO_2 content. The scheme contained manifold derogations (*e.g.* in favour of undertakings covered by the EU-ETS, agriculture and haulage). The consequence of these derogations is that 93 percent of industrial emissions would have been exempted from the tax. The Constitutional Council ruled that these derogations emptied the measure of all content and concluded that the law introducing the tax violated the principle of equal treatment. In the wake of this annulation, the French carbon tax was re-designed in 2014 so as to be integrated into existing excise duties, as opposed to a separate tax. This approach made it possible to maintain wide discrepancies in the treatment of emitters. We thus see that not all designs of a carbon tax are valid against the principle of equal treatment.

The compliance of an act with the principle of equal treatment is assessed on the basis of the following two-step reasoning:[481]

> 1. Is there a difference in treatment of comparable situations – or a failure to treat different situations in the same way?
>
> 2. If so, is such difference – or absence of difference – objectively justified? That is, does it pursue a legitimate aim? Are the means employed reasonably proportionate to the aim pursued?

This first step supposes comparing situations, that is, determining whether two situations should be considered as being comparable or different. It is then necessary to ascertain whether there is a difference in treatment where situations are comparable or a similarity of treatment where situations are different.[482] If not, the court analysis ends; there is no violation of the principle of equal treatment. Assessing the comparability of situations requires establishing a comparator or term of comparison (*tertium comparationis*), an exterior element on the basis of which two

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[480] Infra, Chapter 4 and Chapter 6, Section 5.

[481] Explanation borrowed from Guide on Article 14 of the European Convention on Human Rights and on Article 1 of Protocol No. 12 to the Convention Prohibition of discrimination, p. 16. See also N. PETERSEN, 'The implicit taxonomy of the equality jurisprudence of the UN Human Rights Committee', *Leiden Journal of International Law*, June 2021, vol. 34, n° 2, pp. 421-440.

[482] The CJEU submits this finding to the condition that the treatment in question must result in 'subjecting some persons to disadvantages as opposed to others'. According to Cedric Cheneviere, however, this condition is not a constitutive element of the violation of the principle of equality but an element of admissibility of the appeal. C. CHENEVIERE, *Le système d'échange de quotas d'émission de gaz à effet de serre*, *op. cit.*, p. 372.

situations can be compared. It is thus the objective criterion underpinning categorisations. The term of comparison makes it possible to 'isolate from the innumerable characteristics of the situations'.[483] It is indeed fair to say that 'situations are never identical in all respects; there can never be equality in every term of comparison'.[484] Analysis of the comparability of situations 'is both specific and contextual', regarding elements that characterise the situations.[485]

It is a constant that assessing the comparability of situations must be made 'in the light of the subject matter and purpose' of the measure.[486] The principles and objectives of the field must also be taken into consideration.[487] These two elements are important, because they highlight that the categorisation of situations as being comparable or different depends both on the problem addressed and on legal principles and objectives. The principles and objectives are determined by the Treaty for the different fields of law. Therefore, the legal basis of an act is a key element in this assessment. In line with the Court's case law, the choice of the legal basis depends on the centre of gravity of an act, that is the main object of an act, as opposed to incidental ones.[488] Where several constituent parts cannot be separated, the Court exceptionally allows several legal bases.[489] This means that the legal basis of an act should in principle match with its main object unless this act is unlawful.

The second step consists of examining whether the difference or similarity of treatment is based on an objective and reasonable criterion; that is whether it relates to a legally permitted aim and is proportionate to the aim pursued.[490] A criterion is thus involved in both steps. As Advocate General Maduro in *Arcelor de Lorraine* highlights:

> 'ascertaining whether the different treatment of comparable situations is objectively justified, that is to say whether it is founded on an objective criterion, is in reality the same as determining whether the different treatment is justified by different situations.

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[483] Opinion of Advocate General Poiares Maduro, 21 May 2008, in CJEU, Arcelor, op. cit., § 42. About the comparator see A. MCCOLGAN, 'Cracking the comparator problem: discrimination, "equal" treatment and the role of comparisons', 2006, p. 26; A.G. EMANUEL, 'To Whom Will Ye Liken Me, and Make Me Equal - Reformulating the Role of the Comparator in the Identification of Discrimination', *Victoria University of Wellington Law Review*, 2014, vol. 45, n° 1, pp. 1-26.

[484] *Ibid.*

[485] Guide on Article 14 of the European Convention on Human Rights and on Article 1 of Protocol No. 12 to the Convention Prohibition of discrimination, p. 17

[486] General Court, Nuna International BV, T-195/12, 23 September 2014, § 51 and CJEU, Arcelor Atlantique et Lorraine and Others, *op. cit.*, § 25; ECHR Fábián v. Hungary, 5 September 2017, § 121.

[487] General Court, Nuna International BV, *op. cit.*, § 52. See also, CJEU, Arcelor Atlantique et Lorraine and Others, *op. cit.* § 26; CJEU, Luxembourg v Parliament and Council, 12 May 2011, C-176/09, § 32; CJEU, Industrie du bois de Vielsalm & Cie, 26 September 2013, C-195/12, § 52;

[488] CJEU, Commission v Council of the European Union, 20 May 2008, C-91/05, § 73 and case law cited. About these issues see N. de SADELEER, *EU environmental law and the internal market*, *op. cit.*, p. 15.

[489] CJEU, Commission v Council (Titanium Oxide), 11 June 1991, C-300/89, § 13.

[490] CJEU, Luxavation, C-113/19, 26 March 2020, § 37.

> (…) Consequently, in so far as the criterion for objective differentiation, like the criterion for the comparison of situations, must relate to the objective pursued, relying on the latter in order to justify the different treatment of similar situations amounts ultimately to taking the view that the similarity which the situations are said to share is irrelevant in relation to the objective pursued."[491]

This statement suggests that depending on the case, a given criterion can be relevant either in the first step of the reasoning or in the second.

In light of the above, it can be concluded that the principle of equal treatment plays two key roles.[492] Firstly, it defines what should be the relevant comparator to determine whether two situations must be regarded as being comparable or different. The consequence is that it settles which situations should in principle be treated in the same way or in different ways. Given that the term of comparison depends on the principles and objectives of the field and that a nexus can be established between these principles and objectives and the distinct frames, the categorising criterion can be connected to the frames. Secondly, equal treatment sets up the conditions under which derogations from such categorisation are allowed, making them subject to the requirement of being based on an objective justification and having means that are proportionate to this objective. Since this principle is amenable to judicial review, litigation will be helpful to determine the demarcations of categories.[493]

As a final point, it is worth noting that in practice, the Court's reasoning is not always straightforward and is even sometimes criticised for its lack of consistency.[494] The teleological criterion of the second step is sometimes used to conclude that situations are different.[495] In addition, the Court does not always go through the first step and instead, directly heads to the second.[496] Furthermore, such analyses also entail a degree of subjectivity, to distinguish which situations should in principle be regarded as being comparable and where differentiation should be the exception or conversely. This arguably represents a limit of this research because it highlights the significant degree of possible variations in the assessment of whether situations are comparable or different and hence in the use of equality as an analytical tool.

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[491] Opinion of Advocate General Poiares Maduro, 21 May 2008, in CJEU, Arcelor, *op. cit.*, § 35.
[492] See *Infra*, Chapter 4, 5.1.
[493] E. FISHER, 'Chemicals as Regulatory Objects', *op. cit.*
[494] As observed by M. BELL, 'The principle of equal treatment: widening and deepening', *in* P. CRAIG et G. DE BÚRCA (eds.), *The evolution of EU law*, Oxford, OUP, 2011, pp. 611-639.
[495] K. LENAERTS, 'L'égalité de traitement en droit communautaire : un principe unique aux apparences multiples', *op. cit.*, p. 11; GERVASONI, S., « Principe d'égalité et principe de non-discrimination : quelques considérations tirées de la jurisprudence de la Cour de justice », *in* L. POTVIN (ed.), *Le principe de non-discrimination face aux inégalités de traitement entre les personnes dans l'Union européenne*, Brussels, Bruylant, 2010, pp. 91-107, at 103.
[496] *Ibid.*

6.2. **Equal, equal or equal**

From the descriptions above, one can conclude that there is no one single way to regard situations as being comparable or different. The case law of the CJEU, which is studied in the next Chapters, supports this argument.[497] The determination of whether situations are comparable or different strongly depends on the elements of the situation or the problem addressed as well as on the perspective followed. The case *Industrie du bois de Vielsalm & Cie* illustrates this point.[498] This judgement concerned national[499] support schemes for renewable electricity that were adopted in application of several directives related to the promotion of renewable energy.[500] The issue was whether national law could distinguish between categories of biomass on the grounds of their different environmental impacts without violating the principle of equal treatment.[501] Under the litigated scheme, wood and wood waste biomass was treated less favourably than biomass from other kinds of waste. These distinct categories of biomass were all suitable for use in cogeneration processes.

The Court found that wood and wood waste biomass were not in a comparable situation as other types of biomass. To reach this conclusion, it considered a series of indicators that pertained both to the inherent features of biomass products and to existing legal frameworks. The Court first examined the purposes of the Directives basing the litigated national act. These Directives pursued a series of objectives, including security of energy supply, environmental protection and the proper functioning of the internal market. It then turned to the principles and objectives of the field. Since the Directives above were based on environmental competence, the relevant principles and objectives were those applicable in the field of the environment.[502] Subsequently, the Court noted that Member States had a broad margin of appreciation to implement the Directives and that these directives did not require that all biomass sources should be considered to be in a similar situation.[503]

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[497] In particular, Chapters 4 and 6, Section 5.
[498] CJEU, Industrie du bois de Vielsalm & Cie, *op. cit.*.
[499] To be precise, it was a regional scheme adopted by the Walloon region.
[500] This case concerned in particular the interpretation of Article 7 of Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC (OJ 2004 L 52, p. 50), read in conjunction with Articles 2 and 4 of Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market (OJ 2001 L 283, p. 33) and with Article 22 of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (OJ 2009 L 140, p. 16).
[501] CJEU, Industrie du bois de Vielsalm & Cie, *op. cit.*, § 80.
[502] *Ibid*, § 54 and f.
[503] *Ibid*, §66.

On the contrary, the Court underlined that it was 'inherent in the framework established by those directives that the various categories of substances (…) may be assessed differently, on the basis of very diverse criteria, by the Member State concerned'.[504] Thus, Member States could lawfully use a variety of criteria to decide whether different types of biomass were in a comparable or different situation. As the CJEU explained, biomass sources differed as regards the renewable nature of the resource, which had an impact on its level of availability and sustainability, its prudent and rational utilisation of resources and security of supply, as some types of biomass came from agricultural products or household and industrial waste whilst others originated from wood.[505] The CJEU then pointed to the biomass sources' diverging environmental impacts (e.g. from deforestation and use of fertilisers). Finally, it referred to the EU legal framework on waste, with a view to ensuring consistency across EU law.[506] This framework did not regard all types of biomass as being in a comparable situation.

In light of this, the Court concluded that national legislation could lawfully consider that wood and wood waste biomass were in a different situation. The central point to retain here is that the comparability of the situations was not established on the basis of the emission level, as in *Arcelor de Lorraine*, but on a broader range of criteria. These criteria corresponded to the the various problems that were addressed by the Directives. The reference to the need to ensure consistency supports the relevance of the *consistency hypothesis* in EU law. This case also brings attention to the fact that the comparability of situations does not always lead to clear-cut answers. The Court and its Advocate General followed different interpretations of the relevant elements of the situation and therefore made opposite conclusions. Advocate General Bot in effect found that biomass sources in principle were in a comparable situation; despite their heterogeneity, they were in 'all cases an organic matter capable of constituting a fuel from which energy may be produced'.[507] To put it another way, there is not necessarily one interpretation of the relevant features of a situation.

This brings me to the conclusion that regarding all additional tonnes of CO_{2eq} emitted in the atmosphere as comparable is only one way to implement the principle of equal treatment. The consequence is that concurrent visions of equality in law mean that tensions can arise between the different frameworks. The existence of such concurrent visions of equality has been

[504] *Ibid*, §68.
[505] *Ibid*, § 74.
[506] *Ibid*, §78.
[507] Opinion of Advocate general Bot, 8 May 2013 in CJEU, Industrie du bois de Vielsalm & Cie, *op. cit.*

underlined by legal scholars as regards environmental taxation.[508] Since environmental taxes are based on the polluter-pays principle, they define the comparability of situations in accordance with this principle. For instance, the Belgian Constitutional Court admits that comparable situations are treated in different ways when such a difference in treatment complies with the polluter-pays principle; it traditionally judges that 'When inspired by the 'polluter pays' principle, a tax only complies with the principle of equality and non-discrimination if it reaches those who pollute and if it takes into account the extent to which each taxpayer contributes to the nuisance that the tax seeks to combat.'[509]

By contrast, traditional taxes have often been based on taxpayers' ability to pay; in other words, taxpayers are in a comparable situation where their ability to pay is comparable.[510] As Federica Pitrone observes, 'there is a difficult interplay between environmental taxes and the ability to pay principle'.[511] In several countries, the lawfulness of adopting environmental taxes was initially doubted in light of the principle of equal treatment.[512] In France, the Constitutional Council ended these doubts when it ruled that the principle of equal treatment does not prevent the adoption of environmental taxes: 'The principle of equality does not preclude the imposition of specific charges designed to induce taxpayers to adopt conduct consistent with objectives of general interest, provided that the rules it lays down for that purpose are justified in the light of those objectives'.[513] However, these debates indicate that divergences exist between the traditional vision of equality and the one implied by environmental taxes.

As a final point, the distinction between formal and substantive equality, that is the 'equal enjoyment of opportunities to access benefits available in society' further argues that equality can be understood in different ways.[514] Whereas equality is enshrined in the idea that 'we are all one another's equals'[515], we are never equal in all senses. The consequence is that treating all humans

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[508] *Infra*, Chapter 3, 6.2.
[509] Belgian Constitutional Court, 87/2012, 28 June 2012, B.10.1; Belgian Constitutional Court, 3 June 1993, 41/93.
[510] On this interplay see S. CAUDAL, 'Equité et fiscalité environnementale', *op. cit.*; F. BIN, 'Les bases constitutionnelles incertaines du droit fiscal de l'environnement', *in* S. SCHMITT *et al.* (eds.), *La fiscalité environnementale: entre attentes, doutes et pragmatisme*, Collection de l'Institut de droit des affaires Série droit économique et développement durable, Aix-en-Provence, Presses universitaires d'Aix-Marseille, 2018, pp. 101-116.
[511] F. PITRONE, 'Environmental Taxation: A legal perspective', *op. cit.*, p. 144. For instance in France French Constitutional Council, 28 December 2000, 2000-441 DC;
[512] In France see F. BIN, 'Les bases constitutionnelles incertaines du droit fiscal de l'environnement', *op. cit.*
[513] French Constitutional Court, 29 December 2009, DC 2009-599.
[514] EUROPEAN UNION, EUROPARAT et EUROPÄISCHER GERICHTSHOF FÜR MENSCHENRECHTE (eds.), *Handbook on european non-discrimination law*, Handbook / FRA, European Union Agency for Fundamental Rights, Luxembourg, Publications Office of the European Union, 2018, p. 70.
[515] J. WALDRON, *One another's equals: the basis of human equality*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press, 2017.

in the same way may not ensure a substantive equality. As Cullet notes with respect to international law:

> 'even if the international community adopts an international system built on the rule of law, in which the weak and strong are treated equally, and where all have a change to benefit from an open, market-based, global economy, the least favoured will continue to be relatively disadvantaged. More generally, equality of rights or opportunities will not necessarily bring about equality of outcomes, especially in a world characterised by disparities in resources and capabilities.'[516]

Climate change and substantive equality have been considered deeply intertwined; for authors like Aarti Gupta 'we cannot address climate change without addressing inequality'.[517]

7. CONCLUSION

At the beginning of this research, I underlined a contradiction between the assumed straightforwardness and simplicity of carbon taxes and their implementation in practice. I have concluded, after a review of legal scholarship on this topic, that legal scholarship does not sufficiently illuminate the role of the law in this contradiction. As a response to these pitfalls, this Chapter developed a revised analytical framework. This framework embraces a substantive approach to the relationship between climate change and its legal response. I argue that it provides both appropriate and robust methodology to study the role of the discrepancies above between theory and practice. This framework also has a value of its own. It could be used by other legal scholars to illuminate in a systematic way the complex interactions between the response to climate change and its legal environment, regardless of whether such response takes the form of a tax. Provided that this framework is refined in the context where it is applied, it could also be used to study legal systems other than the EU's. The next Chapters will test this framework in several case studies.

[516] P. CULLET, 'Differential treatment in international law: towards a new paradigm of inter-state relations', *European Journal of International Law*, mars 1999, vol. 10, n° 3, p. 554.4
[517] S.E. CORNELL et A. GUPTA, 'Is climate change the most important challenge of our times?', *op. cit.*, p. 12.

Chapter 4
The 'economic efficiency' frame in a pluralistic legal order: an analysis of EU primary law

1. INTRODUCTION

The previous Chapter proposed to analyse the mutual interactions between the legal response to climate change and its legal environment and drew up a revised framework of analysis, building on the concepts of *co-production*, *frames* and *legal categories*. I have described, in earlier chapters, the distinct *frames* of climate change that scholars have identified. These frames differ as to the way they conceptualise the problem of climate change (*e.g.* as developmental challenge) and its response. Furthermore, we have seen that the advocates of a carbon tax generally employ an 'economic efficiency' frame to the problem of climate change, which depicts this problem as the result of uncosted negative externalities and presents a uniform carbon price as the solution to this problem. Lastly, I have also posited that a uniform carbon price embeds a specific way to *categorise*: pricing additional tonnes of CO_{2eq} at the same level means that they are treated in the same way. This category is connected to the legal principle of equal treatment and proposed to be used as an analytical tool to map the relevant categories and the frames behind them.

In light of the above, I now wish to highlight the main frames employed in the EU law. My focus in this Chapter is on EU primary law. This is because primary law enshrines the EU's core values and principles underpinning the EU legal order. It lays the foundation of the EU legal order, *inter alia* by establishing the principles and requirements that EU secondary law must consider or respect. In a first step, I connect these legal principles and requirements to distinct frames identified in the literature. This should not be viewed as a go-to mechanical exercise; it requires deduction and interpretation. Then, in a second step, I seek to link these frames to the principle of equal treatment and in particular, to identify the relevant comparability criterion. Identifying the comparability criterion will enable me, in the next Chapter, to map the frameworks as to how they frame problems. In a last step, I sketch out the possible interactions between these frames, with a view to determining when they lead to (partially) overlapping or unreconcilable responses.

This exercise is conducted across various policy fields, instead of focusing on the field of the environment only. The reason I take such a broad view is two-fold. Firstly, climate change mitigation measures rely on several legal bases in the Treaty, including agriculture (Article 43 & f.

of the TFEU), transport (Article 91 & f. of the TFEU), energy (Article 192 of the TFEU) and the internal market (Article 113-115 of the TFEU). This is confirmed by the integration clause (Article 11 TFEU), which states that environmental requirements should be integrated into other policy fields.[518] Secondly, the analyses carried out in this research go beyond strict climate legislation; they extend to legislations that also intersect indirectly with climate change.

This Chapter identifies the following frames, as the most relevant of EU primary law: 'economic efficiency' (Section 2), 'developmental - fairness' (Section 3), free market and fair competition' (Section 4) and 'autonomy' (Section 5). In some cases, EU primary law imposes obligations that shape the way that legislation should respond to given problems. In others, this role is more than a source of inspiration. Some of these principles have an international anchor (*e.g.* polluter pays principle, sustainable development). Therefore, these frames are not necessarily unique to the EU legal order; they may result from the influence of both international law and the national law of other states, especially of Member States. My point is rather that their application in practice is the result of a set of institutional, political, economic, social and cultural factors that are unique to EU law. Finally, it should be noted that the content of these principles is sometimes vague. The case law of the Court helps clarify their content to a certain extent but their interpretation is often subject to interpretation.

Based on the three steps above, this Chapter makes the following points (Section 6). Firstly, I find that there is no strict 'economic efficiency' frame in EU primary law. While legislation in the field of the environment must respect the polluter pays principle and take into account the costs of action and inaction, it is not required to price pollution at the level of its marginal costs. In addition, the Treaty makes no mention of the objectives of economic efficiency and cost-effectiveness. Secondly, EU law holds a plurality of frames to portray problems. Pluralism thus lies at the core of the EU legal order, making it likely that conflicts between frames will arise. Thirdly, it is observed from the Court's case law that, in practice, these distinct frames interact. The legislature generally retains a broad margin of appreciation, except where the allocation of power between the EU and Member States is concerned. All of these points argue that framing problems through the 'economic efficiency' is not that obvious in EU law.

[518] About this clause see J. NOWAG, *Environmental integration in competition and free-movement laws*, Oxford studies in European law, Oxford, United Kingdom, Oxford University Press, 2016.

2. THE (ABSENCE OF A STRICT) 'ECONOMIC EFFICIENCY' FRAME

The first frame is 'economic efficiency'. This frame, as explained before, has underpinned the promotion of carbon taxes.[519] As a reminder, it portrays climate change as a problem of uncosted externalities and the solution is to price these externalities at a level that corresponds to the marginal external costs of a pollution unit. In EU law, this idea resonates in the polluter pays principle, on which this section will focus (2.1). Simply put, this principle requires that polluters should pay for the harm they cause. While external cost internalisation is a core function of this principle, it is not the only one. To put it another way, the polluter pays principle does not have the same content in law than in economics. Hence, the response brought by economics and by the law differ. In law, the comparability criterion associated with the polluter pays principle is the pollution level (2.2). It does not, however, require pricing negative externalities at the level of their external costs and thus does not impose to respond to climate change through a uniform carbon price.

Other Treaty provisions do not affect this finding. The Treaties do not establish economic efficiency or cost effectiveness as relevant objectives or principles of EU law. Whilst Article 191, § 3 of the TFEU emphasises the need to take into account the potential costs and benefits from action or inaction,[520] these terms, as noted by Kramer, do not refer to cost-benefit analyses, carried out to assess the economic efficiency of a measure.[521] Other language versions use the terms 'advantages and disadvantages'.[522]

2.1. The polluter pays principle

The 'polluter pays' is one of the relevant principles of environmental law, contained in Article 191, § 2 of the TFEU (*e.g.* precaution, prevention, sustainable development).[523] This provision stipulates that:

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[519] See *Infra* Chapter 2.
[520] This is seen by the Court as the expression of the principle of proportionality. Tribunal of First Instance, Pfizer Animal Health SA v Council of the European Union, 11 September 2002, T 13/99, § 410.
[521] KRAMER, *EU Environmental Law*, London, Sweet & Maxwell (UK), 2016, p. 31, available at http://public.eblib.com/choice/PublicFullRecord.aspx?p=6405124 (Last consulted 2 June 2022). For a different interpretation see M.G. FAURE et R.A. PARTAIN, *Environmental Law and Economics*, 1re ed., *op. cit.*, p. 113.
[522] For instance in French 'des avantages et des charges qui peuvent résulter de l'action ou de l'absence d'action'.
[523] This has been the case since 1987 (Single European Act). About the polluter pays principle, see among others N. DE SADELEER, 'The Polluter Pays Principle in EU Law – Bold Case Law and Poor Harmonisation', *op. cit.*; P.E. LINDHOUT et B. VAN DEN BROEK, 'The Polluter Pays Principle: Guidelines for Cost Recovery and Burden Sharing in the Case Law of the European Court of Justice', *Utrecht Law Review*, May 2014, vol. 10, n° 2, p. 46; D. HEINE,

> 'Union policy on the environment shall aim at a high level of protection taking into account the diversity of the situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.'

According to the Court 'this provision is confined to defining the general environmental objectives of the Community', whilst the discretion rests with the Council to decide on which action to take.[524] This decision has left legal scholarship divided as to whether environmental law principles are legally binding. Some argue in favour of their legal force whilst others regard them as 'legal connectors' across different legal cultures.[525]

'Polluter pays' consists of an 'an economic rule of allocation whose source lies precisely in the theory of externalities'.[526] The reference to external cost internalisation recalls the 'economic efficiency' frame of Chapter 3. However, in law, the polluter pays principle is thought to serve a wider set of functions than external cost internalisation (i.e. a redistributive function). It aims to avoid distortion of competition (by prohibiting aids supporting pollution abatement or remediation). That way the polluter pays principle not only contributes to environmental protection, it also helps prevent distortion of competition in the internal market, which creates a nexus between this principle and the 'free market & fair competition' frame below. It also has a preventive function (to prevent environmental harm to occur)[527] and a curative function (to provide remedies when environmental damage occurs).[528]

M.G. FAURE et G. DOMINIONI, 'The Polluter pays Principle in Climate Change Law: an Economic Appraisal', *Climate Law*, March 2020, vol. 10, n° 1, pp. 94-115; E. WOERDMAN, A. ARCURI et S. CLÒ, 'Emissions Trading and the Polluter pays Principle', *op. cit.*; N. DE SADELEER, *Environmental Principles: From Political Slogans to Legal Rules*, 2nd ed., Oxford, Oxford University Press, 29 October 2020, available at https://oxford.universitypressscholarship.com/view/10.1093/oso/9780198844358.001.0001/oso-9780198844358 (Last consulted on 2 June 2022).

524 CJEU, Peralta, 14 July 1994, C-379/92, § 57; CJEU, Raffinerie Mediterranee (ERG) SpA, 9 March 2010, C-378/08, § 45.

525 As observed by D. LANGLET et S. MAHMOUDI, *EU Environmental Law and Policy*, Oxford, Oxford University Press, 8 September 2016, p. 41, available at http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780198753926.001.0001/acprof-9780198753926 (Last consulted 2 June 2022). See N. DE SADELEER, *Environmental Principles*, 2nd ed., *op. cit.* on the one hand and E. SCOTFORD, 'Environmental Principles Across Jurisdictions', *op. cit.*

526 N. DE SADELEER, *Environmental Principles*, 2e ed., *op. cit.*, p. 21.
See also D. HEINE, M.G. FAURE et G. DOMINIONI, 'The Polluter Pays Principle in Climate Change Law', *op. cit.*, p. 97.

527 N. DE SADELEER, *Environmental Principles*, 2nd ed., *op. cit.*, p. 44 & f.

528 For instance, Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143, 30 April 2004, p. 56–75. That way it represents a form of redistribution *ex post,* which embodies an individual rather than collective dimensions. Note that, a final but more questioned function of the polluter pays principle is to impede state aids in favour of pollution abatement investments. It was at the foundations of the very first ideas guiding that

This principle does not require that the price of pollution should correspond to its marginal costs nor demand that each additional tonne of CO_{2eq} be priced at the costs it imposes on society. The price level may be higher, to ensure the incentive function of the polluter pays principle and the principle of prevention, as long as proportionality is guaranteed.[529] The legislation can also differentiate between categories of polluters, as ruled by the Court in *Futura Immobiliare*:

> 'the "polluter pays" principle does not preclude the Member States from varying, on the basis of categories of users determined in accordance with users' respective capacities to produce urban waste'.[530]

Accordingly, there must be a reasonable relationship between the charge and the environmental damage, which represents an application of the proportionality principle.[531] Therefore, this principle does not command that the level of pollution be set at an economically efficient level or that efforts are distributed where they are the cheapest.

Consequently, the response implied by the polluter pays principle in EU law differs from the 'economic efficiency' frame put forward by economic theory. According to Javier de Cendra, there is nonetheless an increasing trend to implement the polluter pays principle so as to ensure that an economically optimal level of pollution is attained.[532]

2.2. **Comparability criterion**

When an act is based on the environmental competence (Article of the 192 TFEU), it is well established that situations should be compared based on the pollution level. To state it differently, the comparability criterion is the pollution level (in the case of climate change, GHG emission level). This appears from the landmark judgement *Arcelor de Lorraine v. others* rendered in Grand Chamber.[533] In this judgement, the Court validated the compliance of the EU-ETS against the principle of equal treatment. It responded to a question for a preliminary ruling from the

principle. To the extent that it only aimed a partial internalisation of externalities, it is opposed to economic ideas of full internalisation. In this sense N. DE SADELEER, *Environmental Principles*, 2nd ed., *op. cit.*, pp; 42-43 & 45.

[529] In this sense N. DE SADELEER, *Environmental Principles*, 2e ed., *op. cit.*, p. 60. Case C-198/14 *Valev Visnapuu* [2015] C:2015:751, case note by N de SADELEER 25:2 (2016) RECIEL 261–7.

[530] CJEU, Futura Immobiliare srl Hotel Futura and others, 16 July 2009, C-254/08, § 52.

[531] CJEU, Standley, 29 April 1999, C-293/97. See also Opinion of AG Kokott in Case C-254/08 Futura Immobiliare, *op. cit.*, § 153.

[532] J. DE CENDRA DE LARRAGÁN, *Distributional choices in EU climate change law and policy: towards a principled approach*, Climate change law, policy, and practice series, n° v. 4, Alphen aan den Rijn, The Netherlands : Frederick, MD, Kluwer Law International ; Sold and distributed in North, Central, and South America by Aspen Publishers, 2011, p. 405.

[533] CJEU, Arcelor Atlantique et Lorraine and Others, *op. cit.* For a comment see M. PEETERS, 'The EU ETS and the role of the courts: Emerging contours in the case of Arcelor', *Climate Law*, 2011, vol. 2, n° 1, p. 19; M. EHRMANN, 'Comment on case c-127/07', *Journal for European Environmental & Planning Law*, 2009, vol. 6, n° 1, pp. 135-iv.

French Conseil d'Etat, asking whether the exclusion of the plastic and aluminium sectors from the scope of the ETS Directive but not the steel sector breached the principle of equal treatment. The issue at stake was thus whether the steel sector was in a comparable situation as other sectors, namely chemical and non-ferrous metal sectors, from the perspective of promoting emissions reduction and if so, whether the difference in treatment was justified.

The CJEU ruled that: 'the different sources of (GHG) emissions relating to economic activities are in principle in *a comparable situation*, since all emissions of greenhouse gases are liable to contribute to dangerous interference with the climate system and all sectors of the economy which emit such gases can contribute to the functioning of the allowance trading scheme.'[534] What this statement suggests is that the Court's starting point was the impact of GHG emissions, which is the same regardless of the source. This starting point converges with the 'economic efficiency' frame. Consequently, the steel company was found in a comparable situation as other sectors as they were all liable for GHGs emissions. Nevertheless, in a second step, the Court admitted that the difference of treatment made by the ETS Directive was objectively justified. This ruling was confirmed by another case involving Arcelor, where the Court specified that this interpretation was in line with the polluter pays principle.[535]

The decision of the Court in *Arcelor de Lorraine* has central implications for this research. In the case of climate change, it means that emitters with a comparable emission level should be viewed as being in a comparable situation and hence in principle should be treated in the same way. The consequence is that differentiation should be objectively justified and that the means should be proportionate to the objectives. According to Marjan Peeters, this argues that all emitters should in principle be subject to a common system; she writes 'If it is indeed true that all actors that emit greenhouse gases can be classed as polluters, what is then the justification to treat them through different instruments?'.[536] Nevertheless, the legislature retains a large discretion as to whether to treat emitters in different ways, on the basis of an objective and reasonable justification. Therefore, while a uniform carbon price would fit well with the *Arcelor de Lorraine* case, other approaches remain possible. A question that remains open is whether this should include both current and past emissions.

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[534] *Ibid*, § 34.
[535] In another case brought by Arcelor, the General Court recalled this case law whilst referring to the polluter pays principle. To be more precise, it noted that 'from the point of view of, first, the overall objective of protecting the environment by reducing greenhouse gas emissions and, second, the *polluter pays* principle, all those sectors are in a comparable situation'. General Court, Arcelor SA v Parliament and Council, 2 March 2010, T-16/04, § 170
[536] M. PEETERS, 'Instrument mix or instrument mess?', *op. cit.*, p. 188.

3. THE 'DEVELOPMENTAL – FAIRNESS' FRAME

Several Treaty provisions emphasise the need to consider the disparities among situations across the Member States. These include the principle of sustainable development (3.1), a high level of environmental protection (3.2), human rights (3.3) and the principle of solidarity (3.4). By contrast, there is no explicit ability to pay principle in the Treaties. However, it should be noted that this principle plays a role when the Court assesses the compliance of national fiscal laws with the principles of equal treatment and non-discrimination.[537] These rules can be linked to two entangled frames identified in the literature. Firstly, the frame of climate change as a 'developmental challenge', that is a 'by-product of pathways and patterns of socio-economic development, whilst 'unequal development inhibits adequate mitigation, resilience and adaptation and/or causes uneven distribution of harms to human health, well-being and perceived human security'.[538] Secondly, the 'fairness' frame depicting climate change as raising issues of procedural and/or distributive justice implying that responsibility/moral duty towards others to mitigate climate change.[539]

In this research, both frames are grouped together under a 'developmental – fairness' frame. The content of this frame can be summarised as a given situation being perceived as a challenge because it can undercut the sustainable development of Member States and/or solidary among them and/or undermines the enjoyment of human rights. The response to this problem should ensure that these principles and rights are respected, including those of future generations. These rules do not lead to a clear-cut comparability criterion (3.5), as their meaning is not unambiguous or undebated. It could include everything that relates to the developmental level or capabilities to respond to the problem (e.g. financial or technical). There is also an argument to consider that these rules imply regarding present and future generations as being in a comparable situation.

3.1. Sustainable development

The principle of sustainable development has emerged in 1987, with the publication of the Brundtland Report 'Our Common Future'.[540] It was defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.[541] According to Philippe Sands, this definition has two dimensions "(1) the concept of

[537] F. VANISTENDAEL, 'Ability to pay in EC law', *EC Tax Review*, 2014, vol. 3, pp. 121-135.
[538] *Infra*, Chapter 3, 3.2.
[539] *Infra*, Chapter 3, 3.2.
[540] World Commission on Environment and Development, Report: Our Common Future, 1987, available at https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html.
[541] *Ibid*, § 1.

'*needs'*, in particular the essential needs of the world's poor, to which overriding priority should be given; and (2) the idea of *limitations* imposed, by the state of technology and social organisation, on the environment's ability to meet present and future needs."[542] But the idea of sustainability already emerged before in State practices.[543] The reference to limitations is also intrinsically related to the notorious 'Limits to Growth', published by Denis Meadows in 1972 ('Meadows Report').[544] But the principle of sustainable development and the idea of limits to growth do not totally overlap: unlike the Meadows reports, the Brundtland Report placed the emphasis on the complementarity, rather than contradiction, between growth and the environment.[545]

In EU law, sustainable development was first mentioned by the Amsterdam Treaty of 1999, although the Maastricht Treaty of 1992 already referred to the objective of 'sustainable growth'.[546] Today, it is mentioned by the preamble and by Article 3 of the TEU, which sets the goals of EU integration. It also appears in Articles 11 of the TFEU (integration clause)[547] and 37 of the European Charter of Fundamental Rights ('ECFR'). These provisions require the integration of environmental protection requirements across the different fields of law to promote sustainable development. In addition, Article 192, § 2 of the TFEU states that environmental policies must take into account 'the diversity of situations in the various regions of the Union'. When preparing its policies, the EU must also consider 'the economic and social development of the Union as a whole and the balanced development of its regions' (Article 191, § 2 & 3 TFEU). However, none of these provisions defines what 'sustainable development' means and Court's case law is not really enlightening in that regard.[548]

At the core of the principle of sustainable development, the literature has distinguished several dimensions: intergenerational equity (between generations), sustainable use (take into account the needs of others), equitable use (or intragenerational equity) and the principle of integration, that

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[542] P. SANDS *et al.*, *Principles of international environmental law*, Cambridge; New York, Cambridge University Press, 2012, p. 206, available at https://doi.org/10.1017/CBO9781139019842 (Last consulted 2 June 2022).
[543] *Ibid.*
[544] D.H. MEADOWS, J. RANDERS et D.L. MEADOWS, *The limits to growth: the 30-year update*, White River Junction, Vt, Chelsea Green Publishing Company, 2004.
[545] As observed by P. EKINS, "Limits to growth' and 'sustainable development': grappling with ecological realities', *Ecological Economics*, 1993, vol. 8, p. 275.
[546] Article 3 of the Amsterdam Treaty and Article 2 of the Maastricht Treaty.
[547] This provision states that: "Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting *sustainable development*.'
[548] As observed by Bandi, 'there are several cases of the CJEU within which sustainable development is clearly mentioned (…). Generally, this case law indicates that the principle or concept of sustainable development may appear as a point of general reference and might not have a direct impact on the outcome of a case'. G. BANDI, 'Principles of EU environmental law, including the objective of sustainable development', *in* M. PEETERS et M. ELIANTONIO (eds.), *Research handbook on EU environmental law*, Research handbooks in European law, Cheltenham, UK ; Northampton, MA, USA, Edward Elgar Publishing Limited, 2020, p. 40.

'the need to ensure that environmental considerations are integrated into economic and other development plans, programmes and projects, and that development needs are taken into account in applying environmental objectives'.[549] It thus implies striking a balance at several levels: firstly, between three pillars, i.e. environmental, economic and social, between the needs of present and future generations and within the current generation.[550] However, the principle of sustainable development remains as attractive as it is vague.[551] As Mahoudi & Langlet underline, 'There are a number of problems with defining sustainable development in more concrete terms and translating the principle into practical measures.[552]

In the *First Corporate Shipping* case, Advocate General Leger specified that the interests of the environment must not 'necessarily and systematically prevail over the interests defended in the context of other policies'; instead they must be reconciled.[553]. However, this does not mean that the ambition of environmental policies should be reduced; none of the Court's judgement points in that direction.[554] Instead, sustainable development and a high level of environmental protection should go hand in hand. Sustainable development goals (SDGS) are more concrete but their legal effect is debatable.[555] In addition, concrete sustainability criteria (or indicators) have been identified which serve to assess more precisely the degree of sustainability of activities, goods or policies although some margin remains as to how to balance them.[556] Thus, what could be seen as strength of sustainable development, that is its integrative approach, also seems to be a weakness in practice. Furthermore, the legal value of the principle of sustainable development is disputed. Some attribute the legal value to the fact that sustainable development is described as a

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549 P. SANDS *et al.*, *Principles of international environmental law*, *op. cit.*, p. 207.
550 In this sense See *e.g.,* Presidency's conclusions, Gothenburg European Council,15 and 16 June 2011, SN200/ 1/01/REV 1, § 19.
551 As observed by D. LANGLET et S. MAHMOUDI, *EU Environmental Law and Policy*, *op. cit.*, p. 42; N. de SADELEER, *EU environmental law and the internal market*, *op. cit.*, p. 15. About this principle see C. BROKELIND et S. van THIEL (eds.), *Tax sustainability in an EU and international context / editors: Cécile Brokelind, Servaas van Thiel*, GREIT series, Amsterdam, IBFD, 2020.
552 D. LANGLET et S. MAHMOUDI, *EU Environmental Law and Policy*, *op. cit.*, p. 44.
553 Advocate General Leger in CJEU, C 371/98, First Corporate Shipping, § 54.
554 'Article 37. Protection de l'environnement', *op. cit,* p. 13. In particular, see the case Commission v. Ireland. This case concerned the regularisation of windfarm works made without environmental impact assessment. Ireland argued that ' it would be disproportionate to order the removal of some structures in circumstances where, after consideration of an application for retention permission, retention is held to be compatible with proper planning and sustainable development' (§ 48) but the Court did not reply to the argument. CJEU, Commission v. Ireland, 3 July 2008, C 215/06.
555 Pirlot argues that these principles could play a greater role in reshaping tax systems. A. PIRLOT, 'The UN Sustainable Development Goals (SDGs) & their (legal) impact on taxation', *in* C. BROKELIND et S. van THIEL (eds.), *Tax sustainability in an EU and international context / editors: Cécile Brokelind, Servaas van Thiel*, GREIT series, Amsterdam, IBFD, 2020.
556 Eurostat has published a set of indicators for each of the 17 SDGs. This file is available at https://ec.europa.eu/eurostat/web/sdi/indicators.

'principle' in the preamble of the TEU and thus attach a legal value to it, while others conclude that this does not render sustainable development legally binding.[557]

In international climate law, sustainable development has led to differentiation among emitters. The UNFCCC has taken the form of a Rio Convention, sister with the UN Convention on Biological Diversity and the Convention to Combat Desertification. Rio Conventions are the result of the 'Earth Summit' of 1992 which also led to the creation of the Commission on Sustainable Development. Under UNFCCC and its executing acts (including the Kyoto Protocol and the Paris Agreement), emission pledges have been differentiated among countries, in line with the controversial principle of common but differentiated responsibilities.[558] The reason is twofold: countries do not have the same development level and capabilities to mitigate climate change; nor do they bear the same historical responsibility in this problem. The interpretation of this principle, however, has been debated, dividing the North and South, the latter being less responsible for climate change but more heavily impacted by it.[559]

3.2. **A high level of environmental protection**

The Treaty requires secondary legislation, regardless of its legal basis, to ensure a high level of protection.[560] The requirement to ensure a high level of environmental protection is enshrined in Article 3, § 3 of the TEU, Article 192 of the TFEU (environmental competence) and Article 114 of the TFEU (internal market competence). It is also part of the integration clause contained in Article 37 of the 'ECFR' above (but not in Article 11 of the TFEU).[561]Article 37 of the ECFR stipulates that: 'A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance

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[557] D. LANGLET et S. MAHMOUDI, *EU Environmental Law and Policy*, *op. cit.*, p. 43.

[558] On this principle see D. BODANSKY, J. BRUNNÉE et L. RAJAMANI, *International climate change law*, Oxford, United Kingdom, Oxford University Press, 2017; C.D. STONE, 'Common but Differentiated Responsibilities in International Law', *The American Journal of International Law*, 2004, vol. 98, n° 2, pp. 276-301. P. SANDS *et al.*, *Principles of international environmental law*, *op. cit.*, pp. 233 & f. In EU law see J. DE CENDRA DE LARRAGAN, *Distributional choices in EU climate change law and policy*, *op. cit.*

[559] *Ibid.*

[560] D. MISONNE, 'The Court of Justice of the European Union and the High Level of Environmental Protection: Transforming a Policy Objective into a Concept Amenable to Judicial Review', *in* C. VOIGT (ed.), *International Judicial Practice on the Environment*, 1st ed., Cambridge, Cambridge University Press, 18 April 2019, pp. 212-236, available at https://www.cambridge.org/core/product/identifier/9781108684385%23CN-bp-9/type/book_part (Last consulted 2 June 2022).); D. MISONNE, 'The Importance of Setting a Target: The EU Ambition of a High Level of Protection', *Transnational Environmental Law*, April 2015, vol. 4, n° 1, pp. 11-36; 'Article 37. Protection de l'environnement', in *Charte des droits fondamentaux de l'Union Européenne: commentaire article par article*, Collection Droit de l'Union européenne, n° 2, Bruxelles, Bruylant, 2020. See also N. de SADELEER, *EU environmental law and the internal market*, *op. cit,* pp. 45-56.

[561] But article 11 of the TFEU refers to the integration of 'environmental protection requirements', which include a high level of protection.

with the principle of sustainable development."[562] There is thus a nexus between a high level of environmental protection and sustainable development. As emphasised by the Court, this threshold should be seen as the 'raison d'être' of EU environmental policy whilst environmental law principles, including the polluter pays, represent its foundations.[563]

Depending on the interpretation retained, a high level of protection could have shaped how comparability of situations was determined in different ways. It could have prevented some polluters from being treated more favourably than others, since this type of treatment hampers the environmental ambition of a measure. A related question is whether setting emission limits at an economically efficient level is sufficient to attain a high level of environmental protection. In this context, the burning issue is to define the term 'high'. The Court settled this question in the twin judgements *Safety Hi Tech* and *Bettati*.[564] These cases concerned a Regulation on ozone layer protection, which outlawed the use of HFCs but not of halons despite the fact that both substances deplete the ozone layer. There was thus a differentiation between the two substances, despite of the similarity of their impact on the ozone layer. One of the claimants' arguments was that the litigated regulation failed to ensure a high level of protection by permitting the use of these products, which represented a much greater threat to the ozone layer.[565]

The Court ruled that a high level of protection 'does not necessarily have to be the highest that is technically possible', the reason being that 'Article [192] of the Treaty authorises the Member States to maintain or introduce more stringent protective measures'.[566] The possibility left to Member States to maintain or introduce more stringent measures of environmental protection is discussed below.[567] It should be pointed out that the cases above touched upon measures that were based on the environmental competence. Where an environmental measure has a different legal basis (e.g. Article 114 TFEU), Member States have more limited possibilities to enact more stringent measures. Therefore, a high level of protection may be interpreted more strictly in these cases.[568] These judgements have been seen as 'a typical example of "a wrong case at the wrong

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562 CJEU, *A and Others v. Gewestelijke stedenbouwkundige ambtenaar van het departement Ruimte Vlaanderen, afdeling Oost-Vlaanderen,* 25 June 2020, C-24/19.
563 D. MISONNE, 'The Importance of Setting a Target: The EU Ambition of a High Level of Protection', *Transnational Environmental Law*, April 2015, vol. 4, n° 1, p. 29.
564 CJEU, *Safety Hi-tech*, 14 July 1998, C-284/95; CJEU, *Bettati*, 14 July 1998, C-341/95.
565 CJEU, *Safety Hi-tech*, 14 July 1998, *op. cit.* § 6. See also CJEU, *Bettati*, 14 July 1998, *op. cit,* § 5 (on the use of HCFCs).
566 CJEU, *Safety Hi-tech*, 14 July 1998, *op. cit.*, § 49; CJEU, *Bettati*, 14 July 1998, *op. cit.*, § 47.
567 *Infra*, Section 5.
568 In this sense, 'Article 37. Protection de environment', *op. cit.* This does not apply to measures based on Article 114 TFEU where Member States do not retain the same margin of maneuver to act unilaterally to protect the environment.

time'".[569] Nonetheless, this interpretation has been maintained since then.[570] In the context of climate change, it implies that a high level of environmental protection does not prevent climate legislation from imposing obligations only on certain emitters.

3.3. **Human rights**

EU Member States are parties to the most significant human rights Conventions.[571] At EU level, Article 2 of the TEU provides that 'The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights'. These rights are protected by the aforementioned ECFR. The rights contained in the ECFR must be interpreted in the light of the European Convention of human rights ('ECHR').[572] At the heart of human rights, lies the fundamental idea that all humans should be equal in rights. This means that not only should States not deprive individuals of these rights, they also have an obligation to protect people from human rights violations, *e.g.* by firms. The fact that Article 37 of the ECFR refers both to a high level of environmental protection and to sustainable development highlights the existence of a nexus between these principles and human rights.

Human rights are seen to 'create conditions essential for sustainable development'[573] and all sustainable development goals relate to one or several human rights that are guaranteed in law.[574] In addition, environmental degradation and the failure to protect the environment can lead to human rights violations, including of the right to life, to health, to education and to respect for private and family life.[575] At the same time, public policies embed the risk of exacerbating existing

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[569] As noted by D. MISONNE, 'The Importance of Setting a Target: The EU Ambition of a High Level of Protection', *Transnational Environmental Law*, April 2015, vol. 4, n° 1, p. 19.
[570] CJEU, Poland v. Parliament, 13 March 2019, C-128/17, § 132; CJEU, Associazione Italia Nostra Onlus, 21 December 2016, C-444/15, § 44.
[571] For instance, the European Convention on Human Rights or the international covenant on civil and political rights.
[572] See https://ec.europa.eu/info/aid-development-cooperation-fundamental-rights/your-rights-eu/eu-charter-fundamental-rights/why-do-we-need-charter_en
[573] In this sense see Advancing sustainable development through human rights : https://www.ohchr.org/EN/AboutUs/ManagementPlan/Pages/sustainable-development.aspx#:~:text=Human%20rights%20create%20conditions%20essential,people%2C%20leaving%20no%20one%20behind. (Last consulted on 2 June 2022).
[574] As exemplified in the following table: https://www.ohchr.org/Documents/Issues/MDGs/Post2015/SDG_HR_Table.pdf (Last consulted on 2 June 2022).
[575] For an overview of this debates see M. HULME, M.-C. PETERSMANN et C. MCKINNON (eds.), 'Is climate change a human rights violation?', *in* M. HULME, M.-C. PETERSMANN et C. MCKINNON (eds.), *Contemporary climate change debates: a student primer*, Abingdon, Oxon ; New York, NY, Routledge, 2020. See also on this topic S. VARVASTIAN, 'The Human Right to a Clean and Healthy Environment in Climate Change Litigation', *SSRN Electronic Journal*, 2019, available at https://www.ssrn.com/abstract=3369481 (Last consulted on 2 June 2022).; EUROPEAN ECONOMIC AND SOCIAL COMMITTEE. *& al.*, *Towards an EU Charter of the Fundamental Rights of Nature : study.*, LU, Publications Office, 2020, available at https://data.europa.eu/doi/10.2864/499675 (Last consulted on 2 June 2022). More generally, S. DUYCK, S. JODOIN et A. JOHL (eds.), *Routledge handbook of human rights and climate governance*, Routledge handbooks,

inequalities. As regards climate change, a constant message of the OHCR has been that mitigation policies 'should not exacerbate inequalities within or between States', such as against indigenous communities, children, women or elderly people.[576] To put it another way, with disparities in capabilities among individuals, subjecting them to the same obligations may threaten their human rights. This recalls the idea of subjective equality.[577]

In the area of climate change mitigation, people of younger generations have brought a growing number of cases, so as to make their fundamental rights heard and respected.[578] These cases approach climate change *inter alia* through the prism of human rights and often involve an intergenerational dimension. In the EU, the number of cases before the CJEU has been limited so far and the Court can be seen as erecting a bulwark against successful litigation. The ill-fated *Carvalho & al.* case illustrates this point.[579] This case was concerned with the EU 2030 energy and climate package. The litigants asked the Court two things: first to declare unlawful this package setting 'emission between 2021 and 2030 of a quantity of greenhouse gases corresponding to 80% of 1990 levels in 2021, decreasing to 60% of 1990 levels in 2030' and 'in so far as it sets targets to reduce greenhouse gas emissions by 2030 by 40% compared to 1990 levels', and second to order the adoption of adequate measures.

The rights invoked were the right to equality and non-discrimination, provided by Article 21 of the Charter, the right to pursue an occupation, set out in Article 15(1) of the Charter, the right to property, within the meaning of Article 17(1) of the Charter, and the rights relating to children under Article 24 of the Charter. Whereas sustainable development was not mentioned, the reference by younger generations to equal treatment and non-discrimination and to children's rights suggest that future generations are concerned. The Court rejected the claim as

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London New York, Routlege, Taylor & Francis Group, Earthscan from Routledge, 2020. See also UNEP, *Climate change and human rights*, December 2015, available at https://wedocs.unep.org/bitstream/handle/20.500.11822/9530/-Climate_Change_and_Human_Rightshuman-rights-climate-change.pdf.pdf?sequence=2&amp%3BisAllowed=.

[576] Submission of the Office of the High Commissioner for Human Rights to the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change, p. 4

[577] Infra, Chapter 3, 6.2.

[578] On this topic see among others S. BOGOJEVIC, « Human rights of minors and future generations: Global trends and EU environmental law particularities », *Review of European, Comparative & International Environmental Law*, 2020, vol. 29, n° 2, pp. 191-200.

[579] General Court, Armando Carvalho and Others v European Parliament and Council of the European Union, Case T-330/18 8 May 2019. See also general court, Case T-141/19, 6 May 2020, § 30 where the Court notes: 'It follows that, contrary to the applicants' submissions, it is not possible to identify a limited category of persons concerned by the provisions of the contested directive that are at issue. As the Parliament and the Council submit, as an act of general application, the contested directive applies to all persons, both natural and legal. The applicants do not put forward any factor recognised by case-law which would be capable of distinguishing them individually as addressees. Furthermore, they themselves acknowledge that the protection and regulation of the environment is something which affects "everyone in both current and future generations", a statement which is difficult to deny and which militates against the notion of individual concern.'

inadmissible, in line with its remarkably narrow, yet constant, interpretation of standing rules, arising from its Plaumann judgment.[580] This appears as a missed opportunity for the Court to enforce the fundamental rights of European citizens in relation to the environment.

3.4. **Solidarity**

The next relevant principle is solidarity. Solidarity is mentioned by several provisions of the Treaties and in their preambles. For instance, Article 3, § 3, al. 3 of the TEU, which sets the EU's objectives, specifies that the EU 'shall promote economic, social and territorial cohesion, and *solidarity* among Member States'.[581] Solidarity also appears in the field of energy, at Article 194, § 1 of the TFEU. This provision stipulates that EU energy policy should pursue its objectives 'in a spirit of *solidarity* between Member States'. For a long time, legal scholarship has been divided on the legal value of this principle.[582] The recent case *Opal Pipeline* rendered in Grand Chamber has clarified that solidarity can have legal effects.[583] This principle, it was noted, 'underpins the entire legal system of the European Union'.[584] Therefore, the Court concluded that solidarity produces rights and obligations upon EU institutions in the field of energy. The consequence is that the legality of these acts and their interpretation must comply with this principle.[585] Although the Court did not go as far as saying that solidarity would engender the same legal consequences outside the field of energy, it did recognise its importance for the whole of EU integration.

3.5. **Comparability criterion & interaction with other frames**

The rules above differ in scope and legal value. Nevertheless, they all point to a generally common understanding of how to problematise challenges and their remedies. In particular, they put forward that action or inaction can pose problems because they hamper sustainable development and/or the enjoyment of human rights and/or solidarity among countries. This point concerns both present and future generations. The interlinkage between these rules has also been noted. However, the precise content and contours of these rules remain elusive. They are also multifaceted. Therefore, they do not prescribe a clear-cut response and could lead to various

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580 *Ibid*, § 44-47.
581 My emphasis. See also TEU and TFEU, preamble and TEU, Article 21, § 1.
582 A. BIONDI, E. DAGILYTĖ et E. KÜÇÜK (eds.), *Solidarity in EU law: legal principle in the making*, Cheltenham, UK, Edward Elgar Publishing, 2018. See also J. DE CENDRA DE LARRAGÁN, *Distributional choices in EU climate change law and policy*, *op. cit.*, chap. 4; J. DE CENDRA DE LARRAGÁN, 'Tying the Knot of Energy Security and Climate Change Mitigation: A Tale of Solidarity?', *Yearbook of International Environmental Law*, January 2011, vol. 22, n° 1, pp. 76-109.
583 CJEU, Germany v. Commission, 15 July 2021, C-848/19. This case is the appeal of General Court, Poland v Commission, 10 September 2019, T-883/16.
584 *Ibid*, § 41
585 *Ibid*, § 41 and 44.

ways to establish the comparability of the situations. One interpretation could be that all humans are equal and therefore obligations should be the same; in the context of climate change, one way to implement this is through a (historical) per capita approach.[586] According to a different interpretation, obligations should be differentiated according to diverging capabilities, *e.g.* in function of the development level, financial or technical capabilities, diverging (*e.g.* historical) responsibilities.

This can be related to another issue: what is the difference between the 'developmental – fairness' frame and the 'economic efficiency' frame? In EU law, the polluter pays principle does converge to some extent with the principles and requirements described above. This is because this principle is understood to have functions other than solely redistributive. There is room to consider that requiring polluters to reduce their emissions (preventive function) and making them financially responsible for the harm they cause (curative function) is in line with human rights and with the principles of sustainable development and solidarity. This makes it possible to address human rights violations resulting from environmental degradation as well as unsustainable development. As Nicolas de Sadeleer says, 'By attributing a price to the consumption of natural resources, (the polluter pays principle) could contribute to sustainable development'.[587] Other scholars have presented taxes as an 'instrument to achieve a sustainable world', as they can help address environmental problems including climate change.[588]

However, the rules above require more than that. They also imply that the impacts of public policies, including environmental policies, on the enjoyment of human rights or development trajectories is considered and solidarity is attained. From that perspective, comparing situations on the basis of respective capabilities seems to be the most relevant criterion. This does not mean that compliance with these rules cannot be attained in another way (*e.g.* through financial compensation), but it would match with the 'development – fairness' frame as I define it. Compensation is indeed something different from distribution. There is also an argument to consider that present and future generations are in a comparable situation. In this sense, as Michael Faure highlights, sustainability can be interpreted as correcting 'a strict economic reasoning which would argue that there is little reason to invest today to protect future generations'.[589]

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[586] M. PEETERS, 'Instrument mix or instrument mess?', *op. cit.*, pp. 188-189. J. DE CENDRA DE LARRAGAN, *Distributional choices in EU climate change law and policy*, *op. cit.*, chap. 8.
[587] N. DE SADELEER, *Environmental Principles*, 2e ed., *op. cit.*, p. 51.
[588] C. BROKELIND et S. van THIEL (eds.), *Tax sustainability in an EU and international context / editors*, *op. cit.*, chap. 2.
[589] M.G. FAURE et R.A. PARTAIN, *Environmental Law and Economics*, 1st ed., *op. cit.*, p. 83.

The case *Poland v. Parliament* supports the point that taking into account diverging capabilities differentiates the polluter pays principle from the principle of sustainable development.[590] In this case, Poland challenged the legality of the Air Quality Directive. This Directive set emission reduction commitments for 2030 for each Member State. The starting point was the historical emission levels of each Member States which had to be reduced to levels that complied with health and environmental objectives. The individual commitments of Member States were determined on the basis of Member States' reduction potential, resulting from an impact assessment. Poland's contention was that the method used to determine this potential did not sufficiently take into consideration the Member States' and regions' socio-economic situations, technical progress as well as the cost of compliance with those commitments. It claimed that it had to bear disproportionate costs which were contrary to the principles of equal treatment, sustainable development and proportionality.

The Court first reminded that in environmental matters, its analysis had to be limited to a manifest error of assessment.[591] Then, it put forward that the Treaty does not require striking a balance in light of the specific situation of a Member States but that this assessment can be made based on the situation of all Member States.[592] Assessing the choice of the legislature, the CJEU ruled that the distribution of effort was 'not obviously imbalanced' and was thus proportionate.[593] In particular, it noted that, although some countries had to make greater investments compared to their GDP, 'That divergence reflects both the different levels of GDP within the (EU) and the efforts already made in some Member States'.[594] It added that 'the link between the historical level of emissions and the level of effort required under the contested directive is consistent with the polluter pays principle'.[595] On these grounds, it validated the contested directive.

What this case shows is that the polluter pays principle and the principle of sustainable development do not lead to the same response; the first one takes the pollution level into account and the second one, capability criteria such as GDP. We also see that legislature retains a broad margin of appreciation as to how to balance both principles; the assessment of the Court is

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590 CJEU, Poland v. Parliament, 13 March 2019, C 128/17. See also Infra section on the EU-ETS.
591 *Ibid*, § 96. It recalled that 'in areas in which the EU legislature has a broad discretion, the Court need satisfy itself only that the institution which adopted the contested measure is able to show that, in adopting the act, it actually exercised its discretion and, for that purpose, is able to set out clearly and unequivocally the basic facts which had to be taken into account as the basis of the contested measures of that act and on which the exercise of its discretion depended'. See also judgments CJEU, Safety Hi-Tech, *op. cit*., § 37 and CJEU, Associazione Italia Nostra Onlus, 21 December 2016, C-444/15, § 46.
592 *Ibid*, § 41.
593 *Ibid*, § 112.
594 *Ibid.*
595 *Ibid.*

indeed limited to manifest errors of assessment. Finally, this case makes clear that such assessment can be general, as opposed to taking the specific situation of each Member State into consideration.

4. THE 'FREE MARKET & FAIR COMPETITION' FRAME

Market liberalisation has been historically central to EU integration.[596] An array of Treaty provisions has aimed to free the market from trade restrictions (fundamental freedoms) and remove distortions of competition (fair competition).[597] With market liberalisation, the EU has aspired to 'an ever closer union among the peoples of Europe' so as to make armed conflict a thing of the past.[598] The objective has been to foster economic growth and competition and ultimately cut prices.[599] EU law has also been deeply rooted in the level playing field hypothesis, which assumes that 'markets function best when all industry in the given market […] operate under the same conditions, including the same regulatory pressure for health, safety and environmental issues'. [600] These rules have shaped both EU secondary legislation, notably in the field of environmental protection but also national laws, through negative harmonisation. Free market and fair competition provisions express a third frame through which problems have been conceptualised. This is referred to as the 'free market and fair competition' frame.

In this frame, the problem addressed and market functioning are interrelated. The source of the problem is attributed to the lack of proper function of the market and the removal of barriers to trade or distorting competition rules is viewed as the solution to this problem. To the best of my knowledge, this frame is not mentioned in the literature. It seems instead rather specific to the

596 As observed by S. KINGSTON, *The role of environmental protection in EC competition law and policy*, Leiden, 2009, p. 97.
597 This includes Parts II and III of the TFEU, which set out the freedoms of movement of goods, persons, services and capital within the EU and 107 & 107 of the TFEU. On this topic see I. LIANOS, 'Shifting Narratives in the European Internal Market: Efficient Restrictions of Trade and the Nature of "Economic" Integration', *European Business Law Review*, October 2010, vol. 21, pp. 705-760. P. OLIVER et W.-H. ROTH, 'The internal market and the four freedoms', *Common Market Law Review*, April 2004, vol. 41, pp. 407-441. A.-L. SIBONY, 'Can market access be taken seriously? ', « Can market access be taken seriously? », *Revue européenne de droit de la consommation*, 2012, vol. 2, pp. 323-342; P. NICOLAIDES, 'The Compatibility of State Aid with the Internal Market', 2018, p. 13; J. THYGESEN, 'National Tax Law - Under Influence of EU Rules for Freedom of Movement of Goods', *Intertax*, June 2013, vol. 41, pp. 351-359.
598 Treaty establishing the European Economic Community, Rome, 25 March 1957, Preamble 1. The internal market is discussed at Article 1 of the Treaty.
599 About EU construction and its evolution see P. CRAIG et G. DE BÚRCA (eds.), *The Evolution of EU Law*, 3e ed., Oxford, Oxford University Press, 30 August 2021, available at https://oxford.universitypressscholarship.com/view/10.1093/oso/9780192846556.001.0001/oso-9780192846556 (Last consulted on 2 June 2022). See also P. CRAIG et G. DE BÚRCA, *EU law: text, cases, and materials*, New York, NY, Oxford University Press, 2020.
600 G. VAN CALSTER, 'Against Harmonisation – Regulatory Competition in Climate Change Law', Carbon & Climate Law Review, 2008(1), 89-94, p. 89.

EU legal order and its unique legal culture.[601] Under this frame, the relevant criterion to compare situations is competition. Hence, the response should be the same (and thus harmonised) across Member States, as differentiation among market players in competition should be prevented. This vision of equality is enshrined in the level playing field hypothesis. There is also an international dimension to this issue. As explained earlier, in the absence of a global carbon price, it is feared that the adoption of carbon pricing will lead to firms' relocating (carbon leakage). The solution to this problem is either to soften the obligations of firms exposed to carbon leakage or to introduce a CBAM.[602]

4.1. **The internal market & harmonisation**

Harmonisation, that is the alignment of national laws, has been viewed as instrumental towards the proper functioning of the internal market.[603] As the 1985 White Paper Completing the Internal Market emphasised, the Treaty of Rome 'clearly envisaged from the outset (…) the approximation of laws as required for the proper functioning of the common market'.[604] In addition, it has been clear from the outset that the internal market was not restricted to an economic purpose; it should better be viewed market with a 'particular regulatory goal'.[605] These regulatory purposes relate to a variety of policy areas such as guaranteeing health and security but also the environment. Whereas the foundational Treaties did not mention the environment, it was rapidly clarified that the internal market could not be developed in the absence of environmental laws.[606] The internal market has been invoked to justify both positive and negative harmonisation.

Article 114 TEU[607] on the approximation of laws having 'as their object the establishment and functioning of the internal market' has been characterised as a 'gap-filler clause'.[608] This provision has been a determinant in the development of environmental law during the first two decades of EU integration. In the absence of an environmental competence prior to adoption of the Single

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601 In this sense S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, chap. 3.
602 See *Infra*, Chapter 1, 2.3. and Chapter 9, Section 4.
603 In this sense E. FISHER, B. LANGE et E. SCOTFORD, *Environmental law: text, cases, and materials*, Oxford, United Kingdom, Oxford University Press, 2019, p. 338. S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 71.
604 Commission of the European Communities (1985). Completing the Internal Market, White paper § 4.
605 S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 71.
606 1973 the First Environmental Action Program submitted that 'harmonious development of economic activities and a continuous and balanced expansion, which cannot now be imagined in the absence of an effective campaign to combat pollution and nuisances or of an improvement in the quality of life and the protection of the environment'. For an historical overview see D.C. HEY, 'EU Environmental Policies: A short history of the policy strategies', *in* EEB (ed.), *EU Environmental Policy Handbook*, 2007, pp. 17-31.
607 *E.g.* Article 95 of the EC Treaty.
608 S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 75.

European Act (SEA),[609] market integration was used with the purposeful intent to provide a legal basis in environmental matters. This was validated in the case *Commission v. Italy*.[610] Environmental laws, the court ruled 'may be a burden upon the undertakings to which they apply and if there is no harmonization of national provisions on the matter, competition may be appreciably distorted'.[611] It is observable from this statement that disparities in (environmental) national legislations is perceived as a problem because it risks hampering the proper functioning of the internal market and that the solution to this problem is to adopt harmonised policies at EU level.

Regarding disparities in national environmental laws as a cause of distortion of competition in the internal market indicates that environmental problems are framed through the prism of the internal market.[612] Today, EU legislative action in the field of the environment is no longer subordinated to the internal market but has a dedicated legal basis (Article 192 of the TFEU).[613] The internal market is not mentioned in Articles 191-192 TFEU. Nevertheless, it remains possible to adopt environmental measures on the internal market basis, which complies with the integration clause mentioned above.[614] In practice, it is not rare that environmental laws refer to the internal market, even where they are based on Article 192 of the TFEU.[615] By contrast, Article 194, § 1 of the TFEU stipulates that energy policies are conducted 'In the context of the establishment and functioning of the internal market'.

Free movement and fair competition have also shaped national laws through negative harmonisation. EU competition law has shaped Member States' national law in different fields of

[609] Single European Act, *op. cit.*
[610] In this case, the Court ruled that 'Provisions which are made necessary by considerations relating to the environment and health may be a burden upon the undertakings to which they apply and if there is no harmonization of national provisions on the matter, competition may be appreciably distorted.' CJEU, Commission v. Italy, 18 March 1980, C 92/79, § 8.
[611] *Ibid.*
[612] About the relationship between the internal market and the environment see N. de SADELEER, *EU environmental law and the internal market*, *op. cit.*; J. NOWAG, *Environmental integration in competition and free-movement laws*, *op. cit. Ibid.*; C. VIAL, *Protection de l'environnement et libre circulation des marchandises*, Collection Droit de l'Union européenne, Bruxelles, Bruylant, 2007. D. MISONNE & N. DE SADELEER, 'Is there any Space left in the EU Internal Market for National Product-related Measures ?', *in* M. PALLEMAERTS et INSTITUT D'ÉTUDES EUROPÉENNES (eds.), *EU and WTO law: how tight is the legal straitjacket for environmental product regulation: proceedings of a colloquium organised by the Institute for European Studies (IES) ... ?*, Brussel, VUB Brussels Univ. Press, 2006.
[613] Single European Act, *op. cit.*, Article 25, introducing a new Article 130r.
[614] *Infra*, Section 5.
[615] For instance, the Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, OJ L 198, 22 June 2020, p. 13–43.

law, such as the environment[616] and energy.[617] In addition, law on state aids has played a key role in the design of environmental taxes, including carbon taxes levied by Member States.[618] The reason is that derogations to these taxes amount to a state aid that is subject to the control of the Commission. Free movement provisions have also shaped national laws. In the field of environmental law, this interplay has led to an abundant case law.[619] The Court has generally accepted that environmental measures could limit the conditions of free movement within the internal market or distort competition, so as to maintain Member States' autonomy to enact environmental legislation.[620] This point is further developed below. [621]

4.2. **Comparability criterion & interaction with other frames**

Under the 'free market and fair competition' frame, the relevant criterion to assess the comparability of the situations is clear: it is *competition.*[622] Let me illustrate this point with the case

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[616] In particular Articles 107 & 108 of the TFEU. Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty, *OJ* L 187, 26 June 2014, p. 1–78; Communication from the Commission — Guidelines on State aid for environmental protection and energy 2014-2020, OJ C 200, 28 June 2014, p. 1–55. The guidelines should have been revised in 2021 but it has not been the case yet. See the Commission' consultation https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12616-State-aid-for-environmental-protection-and-energy-revised-guidelines/public-consultation_en. On this topic see S. KINGSTON, *The role of environmental protection in EC competition law and policy*, *op. cit.*; R. MACRORY et C. LONDON (eds.), 'Competition and Environment: An Ecologically Rational Agreement', *in* R. MACRORY et C. LONDON (eds.), *Reflections on 30 years of EU environmental law: a high level of protection?*, The Avosetta series, n° 7, Groningen, Europa Law Publishing, 2006; J. NOWAG, *Environmental integration in competition and free-movement laws*, *op. cit.*; N. de SADELEER, *EU environmental law and the internal market*, *op. cit.*

[617] N. ROBINS et T. CHAKMA, 'State Aid in Energy under the Spotlight', *European State Aid Law Quarterly*, 2016, p. 12; J. SLOT, 'Energy and Competition', *Common Market Law Review*, 1994, vol. 31, n° 3, pp. 511-548; S.-L. PENTTINEN, *Free movement and the energy sector in the European Union: the role of the European Court of Justice*, Routledge research in energy law and regulation, Abingdon, Oxon ; New York, NY, Routledge, 2020; M. LANG, 'State Aid for the Coal Sector – Inevitable or Dispensable?', *European State Aid Law Quarterly*, 2012, vol. 11, n° 1, pp. 113-121; N. ROBINS et T. CHAKMA, 'State Aid in Energy under the Spotlight':, *op. cit.*; A. SIKORA, 'Applicability of the EU State Aid and Environmental Rules in the Nuclear Energy Sector · Case C-594/18 P Republic of Austria v Commission ('Hinkley Point')· Annotation by Alicja Sikora', *European State Aid Law Quarterly*, 2020, vol. 19, n° 4, pp. 515-520. Nevertheless, the *Hinckley point* case above shows the limits of State aid law in shaping Member States' choices between energy sources.

[618] On this topic see M. VILLAR EZCURRA, *State aids, taxation and the energy sector*, Cizur Menor, Navarra, Thomson Reuters Aranzadi, 2017; P. PISTONE et M. VILLAR EZCURRA (eds.), *Energy taxation, environmental protection and state aids: tracing the path from divergence to convergence*, Amsterdam, IBFD, 2016; S. WEISHAAR, 'EU Law limits to climate transition in EU Member States', *op. cit.*; T. SCHIEBE, 'Designing environmental taxes to promote biofuels from a State aid perspective', *op. cit.* P. NICOLAIDES, 'In Search of Economically Rational Environmental State Aid: The Case of Exemption from Environmental Taxes', *European Competition Journal*, 2014, vol. 10, n° 1, p. 12; P. NICOLAIDES et M. KLEIS, 'A Critical Analysis of Environmental Tax Reductions and Generation Adequacy Provisions in the EEAG 2014-2020', European State aid law Quaterly, 2014, p. 15. European State aid law Quarterly, 2017, issue 1.

[619] For a review see N. de SADELEER, *EU environmental law and the internal market*, *op. cit,* Chapter 5.

[620] *Ibid.*

[621] *Infra*, 5.4.1.

[622] CJEU, Idéal tourisme, 13 July 2000, C-36/99; CJEU, Royal Scholten-Honig (Holdings) Limited v Intervention Board for Agricultural Produce; Tunnel Refineries Limited v Intervention Board for Agricultural Produce, 25 October 1978. Joined cases 103 and 145/77; CJEU, Rau Lebensmittelwerke and Others v Commission, 11 March 1987, Joined cases C 279/84, 280/84, 285/84 and 286/84, § 27 to 34: Tribunal of first instance, Campo Ebro and Others v Council, 21 February 1995, T-472/93, § 84 and f.

Deutsche Bahn AG v. Commission. In this case the Court assessed the comparability between railway and airlines undertakings as follows:

> 'the situation of air transport undertakings is clearly different from that of rail transport undertakings. As regards their operational characteristics, their cost structure and the regulations to which they are subject, air and rail transport services are very different and are not comparable for the purpose of the principle of equal treatment.'[623]

Since air transport and rail transport undertakings are not comparable, from a competition viewpoint, they had to be treated differently.

As regards products, the Court establishes their comparability based whether they are substitutable or interchangeable. This notably emerges from the case law of the Court surrounding Article 110 of the TFEU.[624] Article 110 of the TFEU constitutes a *lex specialis* of Article 34 TFEU on the free movement of goods and precludes discrimination against similar foreign products.[625] It stipulates that:

> 'No Member State shall impose, directly or indirectly, on the products of other Member States any internal taxation of any kind in excess of that imposed directly or indirectly on similar domestic products.
>
> Furthermore, no Member State shall impose on the products of other Member States any internal taxation of such a nature as to afford indirect protection to other products.'

This provision prohibits taxes levied on like products to be 'calculated in a different manner on the basis of different criteria which lead, if only in certain cases, to higher taxation being imposed on the imported product'.[626] Like products are those which 'have similar characteristics and meet the same needs from the point of view of consumers', that is, product substitutability and interchangeability.[627]

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[623] Tribunal of first instance, Deutsche Bahn AG, 21 October 1997, T-229/94, § 138.
[624] See also the vast case law based on article 110 of the TFEU, in particular CJEU, European Commission v Portuguese Republic, 2 September 2021, C-169/20; CJEU, Outokumpu Oy, 2 April 1998, C-213/96; CJEU, Iaon Tatu, 7 April 2001, C-402/09. See also Infra.
[625] See, CJEU, Brzeziński, 18 January 2007, C-313/05, § 27; CJEU, Iaon Tatu, *op. cit.*, § 34; 16 June 2016, Commission c. Portugal, *op. cit.*, § 23; CJEU, Outokumpu Oy, *op. cit.*..
[626] CJEU, Weigel, 29 April 2004, C-387/01, § 67.
[627] CJEU, Rewe-Zentrale des Lebensmittel-Großhandels GmbH c/ Hauptzollamt Landau/Pfalz,17 February 1976, C 45/75. See also CJEU, Commission v Denmark, 4 March 1986, C 106/84, § 15; CJEU, Commission v. France, 15 March 2001, C265/99, § 42. For instance, as far as cars are concerned, 'the degree of competition between two models depends on the extent to which they meet various requirements regarding price, size, comfort, performance, fuel consumption, durability, reliability and other matters'. CJEU, Commission v. France, 15 March 2001, C-265/99, § 43.

The criterion of competition implies that companies or products in competition, even when they are situated in different Member States, should be treated in the same way. This calls for a harmonised response at EU level. This response contrasts with the 'autonomy' frame below, which implies that Member States should remain free to decide on how to frame problems. On the contrary, the 'free market and fair competition' frame partially converges with the 'economic efficiency' frame. While the comparability criterion is different in both cases – competition on the one hand, pollution level on the other hand – differences in terms of territory or nationality are irrelevant. Furthermore, the different functions of the polluter pays principle create a nexus between the 'free market and fair competition' frame and the 'economic efficiency' frame. The interplay between these frames is further examined below.[628]

5. THE 'AUTONOMY' FRAME

It is well known that EU law is the result of a harmonisation process; it starts from disparate legal frameworks and aligns them. This raises the question of who, from the EU or Member States, should frame problems and their remedies. When Member States retain discretion in framing problems, I use the term 'autonomy' frame. Under this frame, the EU does not (or does, but only partially) conceptualise the cause or the solution to a given problem. Member States, therefore, are free to decide which frame should be employed; it can be 'economic efficiency', 'developmental & fairness', 'free market & fair competition' or another frame. This question is linked to the distribution of competences between the EU and Member States, which is addressed by the Treaties. Three main principles determine the distribution of competences between the EU and Member States or the exercise of these competences by the EU: conferral, proportionality and subsidiarity.[629]

The first principle is conferral (Article 5, § 2 TEU). Conferral implies that the EU may only act to the extent of the competences that Member States have conferred to it via the treaty. By contrast, non-conferred competences remain a matter of national sovereignty. In shared competences, such as the environment, EU's exercise of power is conditioned by two other principles: subsidiarity and proportionality (Article 5, § 3-4 TFEU). Subsidiarity entails that EU action must

[628] *Infra*, 5.4.

[629] About the distribution of competences between the EU and Member States, see A. DASHWOOD, 'Relationship between the Member States and the European Community/European Union' in A. MCDONNELL, *A Review of Forty Years of Community Law* (Kluwer 2005) 49. About these principles see generally P. CRAIG et G. DE BÚRCA, *EU law: text, cases, and materials*, New York, NY, Oxford University Press, 2020, chap. 4; D. LANGLET et S. MAHMOUDI, *EU Environmental Law and Policy*, *op. cit.*, chap. 4.

be needed to achieve the objectives of the Treaty.[630] Proportionality implies that EU action should not exceed what is necessary to achieve Treaties' objectives. Certain issues are, in effect, best tackled by Member States (*e.g.* urban mobility). The delineation between EU and Member State competence is not a matter of political choice; it affects the legality of an act and is subject to revision by the Court.[631]

Problems like climate change mitigation apparently pass the subsidiarity test. Climate change is a global problem that requires a multi-scale response.[632] In the absence of common obligations, efforts in one country may be made in vain if emissions from other countries keep on increasing. That is not to say that all measures should be taken at a higher (*e.g.* EU) level but there is an argument that a harmonised approach across EU Member States can be justified.[633] EU competence in certain other legislative areas may not be so obvious. That is the case, for instance, of urban mobility or air and noise pollution. These are typically local problems where one can contend that they are best addressed locally. Nevertheless, in practice, the EU has enacted legislation in these areas. For instance, Directive 2008/50/EC on ambient air quality and cleaner air relies on the argument that 'particulate matter in air consists of a substantial transboundary component'.[634] This underlines the breadth of EU law.

Once a matter is harmonised, Member States may no longer act unilaterally. To put it another way, EU law limits Member States' autonomy to decide how to remedy a given problem. On the other hand, Member States are allowed to enact complementary or related legislation as long as a matter is only partially harmonised. By way of exception, where a measure is based on the

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630 The need for EU intervention means that the objective(s) of the proposed measure cannot be sufficiently achieved by Member States and, because of their scale and effectiveness, they are better achieved at the EU level, which form a test of comparative efficiency. On this principle, see also K. LENAERTS, 'The Principle of Subsidiarity and the Environment in the European Union: Keeping the Balance of Federalism', *Fordham International Law Journal*, 1993, vol. 17, n° 4, pp. 846-893; F. FABBRINI, 'The Principle of Subsidiarity', in *Oxford Principles Of European Union Law: The European Union Legal Order: Volume I*, Oxford, Oxford University Press, 1 March 2018, available at https://oxford.universitypressscholarship.com/view/10.1093/oso/9780199533770.001.0001/isbn-9780199533770-book-part-9 (Last consulted on 2 June 2022); N. DE SADELEER, 'Principle of Subsidiarity and the EU Environmental Policy', *JEEPL*, 2012, vol. 9, n° 1, pp. 63-70; K. LENAERTS, 'The Principle of Subsidiarity and the Environment in the European Union: Keeping the Balance of Federalism', *op. cit.*

631 For instance, CJEU, Poland v. Parliament, 21 June 2018, C-5/16; CJEU, Commission of the European Communities v European Parliament and Council of the European Union, 10 January 2006, C-178/03.

632 *Infra* Chapter 3, 3.1.

633 For a discussion in relation to the ETS, see J. DE CENDRA DE LARRAGÁN, *Distributional choices in EU climate change law and policy*, *op. cit.*, p. 421; G. VAN CALSTER, 'Against Harmonisation – Regulatory Competition in Climate Change Law', *op. cit.*; M. PEETERS, 'Legislative Choices and Legal Values: Considerations on the Further Design of the European Greenhouse Gas Emissions Trading Scheme from a Viewpoint of Democratic Accountability', *in* M.G. FAURE et M. PEETERS (eds.), *Climate change and European emissions trading: lessons for theory and practice*, New horizons in environmental law, Cheltenham, Edward Elgar Publishing, 2008, pp. 17-52.

634 Commission of the European Communities, Proposal for a Directive of the European Parliament and of the Council on ambient air quality and cleaner air for Europe, COM(2005)447 final, p. 5.

environmental competence, Member States can adopt more stringent protective measures to attain a higher level of environmental protection than attained by EU law.[635] This can be connected to the judgements *Safety High Tech and Bettati* above. It is in effect the remaining discretion left to Member States in the field of the environment that founded the Court's conclusion that a high level of protection 'does not necessarily have to be the highest that is technically possible'.[636] By contrast, the internal market competence, which can also serve as a basis for environmental action, conditions unilateral action by Member States to very strict requirements.[637]

There is a lot to say about the distribution of competences between the EU and its Member States. In this Sub-Section, I will focus on three elements that I consider key for this research, namely the right to legislate step-by-step (5.1), and more stringent voting requirements in tax matters (5.2) and in energy matters (5.3). Finally, in Sub-Section **Erreur ! Source du renvoi introuvable.**, I examine in more detail the interplay between the 'autonomy' frame, the 'economic efficiency' frame and the 'free market & fair competition' frame.

5.1. The right to legislate step-by-step

Throughout its case law, the Court has admitted that harmonisation can be only partial without breaching the principle of equal treatment:[638]

> 'Community institutions have discretion in particular with regard to the possibility of proceeding towards harmonization only in stages, given the specific nature of the field in which coordination is sought and the fact that the implementation of harmonizing provisions of that kind is generally difficult because it requires the competent Community institutions to draw up, on the basis of divergent, complex national provisions, common rules which conform to the objectives laid down by the Treaty and obtain the unanimous agreement of the Council.'

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635 Article 193 TFEU. See CJEU, Criminal proceedings against Xavier Tridon, 23 October 2001, C-510/99, § 45; CJEU, Deponiezweckverband Eiterköpfe v Land Rheinland-Pfalz, 14 April 2005, C-6/03, § 60 & f. On this provision see M. PEETERS, M. Eliantonio et L. Reines (eds.), 'Where eagles dare: How much further may EU Member States go under Article 193 TFEU?', in M. Peeters, M. Eliantonio et L. Reines (eds.), Research handbook on EU environmental law, Research handbooks in European law, Cheltenham, UK ; Northampton, MA, USA, Edward Elgar Publishing Limited, 2020. See also P. WENNERÅS, 'Towards an ever greener union ? Competence in the field of the environment and beyond', *Environment 1645 Common Market Law Review*, 2008, n° 45, pp. 1645-1685.

636 CJEU, Safety Hi-Tech, 14 July 1998, C-284/95, § 49; CJEU, Bettati, 14 July 1998, C-341/95, § 47.

637 See Articles 114 § 4 et 5 TFEU; Those exceptions do not exist in the field of energy and do not apply to fiscal measures. Separate provision Article 113 TFEU (or 115).

638 In this sense CJEU, Rewe-Zentral AG, 29 February 1984, C-37/83, § 20; CJEU, Assurances du crédit v Council and Commission, 23 January 1991, C-63/89, § 11; and CJEU, Germany v Parliament and Council, 13 May 1997, C-233/94, § 43. See also CJEU, IATA and ELFAA, 10 January 2006, C-344/04, § 80.

In other words, the Court sanctions the right of the legislature to legislate step-by-step.[639] This implies that they are allowed to address a problem (*e.g.* climate change) only partially.

This case law is significant because it acknowledges that harmonisation 'is by nature a complex exercise surrounded by legal and political difficulties which determine the time in which harmonization measures are adopted as well as their content'.[640] This assumes that the adoption of an act would not be possible (*e.g.* politically or technically) if the legislature was required to harmonise issues in whole. At the same time, this allows EU law to develop in a fragmented way.[641] Fragmentation can impede other policy goals such as economic efficiency or free movement and therefore contradict other frames.

5.2. **Autonomy in fiscal matters**

The Treaties do not attribute to the EU a dedicated competence in fiscal matters.[642] Taxation is not mentioned in Articles 2 and 3 of the TEU which determine the objectives of the EU nor in Articles 4 and 5 TFEU which lists the competences of the EU. Nonetheless, several legal bases can be used – and have been used in practice – by the EU to enact fiscal laws, including the internal market (Articles 113 and 115 TFEU), environment (Article 192, § 2, a TFEU) and energy (Article 194, § 2, al. 3 TFEU) competences. Nonetheless, all these provisions subject the adoption of these acts to unanimity voting requirements. In this sense Article 192, § 2 specifies that 'provisions primarily of a fiscal nature' should be adopted by the Council 'acting unanimously in accordance with a special legislative procedure'. A hot question debated in legal scholarship is thus how to interpret the meaning of the terms 'primarily of a fiscal nature'.[643] The

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[639] This argument validated the legality of the EU-ETS. See infra CJEU, Arcerlor de Lorraine, *op. cit.*, § 56.
[640] J. DE CENDRA DE LARRAGAN, *Distributional choices in EU climate change law and policy*, *op. cit.*, p. 63.
[641] About fragmentation, see M. PEETERS et R. UYLENBURG, 'Concluding observations', *op. cit.*; B. BEIJEN, 'Seeking coherence among environmental directives', in *EU Environmental Legislation*, Chelthenam, Edward Elgar Publishing, 2014, pp. 70-88, available at http://www.elgaronline.com/view/9781781954768.00011.xml (Last consulted 2 June 2022); M. BOGAART, 'The emergence of the Framework Directive in EU environmental policy: An exploration of its function and characteristics', in *EU Environmental Legislation*, Chelthenam, Edward Elgar Publishing, 2014, pp. 48-69, available at http://www.elgaronline.com/view/9781781954768.00010.xml (Last consulted on 2 June 2022).
[642] A. MAITROT DE LA MOTTE, *Droit fiscal de l'Union européenne*, Collection droit de l'Union européenne Traités, n° 3, Brussels, Bruylant, 2016; P.J. WATTÈL & *al.* (eds.), *Terra/Wattel European tax law*, Alphen aan den Rijn, The Netherlands, Kluwer Law International B. V, 2019; D. BERLIN *et al.* (eds.), *Politique fiscale*, Commentaire J. Mégret Politiques économiques et sociales, n° Institut d'Études Européennes. [Coll. founded by Jacques Mégret. Comité de red. Marianne Dony, Bruxelles, Ed. de l'Univ. de Bruxelles, 2012.
[643] E. SCHUDERI, "Provisions primarily of a fiscal nature: time to dispel doubts?", 22nd Global Conference on Environmental Taxation – Implementing Green Deals (hosted by Prof. Stefan Weishaar at Groningen University). The question of whether an auction reserve price is a measure 'primarily of a fiscal nature' has also been studied by scholars. C. FISCHER *et al.*, 'The Legal and Economic Case for an Auction Reserve Price in the EU Emissions Trading System', *op. cit.*; R. ISMER et M. HAUSSNER, 'Inclusion of Consumption into the EU ETS: The Legal Basis under European Union Law', *op. cit.*

unanimity requirement for measures primarily of a fiscal nature suggests the influence on an instrumental approach in EU law. Changing these rules is difficult as it also requires unanimity.[644]

5.3. **Autonomy in energy matters**

Member States retain a greater autonomy in the field of energy than in other policy areas.[645] For a long time, the Treaty did not contain a single provision on energy. This was paradoxical in light of the central position occupied by energy since the early years of the EU legal order. The EU was indeed founded on the ambition to create links between energy policies across national borders.[646] Two of the three foundational EU treaties were focused on energy, namely the Coal and Steel Community (CCSC) Treaty and the Euratom Treaty on nuclear power.[647] In addition, from the outset, internal market completion was believed to be unattainable without an integrated energy market.[648] The result is that harmonisation of energy law was originally conducted negatively, via the case law of the Court.[649] The situation changed in 2009 with introduction of a dedicated competence in the field of energy (Article 194 TFEU), but this competence has remained limited .

To be more precise, Article 194 TFEU excludes measures affecting 'a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy

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644 Article 192, § 2 of the TFEU contains a passerelle clause, which empowers the Council, acting by unanimity, to decide, after consulting the European Parliament, to make the ordinary legislative procedure applicable, including in relation to fiscal measures. This option was considered in the context of the Fit for 55 Package but ultimately abandoned (See *Infra*, Chapter 9, Section 4).

645 See generally K. TALUS, *EU Energy Law and Policy: A Critical Account*, Oxford, Oxford University Press, 5 September 2013, available at http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199686391.001.0001/acprof-9780199686391 (Last consulted 2 June 2022); H. KRÜGER, *European Energy Law and policy: An introduction*, Cheltenham, Edward Elgar Publishing, 2016; K. TALUS, *Introduction to EU Energy Law*, Oxford, Oxford University Press, 22 September 2016, available at http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780198791812.001.0001/acprof-9780198791812 (Last consulted on 2 June 2022). On EU competence in the field of energy more specifically see H.S. VON SYDOW, 'The Dancing Procession of Lisbon: Legal Bases for European Energy Policy', *European Energy Journal*, 2011, vol. 1, pp. 33-46; M. PEETERS, 'Governing towards Renewable Energy in the EU: Competences, Instruments, and Procedures', *Maastricht Journal of European and Comparative Law*, 2014, vol. 21, n° 1, pp. 39-63; H.S. VON SYDOW, 'The Dancing Procession of Lisbon: Legal Bases for European Energy Policy', *op. cit.*

646 C. DUPONT, *Climate policy integration into EU energy policy: progress and prospects*, Routledge studies in energy policy, Abingdon, Oxon ; New York, NY, Routledge,Taylor & Francis Group, 2016, p. 13.

647 Namely the Treaty establishing the European Coal and Steel Community and the European Atomic Energy Community (Euratom), Respectively of 18 April 1951 and of 25 March 1957. About the relationship between the Euratom treaty and other treaties see T. CUSACK, 'A Tale of Two Treaties: An Assessment of the Euratom Treaty in Relation to the EC Treaty', *Common Market Law Review*, 2020, vol. 40, pp. 117-141.

648 In this sense see Commission of the European Communities, Proposal for a Council Directive on the conditions for granting and using authorizations for the prospection, exploration and extraction of hydrocarbons, 11 May 1992, COM(92) 110 final, p. 2, § 1; Commission of the European Communities, Memorandum on the First guidelines for a Community energy policy, 18 December 1968, COM (68) 1040.

649 For an overview see S.-L. PENTTINEN, *Free movement and the energy sector in the European Union: the role of the European Court of Justice*, Routledge research in energy law and regulation, Abingdon, Oxon ; New York, NY, Routledge, 2020, Chapter 1.

sources and the general structure of its energy supply'.[650] In addition, unlike the environment competence, Article 194 TFEU does not allow Member States to unilaterally maintain or introduce more stringent measures in the field of energy. This provision is important for energy measures that seek to promote renewable energy or energy efficiency, as they easily impact Member's States energy mix. This exclusion, however, applies without prejudice of Article 192(2)(c),[651] which requires that 'measures *significantly* affecting a Member State's choice between different energy sources and the general structure of its energy supply' are adopted on the basis of a special legislative procedure that requires *inter alia* unanimity.[652] The delineation of Member State and EU authority thus orbits around the threshold of a 'significant impact'.

This means that EU legislative action may affect a Member State's energy mix when the act is based on Article 192, § 2 TFEU but not when based on Article 194 TFEU.[653] The condition that environmental measures having a significant impact on national energy policies must be based on unanimity suggests that in these cases, Member States' autonomy to frame climate change is guaranteed. The greater number of guarantees in favour of national sovereignty in the field of energy is noteworthy because climate change is caused primarily by fossil-fuel consumption. EU primary law does limit to EU competence in the field of energy, including when the objective is environmental protection. The consequence of such guarantee is twofold. Firstly, EU environmental legislation, including climate-related, may not have a significant impact on national energy policies. This may reduce the ambition of those policies. This also highlights the sensitivity of regulating energy, even indirectly through a carbon tax. Secondly, this implies that EU energy law will be limited.

5.4. **Interaction with other frames**

The 'autonomy' frame partially converges with the 'developmental – fairness' frame. This is because Member States' find themselves in different socio-economic situations. Therefore,

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650 Article 194 § 2 al. 2.

651 P.R. HARTLEY, 'Climate change and energy security policies: are they really to sides of the same coin?', *in* R.E. LOONEY (ed.), *Handbook of Transitions to Energy and Climate Security*, 1st ed., Abingdon, Oxon ; New York, NY : Routledge, 2017, pp. 58-65, available at https://www.taylorfrancis.com/books/9781317528494/chapters/10.4324/9781315723617-4 (Last consulted on 2 June 2022).

652 My emphasis. About this provision see inter alia P. THIEFFRY, *Handbook of European environmental and climate law*, *op. cit.*; M. PEETERS, 'Governing towards Renewable Energy in the EU: Competences, Instruments, and Procedures', *op. cit.* See also C. FISCHER *et al.*, 'The Legal and Economic Case for an Auction Reserve Price in the EU Emissions Trading System', *op. cit.*

653 This interpretation is supported by the case *Commission v. Poland,* which addressed the relationship between the EU-ETS and energy policy. CJEU, Commission v. Poland, 7 March 2013, T-370/11. In that case, the Court clarified that Article 194, § 2 does not enclose a general prohibition against measures affecting Member States' energy mix

applying the same rules across the EU will not impact them in the same way. Nevertheless, the Court considers this does not amount to discrimination.[654] In the case *Fedesa & others*, it was underlined that harmonisation 'inevitably produces different effects depending on the prior state of the various national laws'.[655] On these grounds, it concluded that '[w]here Community rules apply equally to all Member States, as in the present case, there cannot be said to be discrimination'.[656] This case thus highlights the tensions between harmonisation and the 'developmental – fairness' frame. On the other hand, the 'economic efficiency' frame and the 'free market and fair competition' frame rather call for a harmonised response and thus diverge from the autonomy frame.

Regarding the interplay between the 'autonomy' frame, the 'economic efficiency' frame and the 'free market & fair competition' frame, the descriptions above have made clear that they partially diverge as to the way they establish the comparability of situations. An abundant case law has discussed this interplay. I dig into this relationship by distinguishing State aid law (5.4.1) and free movement provisions (5.4.2). The brief analysis of State aid law underlines a large convergence between these rules and the polluter pays principle. Their combined application has shaped national laws, thereby limiting national autonomy, in a way that is more in line with the 'free market & fair competition' frame and with the 'economic efficiency' frame. The interaction between the polluter pays principle and free movement provisions is different. In these cases, the criterion of competition serves as an entry point that makes it possible to assess whether the design of national environmental measures, based on the polluter pays principle, is genuinely related to its environmental purpose. However, in some cases (in particular registration tax for second-hand cars), free movement provisions and the polluter pays principle are not fully reconcilable.

5.4.1. *State aid law*

The polluter pays principle, indeed, also has a function of economic integration, that is to 'prohibit State aids from being used to finance antipollution investments'.[657] Accordingly, the polluter pays principle plays a role in assessing compliance of national measures with EU State aid law.[658] The Court judges that a state measure that relieves economic actors of pollution costs

[654] CJEU, Fedesa & others, 13 November 1990, C-331/88.
[655] *Ibid*, § 20.
[656] *Ibid.*
[657] N. DE SADELEER, *Environmental Principles*, 2nd ed., *op. cit.*, p. 42.
[658] Opinion of Advocate General Jacobs in CJEU, 30 April 2002 in C-126/01, Gemo, 20 November 2003, § 68–70. On this topic N. DE SADELEER, 'Consistency between the Granting of State Aid and the Polluter pays Principle: Aid Aimed at Mitigating Climate Change', *Climate Law*, 2020, vol. 10, n° 1, pp. 28-49.

must be characterised as an economic advantage capable of constituting state aid. To be allowed, the aid in question must be consistent with the polluter pays principle.[659] This means that State aid law serves as an entry point for the polluter pays principle to be respected at the national level. The Commission's decision in the Danish carbon tax casts light on the nexus between the polluter pays principle and State aid law.[660]

This decision concerned tax reduction and exemption from the Danish carbon tax for businesses covered by the EU-ETS. During that period, almost all allowances were allocated for free. Based on this backdrop, the Commission noted that:

> 'the "polluter pays" principle must be taken into account when state aid in the field of environment is granted. Exempting all companies participating in the EU ETS from such a CO_2 tax might not be justifiable, since it could run against the "polluter pays" principle to exempt companies which received emission allowances for free. On the other hand, relieving from such a CO_2 tax those companies which have to buy additional allowances because they need to cover their extra pollution might go against the environmental logic — it could amount to granting a benefit to those who did not make investments and did not lower their pollution or even polluted more.'[661]

Accordingly, the Danish scheme was characterised as a State aid. The tax reduction was admitted by the Commission but not the full exemption. The statement above also recognises that free allocation under the EU-ETS is contrary to the polluter pays principle, which also confirms the limited implementation of this principle in practice. The incompatibility of free allocation with state aid law has been criticised by legal scholars.[662]

There is also a visible interconnection between the level playing hypothesis, the polluter pays principle and the principle of equal treatment. As Advocate General Kokott said in the case *Futura Immobiliere* with respect to the Waste framework Directive:

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[659] European Commission (2014). Guidelines on State aid for environmental protection and energy 2014-2020, OJ C 200, 28 June 2014, p. 1–55, § 41.
[660] Commission Decision on aid scheme, 17 June 2009, C 41/06 (ex N 318/A/04). This decision concerned which Denmark's plan to implement for refunding the CO2 tax on quota-regulated fuel consumption in industry (notified under document C(2009) 4517), (2009/972/EC), § 22.
[661] *Ibid*, p. 2.
[662] N. DE SADELEER, 'Consistency between the Granting of State Aid and the Polluter pays Principle: Aid Aimed at Mitigating Climate Change', *Climate Law*, mars 2020, vol. 10, n° 1, pp. 28-49; D. BEHN, 'Methods for Allocating Allowances Under the EU Emissions Trading Scheme: Assessing its Interaction with the EU State Aid Rules', *in* B. DELVAUX *et al.* (eds.), *EU energy law and policy issues*, ELRF collection, n° v. 3, Cambridge, U.K. ; Portland, OR, Intersentia, 2011; H. VEDDER, 'The Carbon Challenge to Competition', *European Energy Law Report*, 2010, vol. 7, pp. 45-74; J.R. NASH, 'Too Much Market: Conflict between Tradable Pollution Allowances and the Polluter Pays Principle', *Harvard Environmental Law Review*, 2000, vol. 24, n° 2, pp. 465-536.

> 'As a cost allocation principle, the "polluter pays" principle is also a specific expression of the principle of equal treatment or non-discrimination. (…) Under the "polluter pays" principle, the relevant criterion for comparability and any justification of payment obligations in respect of disposal of waste is a causal contribution. Thus construed that principle also *ensures fair competition* if it is applied consistently and *uniformly* to undertakings.'[663]

This stipulation suggests that by linking payment obligations to the level of pollution, the polluter pays principle complies with equal treatment and with fair competition.[664] Accordingly, both the 'economic efficiency' frame and the 'free market and fair competition' frame would call for a uniform carbon price across EU firms.

This said, the relationship between the polluter pays principle and state aid law is not as harmonious as it seems, nor does it necessarily imply that a uniform carbon price should be imposed across emission sources.[665] To be more specific, the Commission considers that reductions and exemptions from an environmental tax can be permitted, where 'the beneficiaries would otherwise be placed at such a competitive disadvantage that it would not be feasible to introduce the environmental tax in the first place'.[666] According to this line of reasoning, a higher tax rate prevails over a uniform tax rate. Furthermore, the Commission allows aids supporting fossil fuels (or 'environmentally harmful subsidies') when they pursue other legitimate goals. These include aids in remedying generation adequacy, namely the problems resulting from variable power generation from renewable energy sources, and transition aids for coal.[667]

5.4.2. *Free movement provisions*

The fact that 'free market & fair competition' frame and the 'economic efficiency' categorise situations in different ways has given rise to a tension between national environmental laws, based on the polluter pays principle, and free movement provisions. This tension has been visible in the field of environmental taxation. Environmental taxes differentiating on bases such as carbon content will be covered by Article 110 TFEU, because this provision categorises products

[663] Opinion of AG Kokott of 23 April 2009, in Case C-254/08 Futura Immobiliare, *op. cit.*, § 33.
[664] About the level playing field hypothesis see Infra.
[665] Note that the absence of a global level playing field has repeatedly been invoked to limit climate ambition, on the grounds that climate regulations endorse the risk of carbon leakage if third countries do not play by the same rules. See *Infra*, Chapter 5-6.
[666] European Commission (2014). Communication Guidelines on State aid for environmental protection and energy 2014-2020, *op. cit.*, § 167 and f.
[667] *Ibid*, § 43, noting that 'Different measures to remedy different market failures may also counteract each other. A measure addressing a generation adequacy problem needs to be balanced with the environmental objective of phasing out environmentally or economically harmful subsidies, including for fossil fuels. Similarly, a measure to reduce greenhouse gas emissions can increase the supply of variable power which might negatively affect generation adequacy concerns.' About coal see *Infra*, Chapter 7.

according to their substitutability.[668] The Court admits differentiation between like products, insofar it is based on objective criteria, pursues an objective that is compatible with EU law and is not discriminatory.[669] Environmental protection is one of these objectives.[670] Therefore, it maintains the Member States' autonomy to frame problems. These provisions nonetheless give the Court the power to control whether national legislation fulfils the criteria above, and hence whether the environmental measure as designed is sufficiently linked to its goal.

In the field of environmental taxation, the Court has made clear that environmental protection cannot justify a discriminatory tax.[671] The *Outokumpu Oy* case illustrates this point.[672] This case concerned a tax that was differentiated according to the method of electricity production, i.e. whether it was produced from renewable sources or not. The tax arrangements, however, were set in a different way with respect to foreign electricity, which was subject to a flat rate.[673] Whilst the Court did not question the differentiation of the tax based on environmental parameters, it considered the tax discriminatory on the grounds that it did not allow foreign firms to prove that foreign energy was renewable.

The *Iaon Tatu* case provides another illustration of this point.[674] The Court had to assess the compatibility of a national legislation that differentiated the registration tax on the basis of CO_2 emissions against Article 110 TFEU. In Romania, the registration tax on first registration of

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668 D. BERLIN *et al.* (eds.), *Politique fiscale*, *op. cit.*, p. 89; A. MAITROT DE LA MOTTE, *Droit fiscal de l'Union européenne*, *op. cit.*, p. 109.

669 CJEU, Haarh Petroleum, 17 July 1997, C 90/94, § 29, in which the Court notes that 'Community law does not restrict the freedom of each Member State to lay down tax arrangements which differentiate between certain products, even products which are similar (..), on the basis of objective criteria, such as the nature of the raw materials used or the production processes employed. Such differentiation is compatible with Community law if it pursues objectives of economic policy which are themselves compatible with the requirements of the Treaty and its secondary legislation, and if the detailed rules are such as to avoid any form of discrimination, direct or indirect, in regard to imports from other Member States or any form of protection of competing domestic product'.

670 N. de SADELEER, *EU environmental law and the internal market*, *op. cit.*, chap. 5.

671 In this sense A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*.

672 CJEU, Outokumpu Oy, *op. cit.*

673 *Ibid*, § 31.

674 See CJEU, Iaon Tatu, *op. cit.*; CJEU, Nisipeanu, 7 July 2011, C-263/10; CJEU lulian Nisipeanu v Directia General, 7 July 2011, C-263/10; CJEU, Daniel Ionel Obreja et SC Darmi SRL, 8 April 2011, joint cases C-136/10 & 178/10; CJEU, Aurora Elena S chi c/ Directia Generala a Finantelor Publice Suceava and others and Adrian Ilas c/ Directia Generala a Finantelor Publice Suceava & other, 8 April 2011, Joint cases C-29/11 and C-30/11; CJEU, Administratia Finantelor Publice a Municipiului Târgu-Jiu et Administratia Fondului pentru Mediu c/ Victor Vinel Ijac, 8 April 2011, C-336/10; CJEU, Iulian Nisipeanu, 7 July 2011, C-263/10; CJEU, Administratia Finantelor Publice a Municipiului Târgu-Jiu et Administratia Fondului pentru Mediu c/ Claudia Norica Vijulan, 13 July 2011, C-335/10; CJEU, Directia Generala a Finantelor Publice Bacau et Administratia Finantelor Publice Bacau c/ Lilia Drutu, 13 July 2011, C-438/10; CJEU, Sergiu Alexandru Micsa c/ Administratia Finantelor Publice Lugoj, Directia Generala a Finantelor Publice Timis et Administratia Fondului pentru Mediu, 13 July 2011, C-573/10; CJEU, Irimie, 18 April 2013, C-565/11; CJEU, joint cases Câmpean, C-97/13 & Ciocoiu, C-214/13, 3 February 2014; CJEU, joint cases Petru Chiș, C-585/14, & Aurel Moldovan, C-587/14, Administraţia Judeţeană a Finanţelor Publice Cluj et Sergiu Octav Constantinescu, C-588/14, 3 September 2015; CJEU, Vasile Budişan, 9 June 2016, C-586/14. A similar case was rendered by the Court with respect to the Dutch regime see CJEU, X.,19 December 2013, C-437/12.

motor vehicles was based on Euronorm, CO_2 emissions[675] and engine capacity. It is a constant in the Court's case law that in such a case the Member State must take into account the depreciation of the vehicle to calculate the tax, which was done in the Romanian legislation. However, the tax in question was payable only in relation to motor vehicles registered in Romania for the first time on a certain date. Because the claimant's car was registered before that date but not in Romania, he had to pay the tax, while a second-hand vehicle registered before that date in Romania would give rise to the payment of a lower polluting tax than the one paid by the claimant.

The Court admitted that Member States are allowed to differentiate motor vehicles taxes on the grounds of environmental parameters.[676] However, it concluded there had been a violation of article 110 TFEU, on the grounds that the temporal application of the measure was discriminatory. Environmental protection, it was noted, could have been attained 'more completely and consistently by imposing the pollution tax on all vehicles of that kind in circulation in Romania'.[677] That is, environmental protection would have better been implemented through an annual road tax. According to the Court, such a tax would not have favoured the second-hand domestic vehicle market over the placing in circulation of imported second-hand vehicles and would have been more consistent with the polluter pays principle.[678] We thus see that the polluter pays principle influences the reasoning of the Court.

However, the *Commission v. Portugal* case highlights that Article 110 of the TFEU cannot be fully reconciled with environmental protection.[679] This judgement concerned a Portuguese tax on the registration of a second-hand vehicle imported from another Member State, based inter alia on vehicle environmental performance. In contrast with what is required by the Court's case law, the environmental component of the litigated tax did not integrate vehicle depreciation (notably its age). Portugal's argument was that the environmental component was a separate tax. The Court rejected this contention and concluded that the tax in question violated Article 110 of the TFEU. Whilst this verdict is consistent with previous cases, it shaped national taxes in a way that can undermine environmental protection, as older vehicles are also often more polluting.

675 This is mentioned in the advocate general's opinion, not in the judgement.
676 CJEU, Iaon Tatu, *op. cit*, § 60.
677 *Ibid.*
678 *Ibid*
679 CJEU, European Commission v Portuguese Republic, *op. cit.*

Advocate General Kokott explicitly recognised this contradiction in the *Iaon Tatu* case, stating that the degressivity of the tax based on the age of the vehicle was hard to reconcile with the environmental objective of the tax. She noted:[680]

> 'I am conscious that there may be an argument that to provide, in what purports to be a pollution tax, for the amount of the tax to be reduced by reason of a vehicle's age may be difficult to reconcile with the notion that, the older the vehicle is, the more it is likely to pollute the environment. While that argument is not without force, it is hard to see how the Romanian legislature could have enacted the legislation otherwise, given the clear requirement laid down in the Court's case-law that account be taken of a vehicle's depreciation. The age of the vehicle will, of necessity, be a relevant factor in that context.'

There is certainly a case for the Court to interpret Article 110 of the TFEU in light of the present context, that is the one of an increased pressure of the market on the environment, including by the use of polluting vehicles.

The *Austria v. Germany* case constitutes a final illustration of the interplay between the 'autonomy' frame, the 'free market & fair competition' frame and the 'economic efficiency' frame.[681] This judgement concerned a vignette levied on light-duty vehicles by Germany, the proceeds of which were fully earmarked for the improvement of the federal transport infrastructure. Owners of a vehicle registered in Germany were required to pay the charge, in the form of an annual vignette, while foreigners could pay the charge for a shorter period. Simultaneously, German authorities enacted a law in order to qualify German citizens for a relief from the motor vehicle tax to the amount of the infrastructure charge paid. The system introduced was questioned by the Commission, which opened an infringement procedure against Articles 18, 34, 45, 56 and 92 of the TFEU. After several amendments were made by German authorities to the legislation at stake, the Commission terminated the procedure. Subsequently, Austria challenged the legislation before the Court, for a breach of the articles above.[682]

The Court first assessed the compatibility of German legislation with article 18 TFEU, which prohibits discrimination on the basis of the nationality. The relief from motor vehicle tax enjoyed by the owners of vehicles registered in Germany was found to be incompatible with this

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[680] Opinion AG Sharpston, 27 January 2011, in CJEU, Iaon Tatu, *op. cit.,* at footnote 38.
[681] CJEU, Austria v. Germany, 18 June 2019, C-591/17. On this case see A. CHAPUIS-DOPPLER et V. DELHOMME, 'Non-discrimination and free movement in a Member State to Member State fiscal dispute: Case C-591/17 *Austria v. Germany* : Case C-591/17 *Austria v. Germany* , EU:C:2019:504', *Maastricht Journal of European and Comparative Law*, December 2019, vol. 26, n° 6, pp. 849-858; M. BOURGEOIS et S. BAHI, 'Le prélèvement kilométrique pour les poids lourds en Région wallonne', *Revue de fiscalité régionale et locale*, 2019, vol. 1, pp. 5-38.
[682] Respectively the prohibition of discrimination on the basis of nationality, of quantitative restrictions on imports and all measures having equivalent effect, of restrictions to provide services and of discrimination in the area of transport.

provision. The reason is that it would offset entirely the infrastructure use charge paid by those persons. As a result, the economic burden of that charge would fall in practice only on the owners and drivers of vehicles registered in other Member States. The Court refused to follow the justification advanced by Germany that the contended provisions were part of a change of modifying financing of road infrastructure in accordance with the 'user pays' and 'polluter pays' principles.[683] This conclusion was based on the following two-step reasoning.

As a first step, the CJEU analysed the joint application of the motor vehicle tax relief and the light-duty vignette. In particular, the Court questioned the appropriateness of the compensation granted to German citizens.[684] It sustained that 'other than the Federal Republic of Germany itself stating, in general terms, that the federal infrastructure is financed from taxation, it has produced no details of the extent of that contribution'.[685] As a result, the Court considered that Germany had not sufficiently evidenced that the amount of the relief did not exceed the contribution to infrastructure cost, as it results from the payment of motor vehicle taxes and, as such, could not prove it was appropriate.[686] That way, it disregarded the Advocate General's conclusion that German and Austrian citizens were not in a comparable situation.

Next, the CJEU assessed the new system against the user pays and the polluter pays principles. It noted that the infrastructure charge was not entirely dependent on owners actually using federal roads.[687] More specifically, the Court pointed out that the infrastructure charge was automatically due regardless of whether car owners would be using federal roads. It also noted that German citizens could not opt for a vignette for a shorter period. On these grounds, it concluded that:

> 'Those factors, coupled with the fact that those owners qualify, moreover, for a relief from the motor vehicle tax in an amount that is at least equivalent to the amount paid with respect to that charge, demonstrate that movement to a system of financing based on the "user pays" and "polluter pays" principles *in reality* affects exclusively the owners and drivers of vehicles registered in Member States other than Germany, whereas the principle of financing by means of taxation continues to apply with respect to owners of vehicles registered in Germany.'[688]

The Court also considered that German legislation breached the free movement of goods (Article 34 TFEU). The applicability of this provision was not evident, because the infrastructure charge

[683] CJEU, *Austria v Germany*, *op. cit.*, § 65. Note that the Court did not specific the legal value or the contours of the user pays principle.
[684] *Ibid*, § 67.
[685] *Ibid.* My emphasis.
[686] *Ibid.*
[687] *Ibid*, § 68.
[688] *Ibid.* My emphasis.

was not levied on goods as such. The CJEU ruled that the measure was 'nonetheless capable of affecting goods delivered using vehicles entering Germany', since the increase in transport costs caused by the legislation at stake could affect the competitiveness of imported goods.[689] It followed a similar reasoning with respect to the free movement of services (Article 56 TFEU).[690]

This judgement is notable for several reasons. The first one is that the polluter pays principle was directly relevant in determining whether the litigated national measure was discriminatory. This is not obvious given that this principle normally applies to EU institutions and Member States when they implement EU legislation. It remains unclear, however, whether German law would have been in line with the polluter pays principle in the absence of a tax relief.[691] In the same vein, it is questionable whether the Court's decision would have been different if revenues from the German annual circulation were earmarked or whether Germany would have simply decided to abolish its annual circulation tax. This case also shows how EU law limits Member States' discretion in the implementation of a road pricing system. Shifting from financing based on nationality, via motor vehicle taxes, towards an approach based on territory can pose problems insofar Member States are willing to spare their citizens being subject to a double tax burden.[692]

6. CONCLUSION & DISCUSSION

The descriptions above have made clear that EU primary law expresses plurality of frames. The diversity of possible frames indicates that the EU is a pluralistic legal order.[693] The frames, which include 'economic efficiency', 'developmental & fairness', 'free market & fair competition' and 'autonomy', portray the problems addressed by the law and their possible response(s) in different ways and imply different criteria to compare situations (Table 6). We have seen that the first frame, 'economic efficiency', does not fully match with economic theory. This frame applies primarily in the field of the environment. Pursuant to the polluter pays principle, it depicts environmental problems as an absence of price on pollution. This partially matches with external cost internalisation (redistribution function), but the polluter pays principle is also attributed to other functions. The response to this problem is to make polluters pay for the harm they cause and the categorising criterion is pollution. By contrast, in EU primary law, this frame does require an economically efficient or cost-effective response.

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689 *Ibid*, § 125.
690 *Ibid*, § 149-150.
691 In this sense A. CHAPUIS-DOPPLER et V. DELHOMME, 'Non-discrimination and free movement in a Member State to Member State fiscal dispute', *op. cit,* p. 857.
692 On this issue see *Infra*, Chapter 8.
693 As noted by E. FISHER, B. LANGE et E. SCOTFORD, *Environmental law*, *op. cit.*, p. 332.

Under the 'development – fairness' frame, a situation is perceived as a problem because it prevents the sustainable development of Member States ('MS') and/or of third countries, it does not ensure solidarity and/or it is contrary to enjoyment of Human rights. The response to this problem should ensure that these principles and rights are respected, including those of future generations. There is a larger scope to define the categorising criterion. I have contended that this criterion broadly relates to capacity (*e.g.* GDP) and/or responsibility (historical contribution). According to the 'free market & competition' frame, problems arise from the failure of the market to function properly and should be addressed by removing barriers to trade or distorting competition rules. This frame implies comparing situations according to the criterion of competition. Ultimately, the 'autonomy' frame implies that problems are best defined by Member States, leaving them discretion to define the problem and its remedies and consequently, what should be the relevant criterion to compare situations.

	Problem	**Solution**	**Categorising criterion**
(Absence of strict) economic efficiency	Polluters do not pay for the harm they cause	Make polluters pay for the harm they cause	Pollution level – no reference to economic efficiency/cost-effectiveness
Developmental – fairness	Contrary to the sustainable development of MS, solidarity among them and/or enjoyment of Human rights	Should be tackled to guarantee sustainable development, solidarity among them and/or enjoyment of Human rights	Capacity (*e.g.* GDP) /responsibility (historical contribution)
Free market & fair competition	Problem results from lack of proper functioning of the market	Removal of barriers to trade or distorting competition rules	Competition
Autonomy (residual)	Problems are best defined by MS	MS have discretion in framing	Determined by MS

Table 6 Frames and corresponding comparability criterion

The distinct frames above are not equally relevant in all policy fields, as Table 7 illustrates. To put it another way, some of these frames should play a primary role in a given policy field whereas in others this role is secondary. In the field of the environment, the 'economic efficiency' frame prevails together with the 'developmental – fairness' frame. The 'autonomy' frame plays a role where environmental measure are taken in/impact certain areas (*e.g.* fiscal matters, energy, planning). The internal market competence is dominated by the 'free market & fair competition' frame. Secondarily, the 'autonomy' frame has an important role in fiscal matters. The situation is the same in the area of energy. The areas of agriculture and transport respond primarily to the 'free market & fair competition' frame and to the 'developmental – fairness'. Ultimately, the

integration clause (Article 11 TFEU), which refers to sustainable development, implies that the 'developmental – fairness' frame has a role to play across the different policy fields.

	Primary frame(s)	**Secondary frame(s)**
Environment (Art. 191-192 TFEU)	(not strict) Economic efficiency Developmental – fairness	Autonomy (fiscal, planning, significant impact on national energy mix/structure)
Internal market (Art. 113 – 115 TFEU)	Free market & fair competition	Autonomy (fiscal)
Energy (Art. 194 TFEU)	Free market & fair competition	Autonomy (fiscal, prohibition of measure impacting national energy mix/structure)
Transport (Art. 90 & f. TFEU)	Free market & fair competition; Developmental – fairness	/
Agriculture (Art. 38 & f. TFEU)	Free market & fair competition; Developmental – fairness	/
Cross principles	Fairness – developmental (integration clause: high level of environmental protection to attain sustainable development)	

Table 7 Primary & secondary frames per competence

The next point is that even though these frames depict problems and their remedies in different ways, they overlap. In other words, these frames are not fully watertight. To some extent, the way they overlap to a given problem converges while at other times, they lead to responses that may not be fully reconcilable. For instance, the 'economic efficiency' frame and the 'free market & fair competition' frame both call for a common response across Member States. This link is also expressed by the different functions of the polluter pays principle, which include a redistributive ('economic efficiency' frame) and an economic integration function ('free market & fair competition' frame). The polluter pays principle also has a preventive function, besides its redistributive and an economic integration function. It involves preventing pollution. This can be connected to the 'developmental – fairness' given that under this frame the occurrence of polluter is deemed to harm the principles of sustainable development, solidarity and/or the enjoyment of human rights.

Where the different frames cannot be reconciled, one frame needs to prevail over another, which brings me to my next point. The analysis of the Court's case law highlights that, in practice, frames enter into conflict. The role of the judiciary in addressing these conflicts is limited, save as far as the distribution of competence between the EU and Member States or the EU's exercise of those competences is concerned. In other cases, the legislature enjoys a broad margin of appreciation. We also find that most of the principles above are vaguely defined by the Court (save competence rules) and hence do not call for a clear response. In this regard, the interplay

between the 'developmental – fairness' frame and the 'economic efficiency' frame deserves attention. I believe there is a case to interpret the polluter pays principle in light of the 'developmental – fairness' frame.

The reason I say this is because the Treaties give greater recognition to the 'developmental – fairness' frame compared to the economic efficiency frame. As just noted, it appears nowhere in the Treaties that the response to a given problem, including climate change, should ensure economic efficiency and/or cost-effectiveness. On the contrary, the principles of solidarity and sustainable development, as well as human rights transcend the different fields of law. This argues that the EU's core values tend to focus on solidarity, human rights and sustainability rather than on economic efficiency. This constitutes an argument to implement the polluter pays principle in a way that is more in line with these principles and rights. Accordingly, the response to climate change could be defined, *e.g.* setting the price in a way that prevents dangerous interference with human rights and/or protects future generations. In other words, the descriptions above argue that the response to climate change that better fits with the Treaties is not the imposition of a uniform carbon price.

I do not believe, however, that the current state of the law presents a sufficient basis to conclude that this interpretation should be seen as an obligation imposed on the legislature. There are two main reasons for this. Firstly, the principles of solidarity and sustainable development are vague and hence, leave a broad margin to the legislature on how to interpret them. The conciliation of the different principles is rather a question of proportionality.[694] For instance, solidarity and sustainable development could still be achieved through financial compensation, as promoted by economists. Secondly, human rights impose clearer obligations on the EU than sustainable development or solidarity. It is arguable that these obligations, to a certain extent, call for a different design than the model sketched out in Chapter 3. In particular, there is a case that the emission level should prevent the violation of human rights (*e.g.* right to life), regardless of whether it is economically efficient.

Nonetheless, the case law on climate change and human rights remains relatively nascent. Plaintiffs currently face hurdles to achieve access to courts, as illustrated by the case *Carvalho & al.*. For that reason, legal scholars have repeatedly called for the Court to review its *Plaumann* doctrine, which interprets strictly the condition of 'individual concern' and hence places 'higher

[694] According to Javier de Cendra de Laggaran, the interaction between these rules is governed by proportionality as a meta principle. J. DE CENDRA DE LARRAGÁN, *Distributional choices in EU climate change law and policy*, *op. cit.*

barriers' for individuals to access Court inter alia in the area of climate change.[695] Furthermore, the conclusion that the emission level should be set in a way to prevent the violation of human rights needs to take into account that other measures exist to remedy climate change. Consequently, it is hard to contest the validity of a measure (*e.g.* a carbon tax) in virtue of its lack of ambition; one needs to consider the broader package. Ultimately, it is arguable that human rights leave space to alleviate the impact of a climate mitigation measure through financial compensation, as opposed to differentiation of obligations.

In sum, the key points of this Chapter are the following. The first one is that the legal response to climate change does not need to be portrayed according to a strict 'economic efficiency' frame. Secondly, other frames are not only expressed by the Treaties but they are also more deeply rooted into them. Therefore, the response is likely to differ from the ideal model design established in Chapter 3 and hence do not take the form of a uniform carbon price. Thirdly, there is an argument to interpret the 'economic efficiency' frame in light of the 'developmental – fairness' frame. In all, the elements above support the worth of studying EU legal response to climate change from a substantive perspective. The different frames through which climate change can be portrayed in EU law could explain the role of the law in the legal design of a carbon tax and why some strategies fail while others succeed.

[695] There is in fact the case when the rules established by the Court do not permit to fulfil the Aarhus Convention. As Lena Hornkhol noted 'Even though the applicants did not rely on it in the present case, the Plaumann formula also does not sit well with the EU's obligation under the Aarhus Convention. Article 9(3) is stating that "members of the public [must] have access to administrative or judicial procedures to challenge acts and omissions by private persons and public authorities which contravene provisions of its national law relating to the environment." In its 2011 and 2017 report, the Aarhus Convention Compliance Committee already held that the Plaumann criteria were "too strict to meet the criteria of the Convention" because "persons cannot be individually concerned if the decision or regulation takes effect by virtue of an objective legal or factual situation". Yet, in this case again, the CJEU did not grant an exception.'. L. HORNKHOL, 'The CJEU dismissed the People's Climate Case as inadmissible: the limit of Plaumann is Plaumann', *European Law Blog*, 6 April 2021, available at https://europeanlawblog.eu/2021/04/06/the-cjeu-dismissed-the-peoples-climate-case-as-inadmissible-the-limit-of-plaumann-is-plaumann/#:~:text=on%20EU%20law-,The%20CJEU%20dismissed%20the%20People's%20Climate%20Case%20as%20inadmissible,limit%20of%20Plaumann%20is%20Plaumann&text=On%2025%20March%202021%2C%20the,the%20lack%20of%20individual%20concern (Last consulted on 2 June 2022).

Chapter 5
Comparing the CO_2/energy tax proposals of 1992 and 2011: same instrument, different stories

1. INTRODUCTION

This Chapter constitutes the first part of my cross-case analysis. It focuses on two carbon tax proposals of the EU Commission that could not be adopted, i.e. the 1992 and the 2011 Proposals for a CO_2/energy tax. My intention is to compare these initiatives on the basis of the analytical framework developed in Chapter 3 and in light of the different frames defined in Chapter 4. For both of these proposals, I seek to untangle which situations are categorised as being comparable or different and identify the relevant comparability criterion behind these categories. I also wish to connect these categories to the relevant frames based on the comparability criterion. This will enable a comparison of both proposals from a substantive (as opposed to an instrumental) viewpoint. The different temporal contexts of these proposals will help isolate the role of a changing legal environment on the conceptualisation of two apparently similar responses to climate change.

I start this inquiry by outlining the legislative journey of the schemes under scrutiny (section 2). This is relevant both in order to get a sense of their context and to clarify the materials that will be screened in the course of this study. Then, in section 3, I describe the rationale and objectives underpinning the initiatives under analysis as well as their legal basis. The purpose is to distinguish primary categorisations and frames from secondary ones. As explained earlier, this is needed because the comparability criterion, covered by the principle of equal treatment, is dependent on the subject matter and purpose of a law as well as on the objectives and principles of the fields involved, which in turn are determined by the legal basis of this law. Subsequently, Section 4 sketches out the main design elements of the schemes in question to detect the categorisations and frames involved. Finally, section 5 wraps up these findings.

In light of these analyses, I make two central points. The first one is that while both CO_2/energy tax proposals were influenced by the 'economic efficiency' frame, other frames were also mobilised. Several design elements illustrate the prevalence of frames other than economic efficiency, such as the role of the 'autonomy' frame in use of a minimum tax rates. This confirms that the legal response to climate change can be understood according to different frames. It also validates the applicability of the frames established in Chapter 4. The result is that the two

proposals for a CO_2/energy tax deviated to a great extent from the model design set out in Chapter 3. The second point is that the role of the different frames varied among the two initiatives under study. As a result of these discrepancies, the design of the CO_2/energy tax diverged between the 1992 and the 2011 Proposal. In particular, the 'free market & fair competition' frame played a greater role in the later than in the former.

2. OUTLINING THE LEGISLATIVE JOURNEY

In 1992, the Commission made a Proposal for a CO_2/energy tax.[696] This proposal was preceded by the 1991 Communication 'A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency'.[697] The 1991 Communication laid the basis for conceptualising the introduction of a carbon tax at the EU level, from its rationale to its main design elements. The 1992 Proposal was drafted in the continuity of the 1991 Communication as it largely built on the design elements fleshed out in that Communication. However, the proposal led to policy wrangling. Facing obstacles from the other EU institutions, the Commission, in 1995, drew up an amended Proposal for a Directive introducing a CO_2/energy tax.[698] The purpose was mainly to increase Member States' flexibility in implementing the tax in question.[699] However, in spite of these changes, the Amended Proposal could not be adopted and it was ultimately withdrawn in 2001 by the Commission.[700]

In 2003, the EU enacted the ETS Directive, the same year as the adoption of the Energy Taxation Directive (hereinafter 'ETD').[701] The ETS Directive introduced in the EU legal order an

[696] Commission of the European Communities (1992). Proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy, 30 June, COM(92) 226 final (hereinafter '1992 Proposal').
[697] Commission of the European Communities (1991). A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency, 14 October, SEC(91) 1744 final. See also Commission of the European Communities (1992). A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency, 1 June, COM(92) 246 final; Commission of the European Communities (1995). Amended proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy, 10 May, COM(95) 172 final (hereinafter 1995 Amended Proposal); See also Commission amends its Proposal, Press release of 10 May 1995, IP/95/468, retrieved from A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*.
[698] Commission of the European Communities (1992). Proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy, 30 June, COM(92) 226 final (hereinafter '1992 Proposal'); Commission of the European Communities (1991). A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency, 14 October, SEC(91) 1744 final. See also Commission of the European Communities (1992). A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency, 1 June, COM(92) 246 final; Commission of the European Communities (1995). Amended proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy, 10 May, COM(95) 172 final (hereinafter 1995 Amended Proposal); See also Commission amends its Proposal, Press release of 10 May 1995, IP/95/468, retrieved from https://ec.europa.eu/commission/presscorner/detail/en/ip_95_468.
[699] Commission of the European Communities (1995). *op. cit.*.
[700] Commission of the European Communities (2001). Withdrawal of Commission Proposals which are no longer topical, 21 December, COM(2001)763 final.
[701] Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity, OJ L 283, 31 October 2003, p. 51–70.

ETS to remedy climate change, which is explored in the next Chapter. Despite this legal development, the idea of introducing a harmonised carbon tax did not disappear. The use of taxes to internalise the external costs of climate change was promoted for several years but only through soft laws, especially Communications of the Commission.[702] In this respect, one key document was the 2007 Green Paper on market-based instruments for environment and related policy purposes (hereafter '2007 Green Paper').[703] In this communication, the Commission discussed the merits and drawbacks of different regulatory strategies to address environmental problems and promoted the use of a carbon tax to respond to climate change.

In 2011, the Commission adopted a Proposal which aimed to amend the ETD in line with the 2007 Green Paper. This means a time-lapse of about twenty years between both proposals. With this second proposal, the objective of the Commission was *inter alia* to base energy taxes on the CO_2 and calorific content of energy products. The 2011 Proposal was accompanied by a Communication entitled 'Smarter energy taxation for the EU: proposal for a revision of the ETD.[704] Its fate was not more fortunate than the earlier proposal and it was ultimately withdrawn in 2015.[705] In the context of the Fit for 55 Package, the Commission has made a series of proposals aimed at ensuring net emissions reductions of 55 percent by 2030 and climate neutrality by 2050. This package includes the proposed revision of the ETD, to align it with these objectives.[706] This proposal is discussed in Chapter 9, although not in the same depth as the previous proposals, as it was introduced in the late course of this research.

3. RATIONALE, OBJECTIVES AND LEGAL BASIS

This section aims to look at the objectives underpinning the proposals under study and to specify their legal basis. What we see from these analyses is that the 'economic efficiency' frame played a

[702] See among others Council of the European Union (2005). Recommendation 2005/601/EC on the broad guidelines for the economic policies of the Member States and the Community (2005 to 2008), 12 July, OJ L 205, 6 August 2005, p. 28–37; Commission of the European Communities (2001). Tax policy in the European Union priorities for the years ahead. COM(2001) 260 final, 10 October, at 3.1.3; Commission of the European Communities (1997) Environmental taxes and charges in the single market. Communication from the Commission. 26 March, COM (97) 9 final; Commission of the European Communities, Report to the Council and the European Parliament on the rates of duty laid down in the Council Directive 92/79/EEC of 19 October 1992 on the approximation of rates of cigarettes, Council Directive 92/80/EEC of 19 October 1992 on the approximation of taxes manufactured tobacco other than cigarettes, Council Directive 92/84/EEC of 19 October 1992 on the approximation of rates of excise duties on alcohol and alcoholic beverages, Council Directive 92/82/EEC of 19 October 1992 on the approximation of excise duties on mineral oils, 13 September 1995, COM(95) 285 final, p. 28.
[703] Commission of the European Communities, Green Paper on market-based instruments for environment and energy related policy purposes, 28 March 2007, COM(2007) 140 final (hereafter '2007 Green Paper').
[704] European Commission (2011). Smarter energy taxation for the EU: proposal for a revision of the Energy Taxation Directive, 13 April, COM(2011) 168 final.
[705] Withdrawal of Commission Proposals, List of Withdrawn proposals, OJ 7 March 2015, C 80.
[706] Infra, Chapter 9, Section 4.

key role in the legislative documents preceding the proposals. Many of the Commission's Communications read like the introduction to an economy textbook. The choice of a carbon tax was based on its theoretical advantages in terms of cost effectiveness and economic efficiency compared to other regulatory strategies. However, these justifications contrasted with the objectives underlying the schemes and their legal basis. The 1992 Proposal was indeed based on both environmental and internal market competences, which highlights the role the 'free market and fair competition' frame. A central objective was to prevent the negative impacts of the tax on the competitiveness EU firms. By contrast, the 2011 Proposal was only based on the internal market competence. Its objectives were mostly related to the internal market, which suggests that the 'free market and fair competition' frame played a greater role.

3.1. **1992 Proposal**

Whilst the 1991 Communication employed several frames to portray climate change, the main one was 'economic efficiency'. Key words such as 'internalisation of external costs'[707], 'economic efficiency'[708], 'least economic costs'[709] and the 'polluter pays principle'[710] express the influence of this frame. These terms percolated through the whole 1991 Communication but were less prevalent in the legislative proposal.[711] This Communication underlined that Article 192 TFEU (environmental competence)[712] complied with 'economic theory which advocates the *internalisation of external costs* (…), to improve overall economic efficiency', through reference to the polluter pays principle and the requirement to take into account the potential benefits and costs of (in)action.[713] It also ascertained that climate change should be remedied through 'measures which involve the lowest economic cost', which corresponds to the objective of ensuring cost effectiveness, pursuant to the 'economic efficiency' frame.[714]

The 'economic efficiency' frame also influenced the choice of the regulatory instrument. The Commission, in effect, highlighted that the adoption of a CO_2/energy tax would help achieve emission reductions in an 'efficient and cost effective way'.[715] To make this point, it took on the

[707] Commission of the European Communities, A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency*, op. cit.*, p. 2
[708] *Ibid.*
[709] *Ibid*, p. 3, § 9
[710] *Ibid*, pp. 2 & 7.
[711] For instance, 1992 Proposal, p 3.
[712] At the time Article 130 of the Treaty.
[713] Commission of the European Communities, A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency*, op. cit.*, p. 2.
[714] *Ibid*, p. 3, § 9. See also p. 4, § 12.
[715] *Ibid*, p. 7, § 19.

promotional frame in favour of carbon taxes and the dichotomous frame between regulatory strategies described previously:[716]

> 'Fiscal measures have been advocated as a useful means of tackling the CO2 problem in terms of their *economic efficiency* (…). In the Commission's view, (…), the use of policy instruments based on market mechanisms to give incentives for the reduction of emissions will be *more cost-effective* than relying solely on regulatory means. Regulations are economically inefficient given that they generally do not take into account the marginal costs of reaching different norms and standards, nor do they give a permanent economic incentive for developing and applying technological improvements to go beyond existing norms. Such instruments also allow the *internalisation of external costs* and are in line with the *polluter pays principle*.'[717]

This stipulation shows that the Commission advanced the merits of a carbon tax to tackle climate change, by opposition to traditional regulation. It also highlights the reference to the concepts of 'cost effectiveness', 'economic efficiency', 'external costs internalisation' and to the 'polluter pays principle', which indicate the influence of the 'economic efficiency' frame.

But 'economic efficiency' was not the only frame involved. A harmonised approach, the 1991 Communication noted, 'would avoid a proliferation of separate actions by Individual Member States which could lead to distortions of competition and disruption to the Internal Market'.[718] This evidences the role of the 'free market & fair competition' frame. It was added that such approach 'would allocate a value to natural resources that are limited and which need to be for future generations'.[719] The care for future generation reminds the principle of sustainable development and hence, the role of the 'developmental – fairness' frame. This frame further emerged from the willingness to design the tax in a way that limits 'any adverse economic impact on the competitive position of Community Industries and on the economy and does not create 'disproportionate socio-economic difficulties'.[720] The impact on EU competitive position, on the other side, was tied to the absence of comparable rules worldwide, meaning that firms do not play by the same rules, which is linked to the 'free market and fair competition' frame.[721]

The Proposal had a double legal basis (environment and internal market) and followed the twofold objective of tackling climate change and completing the internal market.[722] On the one

[716] *Infra*, Chapter 2.
[717] Commission of the European Communities, A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency*, op. cit.*, p. 6, § 17.
[718] *Ibid*, p. 7.
[719] *Ibid.*
[720] *Ibid*, p. 8, § 21.
[721] *Ibid*, p. 8 § 22.
[722] 1992 Proposal, Recitals.

hand, it aimed to remedy climate change in an 'efficient and coherent' manner, with a view to achieving the target of stabilising CO_2 emissions at the 1990 levels by 2000.[723] The objective of efficiency suggests that the 'economic efficiency' frame is involved. On the other hand, a harmonised approach was intended to prevent obstacles to the proper functioning of the internal market caused by disparate national carbon and energy taxes.[724] This goal corresponds to the 'free market & fair competition' frame. It also appeared from the Proposal that 'Care must be taken here to ensure that the introduction of the CO_2/energy tax does not have an adverse effect on growth, investment and employment', which further refers to the idea of balancing environmental protection and socio-economic development, pursuant to the 'developmental – fairness' frame.

3.2. **2011 Proposal**

Similar with the 1992 Proposal, the justification of introducing a carbon tax by the 2011 Proposal was justified by the 'economic efficiency' frame. In the 2007 Green Paper, the 'economic efficiency' frame was employed even more loudly than in the past.[725] In this Communication, Commission promoted the use of market-based instruments to remedies various environmental problems,[726] advancing their advantages compared to traditional regulation (*e.g.* cost effectiveness and flexibility).[727] This illustrates the dichotomous and promotional approaches that characterise an instrumental mindset. Public intervention was justified because it can 'correct market failures', pursuant to the 'economic efficiency' frame.[728] This frame was employed in synergy with the 'free market & fair competition frame'. Carbon pricing, it was noted, could help complete the internal market by guaranteeing that 'a similar burden falls on the same sector across the EU and to overcome potential adverse competitiveness effects within the EU'.[729]

The instrumental perspective followed by the Commission was also evidenced by the way it discussed voting requirements in tax matters. After sketching out the inherent merits and drawbacks of each regulatory strategy, the Communication underscored that:

> 'In principle, Community decision-making rules should not have an influential role to play in this context. Nevertheless, the unanimity requirement in the tax area means that the

[723] *Ibid*, Explanatory Memorandum, p. 1 and Recitals.
[724] *Ibid*, Explanatory Memorandum, p. 25 and Recitals.
[725] 2007 Green Paper, *op. cit.*
[726] *Infra* Chapter 1. This echoes the widespread assumption that economic regulation can be used to address all types of environmental problems.
[727] 2007 Green Paper, *op. cit.*, pp. 3 & 9. See in particular the use of terms such as 'true or social costs', market failure', 'external costs'.
[728] *Ibid*, p. 3.
[729] *Ibid*, pp. 3-4.

> possibility of using taxation as an instrument differs from other instruments in some respects.'[730]

What this statement suggests is that voting requirements unduly interfere with the choice between regulatory strategies, preventing the adoption of allegedly 'best' regulatory strategies. This corresponds to the tendency in carbon tax literature to portray the law as a mere constraint and advance unanimity in tax matters as the main legal factor explaining why, unlike the EU-ETS, the 1992 proposal could not be enacted.

The argument that taxes represent a cost-effective strategy to address climate change was further again advanced in the 2011 Proposal and the 'Smarter Energy Taxation' Communication.[731] Notably, recitals of the Proposal put forward that 'Taxation related to CO_2 emissions can be a *cost-effective* means for Member States to achieve the reductions of greenhouse gases'.[732] In was added that:

> 'For example the impact assessment underpinning the Commission proposal for the climate and energy policy package showed that the overall *welfare* and *cost-efficiency* can be increased if revenue generating instruments, such as taxation, are used to reduce emissions in the sectors not subject to the Community scheme under Directive 2003/87/EC.'

The use of taxation, as an 'instrument' to improve 'welfare' and 'cost-efficiency', highlights the influence of the 'economic efficiency' frame. On the contrary, the proposal did not refer much to external cost internalisation and did not at all mention the polluter pays principle.[733]

In spite of advocacy on using carbon taxes to remedy climate change, the 2011 Proposal was based only on the internal market competence, not on the environment. This suggests that the 'free market and fair competition' frame played a greater role in the design of the carbon tax than in the previous schemes, which were (partly) based on the environmental competence. The predominance of the 'free market & fair competition' frame was corroborated by the objectives of the proposal. It aimed to modify the existing framework in place on energy taxation (the 'ETD'), to ensure a consistent treatment of energy sources so as to guarantee a genuine level playing field in energy (1), provide an adapted framework for the taxation of renewable energy

[730] *Ibid*, p. 4.
[731] 2011 Proposal, Explanatory Memorandum p. 2 & Recitals § 3; See also European Commission (2011). Smarter energy taxation for the EU: proposal for a revision of the Energy Taxation Directive, 13 April, COM(2011)168 final, p. 20.
[732] *Ibid*, Recitals, § 3.
[733] *Ibid*, p. 12. See also European Commission (2011). Smarter energy taxation for the EU: proposal for a revision of the Energy Taxation Directive, 13 April, COM(2011) 168 final, p. 9.

(2), set out a framework for the use of CO_2 taxation (3) and complement the carbon price signal established by the EU ETS without overlapping with that scheme (4).[734]

To be more specific, the remaining disparities in national energy taxes presented a problem for competition and free movement.[735] Moreover, the tax treatment of energy products under the ETD was seen as a hurdle to the proper functioning of the internal market.[736] Inconsistencies in the tax treatment favoured certain products, such as coal, as well as some businesses. The Directive also discriminated against renewable energy sources, since it was adopted at a time when they were only niche alternatives.[737] Biofuels in particular were imposed on the basis of the volume, at the rate of the conventional fuel they replaced.[738] It was noted that this prevented their free movement and scale-up.[739] In these three objectives, the reference to the internal market or to free movement are signs that the 'free market & fair competition' frame is employed. The fourth objective, on the contrary, had also roots in the 'economic efficiency' frame.

The fact that the ETD neither differentiated energy taxes on the basis of CO_2 emissions nor organised the interaction with the EU-ETS was claimed to lead to overlaps and gaps between regulatory instruments. These were regarded as 'undesirable', because of the 'ensuing cost-efficiency losses and/or distortions in the internal market.'[740] The terms 'cost-efficiency losses' suggest the influence of the 'economic efficiency' frame while 'distortions in the internal market' refers to the 'free market & fair competition' frame.[741] It was added that 'Member States are beginning to implement a variety of approaches to environmental taxation, which may lead to distortions and double taxation within the single market.'[742] Thus, uncoordinated national responses to climate change were viewed as a problem for the internal market, which suggests that climate change was conceived through the 'free market & fair competition' frame. Thus, it was confirmed by Recital 3 which highlighted that 'In view of the potential role of CO_2-related taxation, the proper functioning of the internal market requires common rules on that taxation.'

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734 2011 Proposal, Explanatory Memorandum p. 2.
735 *Ibid*, Recital § 3, See also European Commission (2011). Smarter energy taxation for the EU: proposal for a revision of the Energy Taxation Directive, *op. cit.*, pp. 6-7.
736 *Ibid*, Explanatory Memorandum, pp. 2-3.
737 *Ibid*, p. 3.
738 About the treatment of biofuels by the Energy Taxation Directive (discussing the interaction with state aids) see S. WEISHAAR, 'EU Law limits to climate transition in EU Member States', *op. cit.*; T. SCHIEBE, 'Designing environmental taxes to promote biofuels from a State aid perspective', *op. cit.*
739 2011 Proposal, Explanatory Memorandum, p. 3.
740 *Ibid.*
741 *Ibid.*
742 European Commission (2011). Smarter energy taxation for the EU: proposal for a revision of the Energy Taxation Directive, *op. cit.*, p. 6.

The central role played by the 'free market & fair competition' frame and, less prominently, by the 'economic efficiency' frame suggest that the 'autonomy' frame and the 'fairness' frame had a narrow role to play in the design of the 2011 CO_2/energy tax Proposal.

4. MAIN DESIGN ELEMENTS

After scrutinising the rationale and objectives underpinning the three carbon pricing initiatives under study as well as their legal basis, I now wish to compare the main design of these schemes, in particular the scope, the tax base, the tax rates and the derogations (e.g. tax reductions or exemptions). My purpose with these analyses is to compare the extent to which the proposals aimed to impose a uniform carbon price. In light of this purpose, I group the relevant design elements as follows: coverage of the schemes (4.1.), distribution across sources (4.2.) and distribution across sources across Member States (4.3.). I also investigate the role of revenue recycling to address the distributional impacts of the initiative in question and see whether it fosters a uniform carbon price (4.4.). For each of these design elements, I spot the *categorisation* of GHG emission sources and emitters in light of equal treatment, by distinguishing which situations the legislature regards as comparable or different. Then, I link these categories to the frames identified previously, either on the basis of the main objective of the scheme or its sub-objectives.

4.1. Coverage: a comprehensive approach

In spite of a common upstream and comprehensive approach, the two proposals under scrutiny differed in terms of coverage. The comprehensive approach endorsed by the Proposals was consistent with this 'economic efficiency' frame, which deems that the broader the scope, the more cost-effective the response. Both proposals were focused on heating and transport fuel. In addition, in both cases, application of the tax depended on the marketability of products, which suggests that the 'free market & fair competition' frame was involved. On the other hand, the scope of the 2011 proposal was more restrictive than the 1992 Proposal as it excluded the installations covered by the EU-ETS. This exclusion was also in line with the 'economic efficiency' frame, as it aimed to avoid double regulation, yet it already points out the possible influence that a change in the schemes' legal environment would have on their design.

4.1.1. *1992 Proposal*

Under the 1992 Proposal, the tax was levied on energy.[743] It followed an upstream approach, whereby the tax would be levied on energy suppliers, not on energy consumers.[744] As this approach is generally favoured for being simpler and reducing administrative costs, it is coherent with the 'economic efficiency' frame. The coverage of the tax was broad, which is consistent with the 'economic efficiency' frame. The Proposal covered the main types of fossil fuels, i.e. mineral oils (petrol, gas oil, kerosene and heavy gas oil), natural gas and coal across the different sectors.[745] From that perspective, energy products and sectors were viewed as comparable. By contrast, the scope of the tax was restricted to certain forms of energy products intended for use as heating and transport fuel, keeping raw materials out of their coverage.[746] The implication is that heating and transport fuels were treated in a different way than other fuels. This distinction tends to correspond to the 'free market & fair competition' frame (criterion of competition) rather than to the 'economic efficiency' frame (emission level).

It was the marketability of energy sources, being qualified as 'products', that conditioned their regulation through carbon taxation. The chargeability of the tax was in fact determined by their release for consumption.[747] Thus, the release for consumption demarcated which energy products would be subject to the carbon tax or not and thus the similar or different treatment among products. This criterion, albeit not the criterion of competition, is related to the free movement of goods within the internal market and hence with 'free market & fair competition' frame. Energy products were in turn distinguished as regulatory objects on the basis of an existing system of classification, known as 'combined nomenclature' (CN codes).[748] This system classified energy products with a view to ensuring their free movement across the EU. This also converges with the 'free market & fair competition' frame.

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743 1992 Proposal, Articles 1 and 3.
744 *Ibid*, Article 1, § 1 and Article 8. It is often recommended in the literature for its advantages in terms of simplicity and administrability of the tax collection; *inter alia*, it avoids the need to implement a heavy monitoring and reporting system. On this distinction see R. S. Avi-Yonah, & D. M. Uhlmann (2008). Combating Global Climate Change: Why a Carbon Tax is a Better Response to Global Warming than Cap and Trade. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1109167, p. 31. See also UN (2021). Handbook on Carbon Taxation for Developing Countries, p. 97.
745 1992 Proposal, Article 3.
746 *Ibid*, Article 3, § 1.
747 *Ibid*, Article 4-5, Explanatory Memorandum pp. 10-11.
748 Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff, OJ L 256, 1-675.

4.1.2. *2011 Proposal*

Similar to the 1992 Proposal, the 2011 Proposal tax covered energy uses for transport and heating.[749] It also followed an upstream approach and conditioned the taxation of energy products to their marketability.[750] This suggests that the same frames were involved in the determining the coverage of tax as in the previous proposal. There were, however, two main differences between the two proposals. The first one is linked to the EU-ETS. In order to avoid overlap with the EU-ETS, the Proposal excluded the installations covered by this scheme.[751] As noted before, this was justified by the willingness to prevent double regulation and inconsistent price signals that would have undermined the economic efficiency of the scheme. As for the second difference, the 2011 Proposal maintained the exemption in favour of commercial aviation and navigation that prevailed in the ETD.[752] These elements reflect the influence of these two frames in the determination of the tax under proposal and therefore argues in favour of studying these interactions in more detail.

4.2. **Distribution across the relevant sources**

After the scope of the tax, my focus is on the distribution of emission reduction efforts and of the financial burden among emitters. The analyses below clearly show that the design of the CO_2/energy taxes proposed was not in line with the 'economic efficiency' frame. None of these proposals set the rate at the level of the marginal costs per additional unit of CO_2. In addition, both taxes were based on two components: the CO_2 and the calorific contents of energy products. Finally, they left scope for important derogations. As with the previous point, despite these broad similarities, the precise contours of the design elements were not entirely the same. The derogations contained varied among both proposals. In the same vein, the double component approach was not framed in the same way: it responded to the 'fairness – developmental' frame in the first proposal and to the 'autonomy' frame in the second. Moreover, unlike the 1992 Proposal, the 2011 Proposal differentiated the taxation of energy products according to their use.

[749] Article 2, § 1 (a) of the ETD, which is unchanged.
[750] Article 21 of the ETD, which is unchanged.
[751] 2011 Proposal, Article 1, § 2, replacing Article 2, § 4.
[752] 2011 Proposal, Article 1, (1).

4.2.1. *1992 Proposal*

The 1992 Proposal conceived the tax on the basis of two components: the energy (or 'calorific') content, expressed in gigajoule (GJ), and their CO_2 content of energy products, expressed in tonne of CO_2 emitted (tCO_2). Each component was given an equal share.[753] The principle was to fix common tax rates per tonne of CO_2 and per GJ across energy products, which equalled ECU 2.81 per tonne of CO_2 emitted by fossil fuels and at ECU 0.21 per GJ as regards the energy component.[754] Pricing all tonnes of CO_2 at the same level regardless of their source implements the 'economic efficiency' frame. However, nothing indicates that the CO_2 rates corresponded to the marginal external costs of GHG emissions.

Furthermore, the double component did not respond to the 'economic efficiency 'frame. Instead, it would have diluted the price signal of the CO_2 component resulting from the tax. In the Commission's view, the purpose of the double component approach was to address the disadvantages that each component entailed: while an 'an energy tax would be more effective in encouraging energy efficiency, a carbon tax would provide more specific incentives to reduce CO_2 emissions'.[755] The Commission judged that levying a tax solely on the CO_2 content of energy products would pose problems in terms of security of energy supply (by burdening coal), which indicates the willingness to balance the objective of climate change mitigation with other objectives. It would also engender 'significantly different impact on the industrial competitive position of Member States', which points at the role of the 'free market & fair competition'.[756]

The Proposal contained significant derogations to the tax arrangement above. These derogations first concerned the entry into force of the tax, which was made conditional upon the adoption of a similar tax or measures by other OECD Member States.[757] Secondly, energy-intensive industries, namely those 'seriously disadvantaged on account of an increase in imports from third [non-OECD countries] and which have not introduced a similar tax or measures having an equivalent financial impact' were treated more favourably than other energy consumers.[758] The

[753] 1992 Proposal, Explanatory Memorandum, p. 10.
[754] *Ibid*, p. 11.
[755] Commission of the European Communities, A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency*, op. cit*., p. 8.
[756] *Ibid.*
[757] 1992 Proposal, Recitals and Article 1, § 2, al. 2 and Explanatory Memorandum, p. 14.
[758] *Ibid.* 'Competitiveness of energy-intensive firms'. See also the Opinion of the Social and Economic Committee, *op. cit*., at 2.1. 'The greenhouse gas tax should be levied without exemption on CO2 and the release of methane in energy production. The tax should however be lower than that proposed by the Commission for carbon dioxide emissions. Overall, including the energy levy, this would give a lower tax. The introduction of a tax on greenhouse gas emissions and a levy on the energy content should be postponed until the economic situation is more favourable than the situation currently prevailing.'

Proposal permitted Member States to grant these firms gradual tax reductions and conditional exemptions.[759] Third, Member States were allowed to reduce the amount of the tax payable and to grand refunds corresponding to investments made by firms to save energy or to reduce their emissions (tax incentives).[760] These rules were contrary to the 'economic efficiency' frame. Indeed, they relieved the obligations of emitters that were in comparable situations in light of their emission level. The mention of a different situation in other countries, implicitly refers to the absence of a global level playing field and hence corresponds to the 'free market & fair competition' frame.

Finally, the Proposal dealt with specific questions. A simplified tax system was introduced for the taxation of coal, lignite, peat and natural gas. This different treatment was justified by pragmatic reasons relating to the measurement of the carbon content of these fuels, which is in line with the 'economic efficiency' frame.[761] In addition, electricity was taxed according to a separate method. Given that it is a vector that conducts energy, it could have been imposed as an output (end product) or as an input.[762] The Proposal followed the first approach as regards the energy component and the second as regards the carbon component, which is also consistent with the 'economic efficiency' frame.[763]

4.2.2. *2011 Proposal*

Similar to the 1992 Proposal, the 2011 Proposal also put forward a two-headed tax, based on the calorific and the CO_2 contents of energy products. However, unlike the previous Proposal, this was seen as a way to grant autonomy for Member States with respect to energy taxation, which highlights the influence of the 'autonomy' frame.[764] As the explanatory memorandum explained,

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[759] *Ibid*, Article 10
[760] *Ibid*, Article 11 and explanatory memorandum p. 16, 'incentives for investments'.
[761] 1992 Proposal, Article 9, § 1, al 2. As the Commission explains: 'While it is easy to fix the total amount of tax straightaway for fluid hydrocarbons given their precise definition and homogeneity, this is not the with solid fossil fuels (coal, lignite and peat), where the number of types and the range of quality is almost unlimited; even in the case of natural gas, quality can vary significantly. Thus, the task of implementing the above basic rate using the best available method is left to the Member States, which may choose to apply a graduated rate, thereby avoiding extra administrative costs due to unduly frequent or thorough inspections.' Explanatory Memorandum, p. 12.
[762] Note that a similar system applies for heat generated. Commission of the European Communities, Proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy, *op. cit.*, p. 12 & Article 8-9. The Economic and Social Committee made a similar statement about the specificities of electricity, noting electricity taxation was a 'particularly problematical' product to tax and noting the need for 'the development of a tax-rate structure for electricity which: promotes the use of renewable energy sources; provides incentives for the reduction of energy loss during energy conversion; has no favourable structural impact on nuclear energy.' Opinion of the Economic and Social Committee on the 'Amended proposal for a Council Directive introducing a tax on carbon dioxide emissions and energy', n°4.4.1.
[763] 1992 Proposal Explanatory memorandum, p. 12 and Article 8.
[764] 2011 Proposal, Explanatory Memorandum, p. 15. It is noted: 'Member States should, however, be able, as hitherto, to use energy taxation on heating fuels, motor fuels and electricity for a variety of purposes not necessarily

> '*Economic efficiency* pleads in favour of introducing CO_2-related taxes as a complement to the EU emission trading scheme. However, *Member States should also be able* to continue to tax consumption of motor fuels and heating fuels for other purposes, i.e. revenue generation, not related to reductions of greenhouse gases. To allow for such diversified objectives and to ensure to the extent possible that all of them can be pursued in a consistent manner, taxation other than CO_2-related taxation should be linked to the energy content of the energy sources.'[765]

This stipulation clearly indicates the balance between the 'economic efficiency' frame and the 'autonomy' frame and the influence of the latter in the design of the tax.

The Proposal aimed to revise the minimum rates under the ETD to ensure that 'they reflect CO_2 emissions and net calorific value in a consistent manner for the various energy sources'.[766] The recitals further emphasised that 'Each of those components should be calculated on the basis of objective criteria, allowing for equal treatment of different energy sources'.[767] The reference to equal treatment could have been interpreted as meaning all tonnes of CO_2 at the same level. This would have been consistent with the objective to mitigate climate change in an economically efficient way, in line with the 'economy efficiency' frame. However, the Proposal provided a differentiated treatment of energy products according to the purpose of energy consumption. In particular, it categorised these products into heating fuels, motor fuels and motor fuels used for industrial and commercial purposes.[768]

As a result, the CO_2 rate was set at the same level for each unit of CO_2 regardless of the type of product and/or its use. By contrast, the energy component was set at a higher rate for motor fuel than for other uses.[769] Second, these categories were relevant where Member States wished to apply higher rates than those provided by the proposal; in that case, they had to respect the proportionality between the tax rates within a single category.[770] Third, the period left to Member States to align the tax rates differed between categories of energy products, being longer for

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nor specifically or exclusively related to the reduction of greenhouse gases. Therefore, provision should be made for energy taxation to consist of two components, CO_2-related taxation and general energy consumption taxation.' For that reason, several commentators have cast doubt on the legality of these differences in treatment.

[765] 2011 Proposal, Explanatory Memorandum, p. 6.

[766] *Ibid.*

[767] *Ibid*, recitals, § 7.

[768] *Ibid*, Annex I.

[769] *Ibid.* See also, European Commission (2011). Smarter energy taxation for the EU: proposal for a revision of the Energy Taxation Directive, *op. cit.*, p. 8, underscoring that 'In preparing the proposal the Commission paid careful attention to ensure that it does not lead to abrupt changes in price levels that could lead to unacceptable difficulties or hardship for those concerned'.

[770] *Ibid*, p. 7 & Article 1 point 4(b).

transport fuels.[771] The differentiation between energy products and uses established by the 2011 Proposal are summarised in Table 8 below.

	CO_2 component in euro/t CO_2	**Energy consumption component in euro/GJ**		
Used as a propellant	1 January 2013	1 January 2013	1 January 2015	1 January 2018
Petrol	20	9.6	9.6	9.6
Gasoil		8.2	8.8	
LPG		1.5	5.5	
Natural gas		1.5	5.5	
Other uses		1 January 2013	/	
All products		0.15		
Electricity	/	0.15		

Table 8 Minimum tax rates for a selection of energy products

The classification of energy products according to their use corresponds to the criterion of competition. This is consistent with the legal basis of the proposal being the internal market and confirms the predominance of the 'free market & fair competition' frame. This classification, however, also responded to the 'autonomy' frame. In effect, the recitals specified that:

> 'The minimum levels of general energy consumption taxation should be developed, in general, on the basis of the current minimum levels of taxation. This also implies that the minimum level of general energy consumption taxation applicable to motor fuels should remain higher than for heating fuels.'[772]

By starting from the rates in force in national energy taxes, as underlined in the extract above, at the influence of the 'autonomy' frame can be seen in the determination of the calorific content rates. The differentiation of rates according to use could also have been in line with the 'economic efficiency' frame since transport fuel is associated with more negative externalities than heating fuel. However, nothing indicates that this was the intention of the Commission.

In addition to the differentiation of the tax rates according to use, the 2011 Proposal laid down a wealth of derogations.[773] They encompassed, among other things, facultative derogations in favour of certain activities such as agriculture and pisciculture.[774] The proposal also allowed Member States to derogate from the tax arrangement in favour of households and/or organisations recognised as charitable.[775] The use of facultative derogations matches with the

[771] *Ibid*, Annex I. The period left to align the tax rates is respectively 1 January 2013 and 1 January 2018.
[772] 2011 Proposal, recitals § 10.
[773] These are detailed *Infra* in Chapter 9, Annex I.
[774] As set by Article 8, § 2 of the Energy Taxation Directive, which covers agricultural, horticultural or pisciculture works, and in forestry, which was left unchanged by the 2011 Proposal.
[775] 2011 Proposal, Article 15, § 1, (h) as amended, & recitals § 17.

'autonomy' frame. They mostly concerned the energy component of the tax, not its CO_2 component. Nevertheless, as they softened the overall tax burden imposed on some emitters, these derogations can be considered as contrary to the 'economic efficiency' frame. As regards CO_2-related taxation in particular, the Proposal compelled Member States to adopt a tax credit with respect to energy products used by installations in sectors or subsectors exposed to a significant risk of carbon leakage, which suggests that the 'free market & fair competition' frame is involved.[776]

4.3. **Distribution across Member States**

The third point of comparison relates to the distribution of the burden across Member States. Both proposals set minimum rates, as opposed to fixed rates. This would have allowed large discrepancies in the determination of the tax rates across the EU and hence, permitted differences in the treatment of comparable emission sources. The scope for disparities among national energy taxes was reinforced by the manifold facultative derogations mentioned above. These design elements were contrary to the 'economic efficiency' frame and instead responded to the 'autonomy frame'.

4.3.1. *1992 Proposal*

The 1992 Proposal left ample room for differentiation in the tax rates among Member States. It did so in two main ways. First, the tax rates were set as mere minima, as opposed to fixed rates for all Member States. The use of minima matches with the autonomy frame as it allows Member States ultimately to decide on the carbon price level and hence to their response to climate change. Second, the Proposal encompassed a temporary suspension of the tax arrangements upon unanimous decision of the Council.[777] The purpose was to 'take account of changes in the economic situation in certain Member States and of progress made in achieving the objectives of stabilising CO_2 emissions as a result of the introduction of the tax'.[778] The differentiation of the scheme to take into account divergences in economic situations across the EU matches with the 'developmental – fairness' frame.

The amendment introduced in the 1995 Amended Proposal was intended to give more flexibility to Member States.[779] This indicates that the autonomy frame played a greater role in the

[776] Proposed new Article 14a of the ETD, Article 1, point (12) of the Proposal.
[777] 1992 Proposal, Article 9, § 4 and Explanatory Memorandum, p. 22. See also 1991 Communication, p. 12.
[778] *Ibid.*
[779] 1995 Amended Proposal, Explanatory Memorandum, p. 1. See also Opinion of the Economic and Social Committee on the 'Amended proposal for a Council Directive introducing a tax on carbon dioxide emissions and

amended proposal than in the original one. *Inter alia*, the Amended Proposal provided for a transitional period, during which Member States would have been allowed to tax the different energy products individually. That is, Member States would not have been compelled to use a common method across energy products. The Proposal merely set (voluntary) target rates.[780] Since it increased the degree of flexibility left to national authorities, the Amended Proposal deleted the conditionality clause, as well as the possibility for a temporary suspension of the tax arrangements. It also removed the paragraph stipulating that the tax had to be applied in addition to existing energy taxes.

4.3.2. *2011 Proposal*

In line with the 1992 Proposal, the 2011 Proposal left a large margin of appreciation to Member States to define the design of the CO_2/energy tax. It used minimum tax rates – also similar with the 1992 Proposal – and contained manifold facultative derogations.[781] These design elements highlight that the 'autonomy' frame was involved, but not the 'economic efficiency' or 'free market & fair competition' frames. This approach would have allowed significant differentiation among EU countries, while the 'economic efficiency' and 'free market & fair competition' frames would have implied a common response. In addition, the Proposal contained a transitional period to adopt the CO_2 tax in favour of certain Member States with a lower GDP.[782] The purpose of this rule was to guarantee a fair distribution of emission reduction efforts.[783] This objective as well the use of GDP to compare Member States indicate the influence of the 'developmental – fairness' frame.

4.4. **Revenues to foster uniformity**

My final point is on revenue recycling, which is advanced by economists as a means to foster the acceptability of the tax and enable the carbon price to be sufficiently high and also as uniform as possible.[784] In the 1992 Proposal, the Commission strongly advocated for revenue (or tax) neutrality, raising the point that the proposal was made 'only on condition that the principle of

energy. In this sense Press release of 10 May 1995, IP/95/468, retrieved from https://ec.europa.eu/commission/presscorner/detail/en/ip_95_468.

[780] 1995 Amended Proposal, Article 8, § 2.

[781] 2011 Proposal' revision of articles 14, 15 & 17 of the ETD and inserting article 14a.

[782] *Ibid*, Article 1, (6), (7), (8) and (23) of the proposal, concerning Articles 7, 8 and 9 of the ETD, and Annex I to the Directive.

[783] *Ibid*, Article 1 (14), which modifies article 18 of the Energy Taxation Directive as follows "Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia may, for uses referred to in Articles 8 and 9, apply a transitional period until 1 January 2021 to introduce CO_2-related taxation".

[784] *Infra*, Chapter 3, 2.4.

tax neutrality is respected'.[785] With revenue neutrality, the point was to reconcile the carbon tax with EU objectives of 'promoting growth, industrial competitiveness and employment'.[786] These objectives match with the 'developmental – fairness' and with the 'free market & fair competition' frame. However, revenue neutrality remained merely wishful thinking. Member States retained the discretion to decide individually how they would use the revenues collected and whether they wished to ensure tax neutrality. The Proposal merely set out a system of notification and information to the Commission about this question.[787] This suggests that in the end, the 'autonomy' frame prevailed over the 'developmental – fairness' frame. The issue of revenue use was totally ignored in the 2011 Proposal.

5. CONCLUSION

The analysis above compared the 1992 and 2011 Proposals for a CO_2/energy tax from a substantive perspective. The various sections mapped which situations each proposal categorised as being comparable or different. They also identified the frame(s) underpinning these categories. Four key points should be retained from these analyses. The first point is that neither of the two initiatives in question was fully consistent with the 'economic efficiency' frame. It is true that this frame generally prevailed in the promotion of using taxes to remedy climate change. The comprehensive coverage of the proposed taxes also reflected this frame. However, it is clear that frames other than the 'economic efficiency' frame prevailed in the definition of other design elements. In all, the 'free market & fair competition' and the 'autonomy' frames played a greater role in defining the carbon tax proposed than the 'economic efficiency' frame. As a result, the conceptualisation of these schemes deeply differed from the model design implied by the 'economic efficiency' frame.

The second point is that the two CO_2/energy taxes under analysis varied as to which frame(s) they employed to depict climate change. While both proposals gave a key role to the 'free market and fair competition' frame in the conception of the CO_2/energy tax, this role was more prominent in the 2011 Proposal than in the 1992 Proposal. This was expressed *inter alia* by the legal basis of the 2011 Proposal, being the internal market competence only, and through the differentiation of the energy component according to energy use. It is also remarkable that the two-headed tax approach was not conceived in the same way in the 1992 Proposal ('developmental – fairness' frame) and in the 2011 Proposal ('autonomy' frame). At first glance,

[785] 1992 Proposal, Explanatory Memorandum, p. 17.
[786] *Ibid*, Explanatory Memorandum, p. 18.
[787] *Ibid*, Article 17.

the 'autonomy' frame seemed to play a greater role in the 2011 Proposal than in the 1992 Proposal, notably in light of the various facultative derogations allowed. This affirmation must nonetheless be nuanced by the absence of revision of existing energy taxes at EU level, which was planned by the 2011 Proposal.

In spite of these divergences - and this constitutes my third point - the initiatives scrutinised converged in two main regards. Both proposals addressed the issue of carbon leakage, by softening the rules applicable to firms at risk of carbon leakage and thus treating them in a different way than other emitters. These rules indicate that the 'free market & fair competition' frame prevailed over the 'economic efficiency' frame. In addition, the 'autonomy' frame also played a central role in the two proposals under study. This was visible *e.g.* from the use of minimum tax rates and facultative derogations. As a final point, we can already see that the schemes in question interacted in different ways with their legal environment (*e.g.* with energy taxation). This represents a first sign that these interactions could partly explain the design and the fate of EU legal response to climate change. These comparisons are summarised in Table 9 below.

	Economic efficiency	**Developmental – fairness**	**Free market – fair competition**	**Autonomy**
1992 Proposal	-Legal basis environment -Comprehensive approach -Uniform CO_2 rates	-Two-headed tax -Temporary suspension for some MS	-Legal basis internal market -Focus on heating and transport -Demarcation of energy products based on CN codes -Chargeability determined by marketability -Derogation carbon leakage & suspension entry into force	-Minimum rates -Facultative derogations -Does not revise other existing energy taxes
2011 Proposal	-Uniform CO_2 rates	-Transitional periods	-Legal basis internal market -Focus on heating and transport -Demarcation of energy products based on CN codes -Calorific content differentiated acc. to use -Derogation carbon leakage	-Minimum rates -Two-headed tax -Extensive facultative derogations

Table 9 Comparison of the proposals as to their frames & design

Chapter 6
Comparing the EU-ETS and the CO_2/energy tax proposals: a mere matter of instrument?

1. INTRODUCTION

This Chapter focuses on the EU-ETS, as the third initiative covered by the cross-case analyses. The focus on the EU-ETS is pertinent because of the tendency in the literature to present this scheme as the substitute for the CO_2/energy tax proposed in 1992. [788] The classical reading is that the use of an ETS rather than a tax is explained in law by the fact that the ETS, unlike the 1992 Proposal, was not subject to unanimity. The reason is that the ETS is not a tax. There is of course much truth to this interpretation. Different voting requirements indeed applied in both cases. This narrative, however, by emphasising the diverging instrumental features of these schemes, tends to ignore the possible substantive differences between these schemes. In light of this, my aim is to assess whether the EU-ETS has been designed according to different frames of climate change compared to the CO_2/energy tax studied previously. I concentrate on the ETS Directive which introduced the EU-ETS in the EU legal order, the Aviation Directive and the Revised ETS Directive amending it. I also screen the communications surrounding these acts.

With these analyses, I demonstrate that the EU-ETS diverges from the CO_2/energy tax proposals from a substantive angle. In particular, the 'autonomy' frame has shaped the scope of this scheme, as opposed to the 'economic efficiency' frame in the proposals. During the first years of operation of the EU-ETS, the 'fairness – developmental' frame and the 'autonomy' frame played a greater role in the design of the EU-ETS, than 'economic efficiency'. This partially changed with the adoption of the Aviation and Revised ETS Directives. Nonetheless, while their adoption highlighted a greater influence of the 'economic efficiency' frame in the functioning of this scheme, its scope remained dominated by the 'autonomy' frame. This brings me to another key point. The definition of the EU-ETS has varied over time, underlining that space for regulatory imagination does exist. In this respect, and this constitutes my final point, the Court has generally confirmed the choices made by the legislature, save in relation to issues of distribution of competence.

[788] *Infra*, Chapter 2, 2.3.3.

The remainder of this Chapter is structured as follows. Section 2 outlines the legislative journey of the EU-ETS. Next, in Section 3, I shed light on the rationale and objectives underpinning the EU-ETS and its legal basis. Subsequently, in Section 4, I scrutinise the main design elements of this scheme. After, Section 5 reviews the case-law surrounding the EU-ETS, in order to detect which choices were sanctioned or rejected by the Court. Ultimately, Section 6 provides a conclusion.

2. OUTLINING THE LEGISLATIVE JOURNEY

The EU has envisaged the idea of introducing an ETS since the 1990s.[789] The Fifth Environmental Action Programme of 1992 underscored the importance of 'study[ing] the extent of which possible options such as tradable permits could be utilized to control pollution or reduce quantities', on the grounds that Member States primary focus was on environmental taxation.[790] In spite of this early interest, the EU did not originally pick up this path. It is only in the aftermath of the Kyoto Protocol that introducing an ETS was praised as a viable solution to mitigate climate change.[791] The Commission's Communications of 1998 and 1999 'Towards an EU Post-Kyoto Strategy' and 'Preparing for Implementation of the Kyoto Protocol' explicitly embraced the idea of adopting an ETS in the EU.[792] This solution further gained momentum with the Green Paper 'on GHG emissions trading within the European Union' (hereafter '2000 Green Paper').[793] This Communication displayed the Commission's intention to launch a debate on the introduction of an ETS in the EU and organised a stakeholder consultation to discuss its

[789] For an early contribution on the topic see M. PEETERS, 'Towards a European System of Tradable Pollution Permits', *Tilburg Foreign Law Review*, 1992, vol. 2, n° 2, pp. 117-134.
[790] Commission of the European Communities (1992). Towards Sustainability. A European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development, COM (92) 23, 20 May, pp. 71-72.
[791] J.B. WIENER, 'Something Borrowed for Something Blue: Legal Transplants and the Evolution of Global Environmental Law', *op. cit.*; J. DREGER, 'The Commission's Strategies for Designing an Emissions Trading Scheme for the European Union', in *The European Commission's Energy and Climate Policy*, London, Palgrave Macmillan UK, 2014, p. 33, available at http://link.springer.com/10.1057/9781137380265_2 (Last consulted 2 June 2022).
[792] Commission of the European Communities (1998). Towards an EU post-Kyoto strategy, 3 June, 98(353) Final; Commission of the European Communities (1999). Preparing for implementation of the Kyoto Protocol, 19 May, COM(99)230. For an early contribution on emission trading in the, even before the EU proposal see M. PEETERS, 'Towards a European System of Tradable Pollution Permits', *op. cit.*
[793] Commission of the European Communities (2000). Green Paper on Greenhouse Gas Emissions Trading Within the European Union. 8 March, COM(2000)87 Final (hereinafter 2000 Green Paper).

design.[794] It gave 'flesh and blood' to the operation of an ETS in the EU legal order, by discussing possible design elements.[795]

The EU-ETS was ultimately introduced by the Directive 2003/87/EC (hereinafter ETS Directive), which was implemented through a series of implementing decisions.[796] Since its adoption, the ETS Directive has been amended a couple of times, the last modification in date being made by Directive 2018/410.[797] The most relevant changes for this research were brought by the Aviation Directive[798] and subsequently by the Revised ETS Directive.[799] These acts broadened the scope of the EU-ETS to cover a wider range of sectors and gases. It also initiated a gradual move from free allocation to auctioning. Other amendments did not affect the degree

[794] Green Paper (2000). *op. cit.*, p. 4. Note that emission trading was discussed before in the following communication: EUROPA, 'Climate Change – The Commission Presents the First Steps in the Post-Kyoto Strategy to Meet the Commitments of the European Union', 3 June 1998, retrieved from europa.eu/rapid/pressReleasesAction.do?reference=IP/98/498&format=HTML&aged=1&language=EN&guiLanguage =en.

[795] S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 96. The author borrows this expression from J. Skjærseth and J. Wettestad (2008). EU Emissions Trading: Initiation, Decision-Making and Implementation (Ashgate Publishing, Burlington).

[796] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, OJ L 275, 25 October 2003, p. 32–46 (hereinafter 'ETS Directive'). About the first two phases of the EU-ETS see M. PEETERS, 'Legislative Choices and Legal Values: Considerations on the Further Design of the European Greenhouse Gas Emissions Trading Scheme from a Viewpoint of Democratic Accountability', *op. cit.*; C. BOURBON-SECLET, 'Legal aspects of climate change in Europe: is the European Union Emission Trading Scheme greater than the sum of the parts? Part', 2008, p. 17; S. LONG et G. KAMINSKAITE-SALTERS, 'The EU ETS – Latest Developments and the Way Forward', *Carbon & Climate Law Review*, 2007, vol. 1, n° 1, p. 9; B. GÖRLACH, H. HERMANN et O. HÖLZER-SCHOPOHL, 'In the Market The European Emissions Trading Scheme: Coming of Age? An Assessment of the EU Commission Proposal for a Review of the Scheme', *Carbon & Climate Law Review*, 2008, vol. 2, n° 1, p. 5.

[797] Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, OJ L 76, 26 March, p. 3-27; Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC, OJ L 264, 9 October 2015, p. 1–5

[798] Directive 2008/101/EC amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community, OJ L 8, 13 January 2009 pp. 3–21 (hereinafter 'Aviation Directive'). About this directive see C. VOIGT, 'Up in the Air: Aviation, the EU Emissions Trading Scheme and the Question of Jurisdiction', *Cambridge Yearbook of European Legal Studies*, 2012 2011, vol. 14, pp. 475-508; G. BORGER, 'All things not being equal: Aviation in the EU ETS', s.d., p. 18; P.P. FITZGERALD, « Europe's Emissions Trading System: Questioning its Raison d'Etre », *Issues in Aviation Law and Policy*, 2011, vol. 10, n° 2, pp. 189-230; G. KAMINSKAITE-SALTERS, 'Expansion of the EU ETS: The Case of Emissions Trading for Aviation', *in* M.G. FAURE et M. PEETERS (eds.), *Climate change and European emissions trading: lessons for theory and practice*, New horizons in environmental law, Cheltenham, Edward Elgar, 2008.

[799] Directive 2009/29/EC amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, OJ L 140, 5 June 2009, pp. 63–87 (hereinafter Revised ETS Directive). See L. MASSAI, 'The Revision of the EU Emissions Trading System', *European Energy Law Report*, 2010, 7, p. 25; J. VON ZEBEN, '(De)Centralized Law-Making in the Revised EU ETS', *Carbon & Climate Law Review*, 2009, vol. 3, pp. 340-356; M. PEETERS et S. WEISHAAR, 'Exploring Uncertainties in the EU ETS: "Learning by Doing" Continues Beyond 2012', *Carbon & Climate Law Review*, 2009, vol. 3, n° 1, p. 14; H. VEDDER, 'The Carbon Challenge to Competition', *op. cit.*; S. KINGSTON, 'Surveying the State of EU Environmental Law: Much Bark with Little Bite', *International and Comparative Law Quarterly*, 2013, vol. 62, n° 4, pp. 965-982. S. BOGOJEVIĆ, 'The EU ETS Directive Revised: Yet Another Stepping Stone', *Environmental Law Review*, 2009, vol. 11, n° 4, pp. 279-285.

of uniformity of the carbon price but rather its level. The price level of allowances of the EU-ETS notoriously has been considered to be too low to incentivise short- and long-term changes towards a low carbon economy.[800] To address this issue, the EU made a series of legislative interventions (*e.g.* through the adoption of a stability reserve).[801]

3. RATIONALE, OBJECTIVES AND LEGAL BASIS

Economic efficiency has been at the forefront of the promotion of an EU-ETS to remedy climate change. Following this line of argument, ensuring a cost-effective and economically efficient climate policy has been presented as the primary objective behind the EU-ETS. However, other frames have been employed and even prevailed in the original definition of the EU-ETS. These frames were in particular the 'autonomy' frame; the 'developmental – fairness' frame and the 'free market & fair competition' frame. Adoption of Aviation Directive and the Revised ETS Directive marked a key change. It aimed to better align this scheme with the objectives of cost effectiveness and economic efficiency than under the previous design. This suggests the intention to give a greater role of the 'economic efficiency' frame in the response to climate change. In this Sub-Section, I successively analyse the Communication preceding the adoption of the EU-ETS (3.1), the ETS Directive (3.2) and the Aviation and Revised ETS Directives (3.3).

3.1. Communications preceding the adoption of the EU-ETS

The Communications 'Towards an EU Post-Kyoto Strategy' and 'Preparing for Implementation of the Kyoto Protocol' that preceded the adoption of the ETS Directive both pointed at the advantages of this scheme in terms of cost-effectiveness. To be more precise, the first communication described the EU's introduction of an ETS as 'an expression of its determination to promote the achievement of targets in a cost-effective way'.[802] In the same communication, the Commission underlined that '[a] comprehensive trading system across sectors would help ensure that the overall reduction target is met in a cost-effective way'.[803] Implicit in this statement is that the broader the scope, the more abatement options there will be at low cost. This is in line with the model design set out in Chapter 3 and hence matches with the 'economic efficiency' frame'

[800] C. DE PERTUIS, '15 ans de marché carbone : Six leçons pour renforcer le système', *op. cit.*
[801] Decision 2015/1814, *op. cit.*
[802] Commission of the European Communities, Towards an EU post-Kyoto strategy, *op. cit.*, p. 20.
[803] *Ibid*, p. 18.

With the 2000 Green Paper, the Commission aimed to make the 'economic case for emission trading in the EU'.[804] This suggests a promotional intent that rests on economic arguments. The Commission indeed relayed the argument that market-based mechanisms can foster cost-effective and economically efficient emission reductions.[805] It was noted:

> 'The key economic rationale behind emissions trading is to use market mechanisms to ensure that emissions reductions required to achieve a predetermined environmental outcome take place where the cost of reduction is the lowest.'[806]

An ETS, it was added, 'enables cost-effective implementation of the overall target'.[807] The communication also advocated that an ETS is technologically advancing, which is another common argument in favour of market-based mechanisms.[808]

'Economic efficiency', however, was not the only frame employed. The 'free market & fair competition' frame also played a role in the conception of the EU-ETS. The design of the EU-ETS, it was underscored, had to ensure that 'comparable companies in different Member States are required to undertake equivalent effort whether they are involved in emissions trading or subject to other policies and measures, thereby minimising distortions of competition within the internal market'.[809] The Commission uses the term 'comparable' which refers to the principle of equal treatment. The comparability of situations, in this statement, is implicitly established on the basis of the criterion of competition, not based on the emission level. This suggests that the free market & fair competition' frame is employed. This is further supported by the statement that a harmonised approach 'is necessary to ensure competition is not distorted within the internal market' [810]

In addition, to the 'economic efficiency' and the 'free market & fair competition' frame, the influence of the 'autonomy' frame can also be detected in the 2000 Green Paper. In this sense, after emphasising the need to protect the internal market, the Commission ascertained that 'There is, however, a trade-off between providing greater equality of treatment and more simplicity on the one hand, and Member States maintaining greater autonomy on the other'.[811] This statement illustrates the tensions between providing common rules across the EU

[804] Green Paper (2000). *op. cit.*, p. 11.
[805] *Ibid*, pp. 4, 6, 8, 9, 13.
[806] *Ibid*, p. 8.
[807] *Ibid*, p. 4.
[808] *Ibid*, p. 8.
[809] *Ibid*, p. 12.
[810] Ibid, p. 5. On the relationship between the EU-ETS and competition law see S. KINGSTON, *The role of environmental protection in EC competition law and policy*, *op. cit.*
[811] *Ibid*, p. 12.

('providing a greater equality'), as implied by the 'free market & fair competition' frame and the 'autonomy' frame ('maintaining greater autonomy'). On the contrary, the 'developmental – fairness' frame seemed to play a more marginal role at that stage of the conception of the EU-ETS, although fairness could have been attained by giving autonomy to Member States in the design of the EU-ETS.

3.2. **The ETS Directive**

In the ETS Directive, the goals attributed to emission trading and the legal basis of the Directive suggest that the primary frame underlying the EU-ETS was 'economic efficiency'. As the Commission emphasised, 'Emissions trading is, first, an instrument for environmental protection and, second, one of the policy instruments that will impair competitiveness the least."[812] This further appears in Article 1 of the ETS Directive, which established GHG emissions reduction in a cost-effective and economically efficient way as the primary objective of the EU-ETS is.[813] This provision stipulates that:

> 'This Directive establishes a scheme for greenhouse gas emission allowance trading within the Community (hereinafter referred to as the "Community scheme") in order to promote reductions of greenhouse gas emissions in a *cost-effective* and *economically efficient* manner."[814]

It is noteworthy that these goals are enshrined in a legal provision, as opposed to merely inserted in the recitals of the Directive. Whereas this choice seems to have limited legal implications, it could indicate the wish to place the 'economic efficiency' frame above other frames.

Accordingly, the ETS Directive, as well as the legal acts implementing and/or amending this Directive, have been based on the Article 192, § 1 of TFEU (environment competence).[815] On these grounds, the legislature had as a matter of principle to categorise situations according to their emission level to comply with the principle of equal treatment. This partially matches with

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[812] 2001 Proposal p. 2.
[813] ETS Directive, Recitals, § 4. The EU was committed to reduce GHG emissions by 8 % compared to 1990 levels in the period 2008 to 2012. This was in spite of impact on energy see *Infra*, 5.3.
[814] Emphasis added. This provision is still in force today.
[815] *Inter alia* Decision (EU) 2018/853 of the European Parliament and of the Council of 30 May 2018 amending Regulation (EU) No 1257/2013 and Directives 94/63/EC and 2009/31/EC of the European Parliament and of the Council and Council Directives 86/278/EEC and 87/217/EEC as regards procedural rules in the field of environmental reporting and repealing Council Directive 91/692/EEC, OJ L 150, 14 June 2018, pp. 155–161; Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC, OJ L 264, 9 October 2015, pp. 1–5.

the 'economic efficiency' frame.[816] The choice of this legal basis also implies that a limited role is attributed to the 'autonomy' frame. In effect, as noted before, Article 192, § 1 of TFEU in contrast with § 2 does not involve unanimity. The ETS Directive also pursued a number of sub-objectives, in particular to mitigate climate change in a way that would entail the least impairment of economic development and employment.[817] Socio-economic development objectives suggest the influence of the 'developmental – fairness' frame. It was added that harmonisation in this field was 'necessary to contribute to preserving the integrity of the internal market and to avoid distortions of competition', which refers to the 'free market and fair competition' frame.[818]

3.3. **The Revised ETS and the Aviation Directives**

The changes made by the Revised ETS Directive and by the Aviation Directive did not affect the predominant role of 'economic efficiency' in the promotion and objectives underpinning the EU-ETS. On the contrary, these changes were intended to enhance the cost effectiveness and economic efficiency of the scheme, by broadening its scope and moving towards a centralised system based on auctioning.[819] In this sense, the Communication '20 20 by 2020 Europe's climate change opportunity' indicated that '[t]o meet the EU's goals *at minimum cost*, the Commission's proposals build on the experience of the Emissions Trading System and leave the market to drive as much as possible'.[820] This communication also referred to the Report by the economist Nicolas Stern about the 'costs of inaction'.[821] Accordingly these Directives enlarged the scope of the EU-ETS and improved implementation of the polluter pays principle, by making auctioning the default method (outside aviation activities).

4. DESIGN ELEMENTS

After clarifying the objective(s) behind the EU-ETS and the legal basis of this scheme, I now wish to study its main design elements. Installations covered are compelled to hold a GHG

816 Note that this is an anachronism given that the CJEU's judgement Arcelor de Lorraine, *op. cit.*, had not not rendered yet.
817 ETS Directive, Recitals, § 5. See also 2001 Proposal, Explanatory Memorandum, p. 1. See also *Infra* Section 5.
818 *Ibid*, § 7.
819 Revised ETS Directive, recitals § 8. See also Commission of the European Communities (2008). Proposal for a Directive amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community, 23 January, COM(2008)16, pp 4-5, 7. See also Directive 2018/410, *op. cit.*, recitals § 23.
820 Commission of the European Communities (2008). 20 20 by 2020 - Europe's climate change opportunity. 23 January, COM(2008)30 final, p. 10.
821 *Ibid*, p. 1. N. STERN (2006). HM Treasury Stern Review on the economics of climate change, available at http://www.hmtreasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cf m. (Last consulted on 2 June 2022).

emissions permit to be allowed to carry out their economic activity.[822] The permit in question sets an obligation to surrender the number of allowances that covers their emissions level. Installations are under a duty of adequate monitoring and report of emissions.[823] Where they fail to surrender a sufficient number of allowances, they are obliged to pay a penalty.[824] Allowances, on the other side, have been made transferable.[825] The underlying purpose is to enable companies to trade their surplus of allowances or buy the allowances necessary to fulfil their obligations at the price determined by the carbon market.

In terms of coverage, the EU-ETS has taken the form of a downstream system and followed a stepwise approach, pursuant to the 'autonomy' frame (4.1). In a first step, it covered certain industrial installations only and focused on CO_2 emissions. Its scope was subsequently expanded but it has never applied to activities other than industrial and aviation. Industrial and aviation activities, however, are subject to distinct sets of rules and distinct markets. As regards the distribution among emission sources, allowances were originally granted for free (free allocation) (4.2). This system changed with the Revised ETS Directive which initiated a gradual shift towards auctioning, that is, purchasing allowances It is differentiated among companies, depending on their exposure to carbon leakage, which suggests the role of the 'free market and fair competition' frame.

As regards the degree of differentiation among Member States, the EU-ETS was originally conceived as a decentralised system, in which Member States were largely involved in the conceptualisation of the scheme. This was in line with the 'autonomy' frame. The predominant role of the 'autonomy' frame changed with the adoption of the Revised ETS Directives. Following this Directive, the ETS became centralised, which converges with the 'economic efficiency' and 'free market & fair competition' frames (4.3). Ultimately, the Revised ETS Directive has partially harmonised the conditions in which Member States are allowed to use

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822 ETS Directive, Article 4, according to which 'Member States shall ensure that, from 1 January 2005, no installation undertakes any activity listed in Annex I resulting in emissions specified in relation to that activity unless its operator holds a permit issued by a competent authority in accordance with Articles 5 and 6, or the installation is temporarily excluded from the Community scheme pursuant to Article 27.'

823 2001 Proposal, *op. cit.*, p. 3 at 1.2 For a critical assessment of the enforcement side of the EU-ETS M. PEETERS, « Inspection and market-based regulation through emissions trading The striking reliance on self-monitoring, self-reporting and verification », *Utrecht Law Review*, 2006, vol. 2, n° 1, pp. 177-196.

824 ETS Directive, Article 16.

825 ETS Directive, Article 3, al. 1 (a) and Article 12; About the legal nature of allowances see EUROPEAN COMMISSION. DIRECTORATE GENERAL FOR CLIMATE ACTION. *et al.*, *Legal nature of EU ETS allowances: final report.*, LU, Publications Office, 2019, available at https://data.europa.eu/doi/10.2834/014995 (Last consulted 2 June 2022); C. BOURBON-SECLET, 'Legal aspects of climate change in Europe: is the European Union Emission Trading Scheme greater than the sum of the parts? Part 1', *Journal of International Banking Law and Regulation*, 2008, vol. 23, n° 5, pp. 252-266; S. MANEA, 'Defining Emissions Entitlements in the Constitution of the EU Emissions Trading System', *Transnational Environmental Law*, October 2012, vol. 1, n° 2, pp. 303-323.

revenues from allowances, which also in line with the 'economic efficiency' frame (4.4). This change must be connected to the gradual move towards auctioning, which transformed the EU-ETS in a source of revenue for Member States. All these elements underline a shift from the limited role of the 'economic efficiency' frame in the original design of the EU-ETS to a more important role under the Aviation and Revised ETS Directives.

4.1. **Coverage: a stepwise – downstream approach**

The EU-ETS was designed as a downstream system pursuant to a stepwise approach, which indicates the influence of the 'autonomy' frame. Although the Commission acknowledged that economic efficiency supposed a broad coverage, it was decided to limit the scope of this scheme to certain emission sources and gases. Its coverage was only expanded in a second step.[826] The consequence of this approach is that, temporarily, some emission sources were treated in a different way than comparable sources which were also liable for GHG emissions.[827] The 2000 Green Paper thoroughly discussed this approach. It underscored that 'The wider the scope of the system, the greater will be the variation in the costs of compliance of individual companies, and the greater the potential for lowering costs overall'.[828] This recalls the 'economic efficiency' frame. However, it concluded that 'a prudent step-by-step approach' in the development of the ETS would be more appropriate and that there were 'sound scientific and practical reasons why the Community might not wish to establish a comprehensive scheme at this stage'.[829]

Even though the arguments above remain vague, the choice of a prudent stepwise approach can be linked to two main elements. The first is that the EU had little experience with emission trading. The promotion of an ETS, which the EU originally rejected, popped up via the Kyoto Protocol under the driving force of the USA.[830] As the Commission noted:

> 'Theoretically the Community could immediately opt for a comprehensive internal emissions trading scheme covering all gases and all economic sectors. However, in view of the lack of national and international experience, the Community and its Member

[826] ETS Directive, Recitals, § 15 and Article 30, § 1, which plans to review the scope at a later stage.
[827] This issue led to the aforementioned CJEU, Arcelor Atlantique and Lorraine and Others, 16 December 2008, C127/07.
[828] *Ibid.* p. 10, 4.3.
[829] *Ibid.*
[830] As explained earlier, US influence was particularly noticeable in the conception of the EU-ETS. The Commission had frequent meetings with US experts who had experience with emission trading including NGOs, officials and academics. J. DREGER, 'The Commission's Puzzling and Powering over the Revision of the Emissions Trading Scheme', *op. cit.*, p. 32.

> States may prefer to follow a prudent step-by-step approach in the development of their internal emissions trading."[831]

The focus on the form of regulation indicates the prevalence of an instrumental perspective.[832] This approach thus went hand in hand with the 'autonomy' frame.

The second element was of a more substantive nature. The choice of a downstream approach aimed to take an opposite stance to the design of the 1992 Proposal, as the following shows:[833]

> 'A trading system could be based on all emitting entities. (…) Alternatively, a trading system could be based on energy producers like coalmines and oil and gas suppliers. They would have to buy permits to cover the emissions that their products will generate when consumed. The Commission once proposed a similar system in its original proposal for a carbon/energy tax, but its new and comprehensive nature created considerable technical and political problems.'

Although it was acknowledged that the ETS could be designed as either a downstream or upstream system, the second option was discarded in light of the ill-fated 1992 Proposal.

Originally, the EU-ETS applied to energy activities, production and processing of ferrous metals, mineral industry and other activities (e.g. paper and pulp production).[834] Two main elements justified this choice: first, whether the sectors in question were covered by the prevailing framework on industrial pollution (the IPPC Directive) and second, practical considerations, i.e. the (expected) contribution to GHG emissions, the capability to measure emissions in this sector and the number of installations.[835] A high number of installations would indeed increase the administrative complexity of the scheme. The gas coverage was based on the concern of ensuring 'sufficiently accurate monitoring of emissions'; monitoring uncertainties of other GHGs than CO_2 were viewed a too large a task. The relevance of practical considerations to delineate the coverage of the EU-ETS is in line with the 'economic efficiency' frame, as the focus was on the functioning of the scheme. The reference to prevailing legal frameworks supports the argument that existing legislation shaped the legal response to climate change.

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[831] *Ibid*, p. 19. See also Commission of the European Communities (1999) *op. cit.*, p 16;
[832] This is line of reasoning was also followed by the Court in *Arcelor de Lorraine*
[833] Commission of the European Communities (1999). Preparing for implementation of the Kyoto Protocol, 19 May, COM(99)23, p. 16
[834] Certain installations, such as power and heat generation, fell into the scope of the ETS Directive only above a specific threshold. See ETS Directive, Annex I; 2001 Proposal, Explanatory Memorandum, p. 10.
[835] 2001 Proposal, p. 10

With the adoption of the Aviation Directive, the EU-ETS was expanded to aviation.[836] The Aviation Directive initially broadened the scope of the scheme both to national and international flights. The inclusion of aviation in the EU-ETS was in line with the 'economic efficiency' frame. It meant that this sector would no longer be treated differently from other emission sources covered by the EU-ETS,[837] even though fully implementing this frame would have implied also including emission sources from other sectors such as shipping, road transport or heating. However, the EU took a step backward under pressure of the international community and retroactively exempted non-EEA flights, which was thus contrary to 'economic efficiency' frame.[838]

Later, the Revised ETS Directive expanded the scope of the EU-ETS to new industrial sectors (petrochemicals, non-ferrous metal, chemicals) and to carbon capture and storage.[839] It also included new categories of GHGs, i.e. N_2O emissions and perfluorocarbons.[840] These changes also responded to the 'economic efficiency' frame, as the recitals highlight:

> 'the scope of the system should be extended by including new sectors and gases with a view to both reinforcing a carbon price signal necessary to trigger the necessary investments and by offering new abatement opportunities, which will lead to *lower overall abatement costs* and the *increased efficiency* of the system.'[841]

This statement reflects the relationship between the scope of the scheme and cost effectiveness and economic efficiency which is in line with the 'economic efficiency' frame.

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836 Aviation Directive. On this topic see G. BORGER, 'All things not being equal: Aviation in the EU ETS', s.d., p. 18. C. VOIGT, 'Up in the Air: Aviation, the EU Emissions Trading Scheme and the Question of Jurisdiction', *op. cit.*

837 Opinion of Advocate General Jacobs in CJEU, 30 April 2002 in C-126/01, Gemo, 20 November 2003, § 68–70, as discussed in Chapter 3, 5.4.1.. As we shall see, it is instrumental approach that permitted the legalisation of the inclusion of international flights in the ETS-ETS.

838 The extension of the EU-ETS to aviation generated strong political reaction from countries such as China, the US, Russia, Australia and India The US Secretary of State Clinton wrote a letter to the EU urging it to halt, suspend or delay application of the measure and in 2012, the US Congress enacted a law prohibiting US airlines from participating in the EU-ETS. Other countries like China threatened the EU to cancel orders for EU aircraft. See https://www.govinfo.gov/content/pkg/BILLS-112s1956enr/pdf/BILLS-112s1956enr.pdf; European Parliament 2017, Briefing EU Legislation in Progress CO_2 emissions from aviation.

839 Annex I as replaced by Revised ETS Directive.

840 Aviation Directive, *op. cit.*

841 Revised ETS Directive, recitals, § 7. In a similar vein, the Commission later emphasised 'The ETS delivers a uniform carbon price for large industrial installations, the power sector and in the aviation sector. It covers more than 10.000 installations and nearly 50% of all EU GHG emissions. This uniform price ensures that climate goals are met cost-effectively and that business across the EU has a level playing field.' European Commission (2013). Green Paper A 2030 framework for climate and energy policies, 27 March, COM(2013)169 Final, p. 4.

The capacity of a gas or a sector to be monitored, reported and verified with a sufficient level of accuracy was what justified its inclusion in the EU-ETS.[842] This approach may correspond to the 'economic efficiency' frame as it suggests that the focus is on the proper functioning of the scheme. The criteria above underpinned the exclusion of agriculture and forestry from the EU-ETS.[843] By contrast criteria such as abatement cost were not decisive in excluding EU-ETS application for a given sector.[844] However, one can cast doubt on the consistency of their application. When the 2009 Directive was adopted, although shipping met these criteria, this sector was not included in the scheme (it 'might be included at a later stage').[845] This sector, as well as road transport, remains outside the scope of the EU-ETS.[846]

4.2. Distribution across the relevant sources: from free allocation towards auctioning

The EU-ETS was originally characterised by free allocation, as the main method to allocate allowances. Article 10 of the ETS Directive stipulated that Member States had to distribute free of charge at least 95 percent of allowances during the period 2005-2008 and 90 percent afterwards. The method to determine the allocation of allowances was not harmonisation. It is true that there were common criteria but these allowed Member States a relatively broad discretion.[847] As explained earlier, the choice of permitting free allowances is not necessarily contrary to the 'economic efficiency' frame.[848] From a legal standpoint, legal scholars are divided as to whether free allocation complies with the polluter pays principle.[849] In this sense, the Commission noted that 'having to pay for extra allowances was consistent with this principle' but it also recognised that auctioning more fully complies with it.[850] In addition, free allocation has

[842] Commission of the European Communities (2008). Proposal for a Directive amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community, 23 January, COM(2008)16, p. 4.
[843] *Ibid.*
[844] *Ibid.* In particular, it was noted that: 'The level of abatement potential or costs may not strictly represent a criterion for including a certain sector in the EU ETS.' See also Commission of the European Communities, Commission staff working document - Accompanying document to the Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the EU greenhouse gas emission allowance trading system - Summary of the impact assessment, SEC(2007)53 final.
[845] In particular, the Commission recognised that emissions from shipping could be accurately measured and verified but that they would not be included at that stage in the EU-ETS. Commission of the European Communities (2008). Proposal for a Directive amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community, 23 January, COM(2008)16, pp. 4 & 6.
[846] The inclusion of this sector is discussed in the context of the Fit for 55 (*Infra*, Chapter 9, 4).
[847] The reason is that, in a first step, the EU-ETS followed a decentralised approach.
[848] *Infra*, Chapter 3, Section 2.
[849] See *Infra*, footnote 359.
[850] 2001 Proposal, p. 6.

been recognised as posing other problems, especially in terms of economic distortion ('free market & fair competition' frame.[851]

With the adoption of the Revised ETS Directive, the EU-ETS experienced a major overhaul; it is gradually shifting from free allocation towards auctioning. Auctioning was advanced as most suitable for complying with the polluter pays principle and for rewarding early action to reduce emissions.[852] This gradual move was nonetheless accompanied by significant differences in the treatment of the relevant installations. They have been categorised into three categories: installations at risk of carbon leakage, the power sector and carbon capture and storage sector, and then other sectors.[853] These categories are based on emitters' ability to pass costs on to consumers and, in the case of installations at risk of carbon leakage, on production cost increases due to the ETS and on trade intensity with third countries.[854] The ability to pass costs on consumers and exposure to carbon leakage suggest that the 'free market & fair competition' frame is involved. The fact that the EU chose to relieve emitters from the obligation to purchase allowances, as opposed to implementing a CBAM argues that the EU attributed a greater role to this frame than to 'economic efficiency'.

Given their ability to pass the increased costs resulting from the ETS on to consumers, power generators have been subject to full auctioning.[855] By contrast, installations at risk of carbon leakage (e.g. oil manufacturing, paper, ceramic, steel and cement) have received the totality of their allocations free of charge.[856] The exception regime in favour of installations at risk of carbon leakage still holds today, but it is now limited to installations at 'genuine risk of carbon leakage'.[857] Other sectors, namely those that are not characterised at risk of carbon leakage ('the other sectors'), have had to purchase their allowances through auctioning. This shift has been

[851] See caselaw *Infra*, Section 5.
[852] Commission of the European Communities (2008). Proposal for a Directive amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community, 23 January, COM(2008)16, p. 7.
[853] Revised ETS Directive, Article 10a.
[854] *Ibid*, Article 10a, § 15-16; Commission of the European Communities (2008). Proposal for a Directive amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community, 23 January, COM(2008)16, Explanatory Memorandum, p. 8.
[855] *Ibid*, Article 19; 2001 Proposal, *op. cit*., Explanatory Memorandum, p. 8. In Joined Cases C-566/11, C-567/11, C-580/11, C-591/11, C-620/11 and C-640/11, the CJEU noted that the ETS directive does not prevent the 'application of national legislative measures, such as those at issue in the main proceedings, the purpose and effect of which are to reduce remuneration for electricity production by an amount equal to the increase in such remuneration brought about through the incorporation, in the selling prices offered on the wholesale electricity market, of the value of the emission allowances allocated free of charge.' CJEU, 17 October 2013, § 59. Similar rules apply to carbon capture activities.
[856] Revised ETS Directive, Article 10a, § 12.
[857] Modification by directive 2018/410.

implemented gradually, through a transitional period.[858] The amount of allowance allocated for free has been determined for each installation, by multiplying their production by a benchmark value.[859] The method used to set the product-based benchmark is particularly technical but has important implications in treatment of emitters under the Revised ETS Directive.

These rules were initially set by Decision 2011/278 which was later replaced by Decision 2019/331.[860] Among the possible approaches to allocate allowances, the EU opted for benchmarking which rewards the most CO_2 efficient installations in a sector or subsector.[861] Where it is not feasible to calculate product benchmarks, fallback approaches have been provided for (i.e. through a heat benchmark, a fuel benchmark and process emissions). Benchmarking differs from grandfathering; the later takes into consideration the existing level of emissions in determining free allowance. By choosing to use benchmarks, the goal was to ensure that the 'free allocation of emission allowances takes place in a manner that provides incentives for reductions in greenhouse gas emissions and energy efficient techniques'.[862] This fits with the 'economic efficiency' frame.

These rules have been fully harmonised, leaving no scope for differentiation across Member States.[863] A common approach to set the benchmarks could have matched both with the 'economic efficiency frame' and the 'free market & fair competition frame'. The recitals clarified that

> 'No differentiation was made on the basis of geography or on the basis of technologies, raw materials or fuels used, so as not to distort comparative advantages in carbon

[858] During that period, the amount of free allocation decreases from 80% in 2013 to 30% in 2020. Revised ETS Directive, Article 10, (a), § 11.
[859] This amount must also be multiplied by a carbon leakage factor and a cross-sectoral correction factor. For an explanation of these technical rules see European Commission, Staff Working Document Impact Assessment Accompanying the Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, SWD(2015) 136 final, pp. 31 and f.
[860] Commission Decision 2011/278/EU of 27 April 2011 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 130, 17 May 2011, p. 1–45, repealed and replaced by Commission Delegated Regulation (EU) 2019/331 of 19 December 2018 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 59, 27 February 2019, p. 8–69.
[861] Revised ETS Directive, Article 10 a, § 2. See also Commission Decision 2011/278/EU of 27 April 2011 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 130, 17 May 2011, p. 1–45, which has been replaced by Commission Delegated Regulation (EU) 2019/331 of 19 December 2018 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, OJ L 59, 27 February 2019, p. 8–69.
[862]Decision recitals § 1
[863] See *Infra* caselaw, Section 5.

> efficiency across the Union economy, and to enhance harmonisation of the transitional free allocation of emission allowances'.[864]

This statement indicates that the focus was on competition, point to the role of the 'free market & fair competition' frame. This prevailed over the 'developmental – fairness' and 'autonomy' frames which instead would have called for differentiation. In the same vein, the Decision in question dealt with the treatment of new entrants so as 'to avoid distortions of competition, to avoid any undue administrative burden and to ensure equal treatment of installations across Member States'.[865]

Another way in which the treatment of undertakings has been differentiated under the Revised ETS Directive is through monitoring and reporting requirements. Monitoring and reporting of relevant emissions from activities and gases have been determined in a number of implementing Commission Decisions.[866] The responsibility to monitor and report emissions is in the hands of participating firms based on these common guidelines, whilst Member States are in charge of verifying the report.[867] The decisions in question have not imposed the same obligations on all firms, as the goal was to avoid imposing unreasonable costs on firms. Accordingly, certain firms have been permitted to monitor their emission with a lower degree of accuracy, to enhance cost effectiveness.[868] These considerations are in line with the 'economic efficiency' frame, as they express the goal to reduce the overall costs of emission reduction.

Ultimately, aircraft operators have been subject to different – and to some extent more favourable – rules than stationary installations. This was in spite of the recognition that the aviation sector was able to pass the costs on to consumers. Among other things, the emission cap has been set separately from stationary units. In addition, until January 2021, emission allowances were traded in a different market; aircraft operators could purchase allowances from stationary

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[864] Commission Decision 2011/278/EU, *op. cit.*, recitals § 5.
[865] Commission Decision 2011/278/EU, *op. cit.*, recitals, § 35.
[866] This led to the adoption of Decision 2004/156/EC of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council, OJ L 59, 26 February 2004, p. 1–74. There were many changes since then, the current regime being determined by Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 601/2012, OJ L 334, 31 December 2018, p. 1–93
[867] ETS Directive, Articles 5-6. On this issue see M. Peeters (2006). Inspection and market-based regulation through emissions trading the striking reliance on self-monitoring, self-reporting and verification. Utrecht Law Review, 2(1), 177-196.
[868] Decision 2004/156/EC, *op. cit.*, at 4.2.2.1.4. "Tiers of approaches. See today Commission Implementing Regulation (EU) 2018/2066, *op. cit.*, Article 26.

units but the opposite was not possible.[869] The baseline used for aviation has also been determined more favourably,[870] with aircraft operators benefitting from a higher percentage of free allowances (15 percent) than what applied at the time for stationary installations. The different treatment of aviation was not justified by the legislature, which is questionable from a legal standpoint. In any event, this approach differs from 'economic efficiency' frame.

4.3. **Distribution among Member States: a (de)centralised approach**

In its initial design, the EU-ETS endorsed a decentralised approach, which corresponds to the 'autonomy' frame. In this system, determination of the cap level and of the method to distribute allowances was left to the discretion of Member States. Pursuant to this approach, each Member State was entrusted to determine the total national emission levels (or cap) and the method of allowance allocation between installations. The emissions level deriving from the sum of national caps formed the total EU cap of emission allowances. These elements were part of the so-called national allocation plans (NAPs).[871] The Commission was vested with supervisory power to control the NAPs' compatibility with EU law, on the basis of established criteria (Annex III of the ETS Directive).[872] These criteria included among other things non-discrimination between firms, and national energy policies and climate targets.[873] By contrast, the carbon market was (and is still) common to all Member States, so the price of each additional tonne of CO_2 emitted in the EU has been the same across the EU.

The set of criteria provided by Annex III to the ETS Directive responded to a twofold objective: 'to ensure that the sectors concerned by the (ETS) contribute appropriately to the overall reduction of (GHG) emissions made necessary by the Community's international commitments, and to ensure a level playing field between companies competing within the internal market'.[874] The reference to the level playing field points at the role of the 'free market & fair competition' frame. By contrast, what the Commission meant by an appropriate contribution is not totally clear. It could have meant a cost-effective contribution, in line with the 'economic efficiency' frame, or a fair contribution pursuant to the 'developmental – fairness' or 'free market & fair

[869] Applicable rules are established largely through a separate Chapter, which determines the Total quantity of allowances for aviation (article 3c) and the allocation of allowances (articles 3d-e). See also Article 12, § 3 of the Revised ETS Directive.
[870] Namely, 2004-2006, compared to 1990 in the case of stationary installations. In this sense G. BORGER, 'All things not being equal: Aviation in the EU ETS', *op. cit.*
[871] ETS Directive, Article 9.
[872] ETS Directive, Article 9, § 1.
[873] Non-discrimination in turn was an application of the general principle of equal treatment. In this sense Court of First Instance, Germany v Commission, 7 November 2007, T-374/04, § 153.
[874] 2001 Proposal, p. 11.

competition frame'. What is clear though is that these criteria and their supervision by the Commission diminished the role of the 'autonomy' frame.

After a few years, it became obvious that decentralisation engendered several problems. The tendency of certain Member States to over-allocate allowances led to a total cap that neither corresponded to an economically efficient level, nor to international obligations under the Kyoto Protocol.[875] As the Commission explained:

> 'A system based on national cap-setting does not provide sufficient guarantees that the emission reduction objectives endorsed by the European Council in March 2007 will be achieved. Moreover, such a system is not likely to lead to minimise overall cost of emissions reductions than necessary.'[876]

In addition, a decentralised approach did not ensure a long-term perspective and a sufficient predictability, 'which is required for long-term investments in efficient abatement'.[877]

It was rapidly concluded that the EU-ETS did not work as expected.[878] There were several reasons for this, among others the historically low price of carbon and the fact that the EU-ETS became rapidly embroiled in controversies, which led to a steep volume of litigation and thus costs. Based on this backdrop, the Revised ETS Directive moved away from a decentralised towards a centralised system. This revision implied introducing an EU-wide cap, as opposed to national caps established by NAPs.[879] The level of this cap was set so as 'to be cost-effective and consistent with the EU's commitment of an overall reduction in emissions of 20% by 2020'.[880] What this stipulation suggests is that the contribution of the EU-ETS compared to non-ETS sector was based on cost effectiveness, which highlights the role of 'economic efficiency' frame. In addition to a common cap, a common method was established for allocating allowances among firms, based on auctioning.[881]

The changes above indicate a redefinition of the roles of the different frames, towards a greater influence of the 'economic efficiency' and 'free market & fair competition' frames (which call for

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875 In this sense L. MASSAI, 'The Revision of the EU Emissions Trading System', *op. cit.*; B. GÖRLACH, H. HERMANN et O. HÖLZER-SCHOPOHL, 'In the Market The European Emissions Trading Scheme', *op. cit.*
876 Proposal 2008 p. 7.
877 *Ibid*, p. 3.
878 For a review see J. VAN ZEBEN, 'The European emissions trading scheme case-law', *Review of European, Comparative & International Environmental Law*, 2009, vol. 18, n° 2, pp. 119-128; M. PEETERS, H. CHEN et Z. LI, 'Contrasting Emission Trading in the EU and China: An Exploration of the Role of the Courts', *Climate Law*, May 2016, vol. 6, n° 1-2, pp. 197-226; E. FAHEY, 'The EU Emissions Trading Scheme and the Court of Justice: The "High Politics" of Indirectly Promoting Global Standards', 2012, vol. 13, n° 11, p. 26.
879 Revised ETS Directive, new Articles 9-10.
880 2008 Proposal, p. 7.
881 *Ibid*, new Article 10a.

a common approach among EU countries) compared to the 'autonomy' frame.[882] The benefits of a centralised approach under the EU-ETS, however, have been reduced by the great leeway left to Member States as regards national energy taxes.[883] This situation has been recognised as undermining the price signal of the EU-ETS and is thus contrary to the 'economic efficiency' frame.[884] Finally, full auctioning in the power sector was accompanied by a transitional period for certain Member States (Article 10c), to allow them time to modernise their power sector and diversify their energy mix.[885] This system, which has been replaced by a dedicated fund, softened the possible impacts of the EU-ETS on the Member States that heavily rely on coal, such as Poland and hence seemed to respond to the 'developmental & fairness' frame.[886]

4.4. **Revenue use to foster uniformity**

The ETS Directive did not address the issue of revenue use. This can be explained by the fact that the vast majority of allowances were allocated for free. This was also in line with the decentralised approach.[887] With auctioning and centralisation, it became important to determine how revenues could/should be used as well as to address the distributional impact resulting from the purchase of allowances. This issue was dealt with by Article 10 of the Revised ETS Directive. This provision required Member States to use at least 50 percent of the revenues arising from auctioning for projects related to climate mitigation or adaptation and to energy. This included expenses related to renewable energy, energy efficiency, low carbon mobility and social measures.[888] In addition, revenues could be used for projects in developing countries parties to the UNFCCC and to international energy and climate funds.[889]

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[882] General Court (Fifth Chamber), Romonta GmbH v European Commission, 26 September 2014, T-614/13, § 46; as confirmed by CJEU, Romonta GmbH v European Commission, 13 September 2016, C-565/14..
[883] See *Infra*, Chapter 7, 3.3.
[884] See *Infra*, Chapter 5.
[885] Revised ETS Directive, Article 10, (c). Eight of the eligible Member States - Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Lithuania, Poland and Romania – have applied for this derogation, and have been approved by the Commission. European Commission. (2015). ETS handbook, p. 36 retrieved from https://ec.europa.eu/clima/sites/default/files/docs/ets_handbook_en.pdf.
[886] With the strengthening of the EU-ETS over time, Directive 2018/410 further addressed the issue, through the creation of a Modernisation Fund. At the same time, the Directive abolished revenue attribution with respect to early efforts. Commission Implementing Regulation (EU) 2020/1001 of 9 July 2020 laying down detailed rules for the application of Directive 2003/87/EC of the European Parliament and of the Council as regards the operation of the Modernisation Fund supporting investments to modernise the energy systems and to improve energy efficiency of certain Member States, *OJ L 221, 1*0 July 2020, p. 107–121.
[887] Notably Annex III, criterion 1.
[888] Revised ETS Directive, Article 10, § 3 at b, f, h.
[889] Namely Global Energy Efficiency and Renewable Energy Fund and to the Adaptation Fund, as made operational by the Poznan Conference on Climate Change (COP 14 and COP/MOP 4). Revised ETS Directive, Article 10, § 3, at a.

To further alleviate the possible distributional impacts between EU countries, the Revised ETS Directive reserved a share of auctioned allowances (10 percent) for some Member States, for the purpose of solidarity and growth.[890] This means that additional revenues would accrue to less wealthy Member States as well as to those having to adapt more to climate change.[891] With respect to this last category, the distributional issue emerges from climate change itself, not from the EU-ETS. Another share of 2 percent of auctioned allowance was attributed to Member States, with a view to rewarding early efforts.[892] The reference to the criteria of solidarity and growth matches with the 'developmental – fairness frame'.

5. CONCEPTUALISATION BY THE COURT

The previous Section sketched out the design choices of the EU-ETS made by the legislature. In this Third Section, my focus is on the case-law of the Court of Justice and the General Court in relation to the EU-ETS. The asymmetry between the cross-case analysis in this respect can be explained by the fact that this issue never arose in the case of the CO_2/energy tax proposals because they have never been adopted. The review of this case-law aims to cast light on the role of the courts in the conceptualisation of the EU-ETS and hence in the legal response to climate change: were these choices validated or rejected; which frame can/should prevail or be secondary? My intention is not to provide an exhaustive overview of the abundant case-law relating to this scheme. These cases concern claims brought by Member States or individuals, generally in the context of action for annulment. Many of these judgements concern the principle of equal treatment, which supports the usefulness of studying EU legal response to climate change from that viewpoint.

This Section shows that in most cases the choices made by the legislature have been validated by the Court, which confirms the broad margin of manoeuvre for the EU legislature to conceive its environmental policy. The Court has sanctioned the right to legislate step-by-step (5.1). It has also disqualified the EU-ETS as a tax (5.2) and rejected claims challenging its validity in virtue of its impact on energy (5.3). Furthermore, it has confirmed the central role of the 'free market & fair competition' frame in the treatment of new entrants (5.4). On the contrary, as regards the delegation of power to the Commission, the Court has confirmed that strict limits apply (5.5). Ultimately, in several cases including the afore-mentioned case *Arcelor de Lorraine*, the Court has

[890] Revised ETS Directive, Article 10 § 2.
[891] The Directive also provided that at least half of the revenues from auctioning should be used for specific purposes, including to support lower and middle income households. Article 10, § 3, h.
[892] *Ibid*, Annex IIb.

endorsed an instrumental perspective, which has had a notable influence on the validation of the lawfulness of the EU-ETS.

5.1. **The right to legislate step-by-step**

A central dimension of the 'autonomy' frame in the Court's case-law has concerned the right to legislate step-by-step.[893] This element played a key role in the case *Arcelor de Lorraine* discussed previously.[894] The right to legislate step-by-step makes it possible to justify different treatment among emitters, which in the Court's view had to be regarded in a comparable situation as polluters. In particular, the CJEU admitted that in light of the novelty and complexity of the scheme, the legislature could adopt a stepwise approach and proceed on the basis of experience gained.[895] This line of reasoning allowed the legislature to lawfully decide to exclude chemical and non-ferrous metal sectors temporarily from the scope of the EU-ETS.

The Court found that difference in treatment of emitters was based on an objective and reasonable criterion, that is, the difference related to a legally permitted aim pursued by the legislation in question, and it was proportionate to the aim pursued by the treatment.[896] The exclusion of the chemical sector from the scope of the EU-ETS, was justified by the number of installations in the relevant sectors.[897] The inclusion of this sector would have rendered the system more difficult to administer and caused a heavier administrative burden, running the risk of disturbing its functioning.[898] With respect to the sector of non-ferrous metal, their lower emission level justified their different treatment.[899] The focus on the functioning of the ETS suggests that the legislature wished to ensure the effectiveness of the schemes. The reference to

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[893] As regards the remaining margin of appreciation left to Member States see also CJEU, PPC Power a.s. v Finančné riaditeľstvo Slovenskej republiky and Daňový úrad pre vybrané daňové subjekty, 12 April 2018, C-302/17, in which the court judged that the ETS directive precludes a national tax imposing 'at 80% of their value, greenhouse gas emission allowances allocated free of charge which have been sold or not used by the undertakings subject to the greenhouse gas emission trading scheme.' (§30). By contrast, the court has ruled that 'Member States are free, as a rule, to adopt economic policy measures, such as price controls on the markets for certain goods or essential resources, determining the manner in which the value of the emission allowances allocated free of charge to producers is to be passed on to consumers' provided that these measures do 'not neutralise the principle that emission allowances are allocated free of charge; nor may it undermine the objectives pursued by Directive 2003/87'. CJEU, Iberdrola, SA and Others v Administración del Estado and Others, 17 October 2013, C-566/11, C-567/11, C-580/11, C-591/11, C-620/11 and C-640/11, § 29-30. CJEU, ŠKO–Energo s. r. o. v Odvolací finanční ředitelství, 26 February 2015, C-43/14, § 20. It is worth noting that a tax on a free allowance is different from a carbon floor which aims to ensure that a certain price is guaranteed after allowances are allocated. It is also different from a carbon tax levied directly on energy (upstream) or on the GHG emissions of installations (downstream).
[894] CJEU, Arcelor de Lorraine, *op. cit.*
[895] *Ibid*, § 60-61.
[896] *Ibid*, § 47.
[897] *Ibid*, § 53.
[898] *Ibid*, § 65. The focus on the correct functioning of the scheme could also correspond to the 'economic efficiency' frame.
[899] *Ibid*, § 72.

the emission level recalls the polluter pays principle. These arguments were also consistent with the 'economic efficiency' frame.

The Court's assessment concerning the right to legislate step-by-step deserves some comments. The evaluation of the novelty of the scheme seems to suggest a focus on the category of instrument used. Even though its reasoning was not detailed, pollution from industrial installations was already addressed by the EU *inter alia* by the IPPC Directive.[900] This Directive, as we shall see, required Member States to impose emission limits on the basis of BATs. Therefore, the novelty of the ETS Directive rather seemed to arise from the type of instrument used (ETS) than from the regulation of pollution from industrial installations. This suggests that instrumental perspective is what brought the Court to the conclusion that the legislature was entitled to have recourse to a stepwise approach.

5.2. **The disqualification of the EU-ETS as a tax**

As explained earlier, in EU primary law, the nature of the instrument involved is of importance for the distribution of competence between the EU and its Member States. Where a measure has a fiscal nature, unanimity is required. This attributes a greater role to the 'autonomy' frame. This approach also prevails in international law, in the context of international aviation; international law (Chicago Convention and US-EU Open Skies Agreement) compels their Parties to exempt aviation fuel load from taxes, duties, fees and charges.[901] In the context of expansion of the EU-ETS to aviation, the question arose whether this change was in line with these conventions. This led to the *ATAA* judgement, rendered in Grand Chamber, in which the Court validated the application of the ETS to the aviation sector.[902] Thereby it legalised the 'EU's leadership role in combating climate change'.[903] One of the claimant's arguments concerned the violation by the EU of its international obligations arising from the above acts. Hence, one key point pertained to qualification of the EU-ETS as a tax.[904]

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[900] Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control, OJ L 257, 10 October 1996, p. 26–40 (hereinafter IPPC Directive).
[901] *Ibid*, § 114. This can be compared to CJEU, Braathens Sverige AB and Riksskatteverket, 10 June 1999, C-346/97. See *Infra* Chapter, 7, 3.2.
[902] CJEU, ATAA, 21 December 2011, C-366/10. For a comment see C. VOIGT, 'Up in the Air: Aviation, the EU Emissions Trading Scheme and the Question of Jurisdiction', *op. cit.*; S. BOGOJEVIĆ, 'Legalising Environmental Leadership', *op. cit.*; E. FAHEY, 'The EU Emissions Trading Scheme and the Court of Justice: The "High Politics" of Indirectly Promoting Global Standards', *op. cit.*
[903] S. BOGOJEVIĆ, 'Legalising Environmental Leadership', *op. cit.*
[904] On these acts see A. PIRLOT et S. WOLFF, 'The Impact and Role of Indirect Taxes Surrounding the Aviation Sector in Mitigating Climate Change: A Legal and Economic Analysis', *op. cit.*

The Court first excluded application of the Chicago Convention to the dispute, given that the EU, unlike its Member States, was not a party to this convention.[905] Subsequently, it rejected the characterisation of the EU-ETS as a tax and, on these grounds, the applicability of the Open Skies Agreement. In particular, the Court ruled that:

> 'unlike a duty, tax, fee or charge on fuel consumption, the scheme introduced by Directive 2003/87 as amended by Directive 2008/101, apart from the fact that it is not intended to generate revenue for the public authorities, does not in any way enable the establishment, applying a basis of assessment and a rate defined in advance, of an amount that must be payable per tonne of fuel consumed for all the flights carried out in a calendar year.'

This statement singles out two key differences between the ETS and a tax: first, in contrast with a tax, the ETS was not intended to generate public revenues and second, this scheme did not enable establishing and applying the base and the rate, so as to calculate *in advance* an amount payable by airlines.[906] Advocate General Kokott also noted that the vast majority of allowances remained distributed free of charges.[907]

This case shows the limits of an instrumental perspective. If the pricing of GHG emissions from international aviation had taken the form of a tax, the EU would have violated its obligations and this despite the fact that the measures would have addressed the same problem and employed the same frame. The Treaties' focus on aviation suggests that in international law, an instrumental perspective is connected to the 'free market & fair competition' frame (criterion of competition). This distinction is even more criticisable because today EU-ETS increasingly has moved closer to a tax. Firstly, it is also intended to collect revenues.[908] In this sense, in the context of COVID-19 recovery, the Commission envisaged proposing 'a new own resource based on the (ETS)'.[909] In addition, the introduction of a market stability mechanism, to ensure the stability of the

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[905] *Ibid*, §§ 71-72.

[906] *Ibid*, § 113. For a critical take on this see L. DEL FEDERICO et S. GIORGI, 'Tax credit hypothesis to coordinate the EU ETS and EU energy tax systems', *in* N. STOIANOFF *et al.* (eds.), *Green Fiscal Reform for a Sustainable Future*, Chelthenam, Edward Elgar Publishing, 2016, pp. 17-30, available at http://www.elgaronline.com/view/9781786431189.xml (Last consulted on 2 June 2022).

[907] Advocate General Kokott, Opinion in *Air Transport Association of America and Others,* C-366/10, 6 October 2011, § 215.

[908] As Sanja Bogojević notes, the Commission sees this regulatory regime as a new source of government revenue able to help control government deficit. The author refers to Stavros Dimas, EU Environment Commissioner, 'Climate Change: Commission Sets out Global Finance Blueprint for Ambitious Action by Developing Nations' (Speech to Press Points, Brussels, 10 September 2009) available at https://ec.europa.eu/commission/presscorner/detail/en/IP_09_1297. S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 107. This analysis is shared by C. VOIGT et J. WERKSMAN, 'Editorial', *Carbon & Climate Law Review*, 2009, vol. 3, n° 2, p. 133.

[909] See also more recently Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions on 'Europe's Moment: Repair and Prepare for the Next Generation' COM (2020)456 final, 4.

allowances price, has further blurred the line between this scheme and a tax.[910] Even though the EU does not set the price, it limits the role of the market to do so. However, as Alice Pirlot notes, if the Court had followed a different interpretation and characterised the ETS as a tax, it would have admitted that the ETS rests on the wrong legal basis.[911]

This judgement is also interesting because it implicitly admits that EU aircraft operators and those from third countries are in a comparable situation.[912] This is in line with the 'economic efficiency' frame, according to which polluters are in a comparable situation and hence should be treated in the same way. Advocate General Kokott explicitly addressed this interplay, ascertaining that 'Taking account of the whole length of the flight is ultimately an expression of the principle of proportionality and reflects the "polluter pays" principle of environmental law'.[913] Thus, from the perspective of the polluter pays principle the emissions of all flights, including those emitted outside EU territory should be regulated by the EU-ETS.

5.3. **The impact on energy**

Several cases have been concerned with the interplay between the EU-ETS and the national energy policies of Member States. They thus shed further light on the relationship between the 'economic efficiency' frame and the 'autonomy' frame. In these cases, the posture of the Court can be regarded as rather lenient with the EU-ETS. While it is not surprising that it distinguishes the EU-ETS from an energy measure, it has carefully avoided the question of the impact of this scheme on Member States' energy policies (Article 192, § 2, c of the TFEU). The conclusion that the EU-ETS had a significant impact on Member States' discretion as to their energy policies would have implied that this act was adopted on the wrong legal basis and was thus null. Doing so would have increased the role of the 'autonomy' frame in the design of this scheme and consequently reduced the role of other frames, including 'economic efficiency'. This is illustrated by two cases involving Poland: *Poland v. Commission* and *Poland v. Parliament*.

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[910] As noted by A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*
[911] *Ibid.*
[912] C. CHENEVIERE, Le système d'échange de quotas d'émission de gaz à effet de serre, op. cit., p. 368. In another case concerning the equal treatment of airline companies, the Court rejected the claim on the grounds that equal treatment cannot be invoked by third countries. CJEU, Swiss International Air Lines AG v The Secretary of State for Energy and Climate Change and Environment Agency, 21 December 2016, C-272/15.
[913] Opinion of Advocate General Kokott, 6 October 2011, in ATAA, *op. cit.*, § 153.

5.3.1. *Poland v. Commission*

The case *Poland v. Commission* (T-370/11) concerned contestation of the legality of product benchmarks established by the Commission, pursuant to the ETS Directive.[914] As a reminder, the legal background was the following. The Revised ETS Directive established auctioning as the rule to allocate allowances.[915] As auctioning was implemented gradually, an important issue was how to distribute the remaining share of free allowances among ETS participants. The EU opted for a system based on product benchmarks, which rewards the best performing installations. Product benchmarks were determined by an implementing decision 2011/278 based on the average GHG emissions of the best performing installations.[916] Fuel and heat benchmarks applied as fallback options, i.e. where it was not possible to determine a product benchmark. Poland contested this Act.

In its first plea, Poland submitted that the litigated decision violated Article 194, § 2 TFEU, read in conjunction with Article 192, § 2, c, on the ground that it did not consider the specificity of each Member State's fuel mix. The invocation of this provision by Poland indicates that it referred to the 'autonomy' frame, as this provision guarantees Member States' autonomy in the field of energy. The Court first clarified that Article 194(2) TFEU does not have a general application outside the field of energy. The Court rejected this argument and ruled that the legislature did not err in law. There were two reasons for this. Firstly, the litigated Decision was based on Article 192 TFEU and not on Article 194 TFEU. Secondly, Poland did not dispute the choice of a legal basis. With this case, the Court thus distinguished the EU-ETS from an energy policy measure, thereby rejecting that the 'autonomy' frame should have played a greater role in the conceptualisation of this scheme. The consequence is that the contested decision could affect Member States' energy mix and structure.

The second ground was that by failing to differentiate the above benchmarks according to the source of energy used, the Commission breached the principle of equal treatment and infringed Article 191(2) TFEU, read in conjunction with Article 191(3) TFEU.[917] In particular, it was ascertained that using the same benchmarks across firms regardless of whether they used natural gas or coal distorted the internal market and therefore violated the principle of equal treatment. The reference to the internal market suggests that Poland's argument rested on the 'free market and fair competition' frame. Although the Commission did not deny having treated equally firms

[914] General Court, Poland v. Commission, 7 March 2013, T-370/11.
[915] See *Infra* Chapter 6.
[916] It is the implementing decision in question that was contested, which is with the case *Ingredion,* below note.
[917] General Court, Poland v. Commission, *op. cit.*, § 23 & f.

that were in different situations in virtue of the use of different fuels it contended that this was based on an objective and reasonable criterion. Thus, the starting point was different from that in *Arcelor*. According to Cédric Chenevievre, this is explained by the fact that the contested measure was the implementing decision, the main objective of which was completion of the internal market, and not the ETS Directive.[918]

Subsequently, the General Court turned to the justification of comparable treatment of different situations. It first referred to recital 5 of the contested decision, which noted that 'when setting the product benchmark, no differentiation was made on the basis of geography or on the basis of technologies, raw materials or fuels used, so as not to distort comparative advantages in carbon efficiency across the European Union economy, and to enhance harmonisation of the transitional free allocation of emission allowances'.[919] This stipulation suggests that the litigated decision prioritised the 'free market and fair competition' frame ('not to distort') over the 'fairness – developmental' frame, which would have provided differentiation based on socio-economic differences (*e.g.* geography or fuel).

According to Poland, the method for setting the benchmark, by failing to differentiate between coal and natural gas, would lead to a reduction in the production of firms using coals and 'consequently, a decrease in the gross domestic product (GDP) of the Member States using coal'.[920] This statement expresses that the frame employed is 'developmental – fairness'. Instead, Poland suggested that the benchmark in question should have been differentiated on the basis of the type of fuel used. The Court rejected this argument as it would have been contrary to the environmental objective pursued by the ETS. Thus, the Court's assessment was made on the basis of the 'economic efficiency' frame. In addition, it validated the use by the Commission of natural gas as the reference fuel for defining the heat and fuel benchmarks for the purposes of allocating allowances.[921] Consequently, the Commission could lawfully treat different installations in the same way.

In its fourth plea, Poland contested the Commission's Decision on the basis of a series of principles including equal treatment and sustainable development, on the grounds that it failed to differentiate 'on the basis of geography or on the basis of technologies, raw materials or fuels

[918] Cheneviere explains this difference by by the fact that the questions are different and the rules are different. C. CHENEVIERE, *Le système d'échange de quotas d'émission de gaz à effet de serre*, *op. cit.*
[919] General Court, Poland v. Commission, *op. cit.*, § 34.
[920] *Ibid*, § 10.
[921] *Ibid*, § 58.

used'.[922] It was also argued that the Commission did not take into account the diversity of situations in the various regions of the European Union.[923] Poland emphasised that it had the highest coal-intensive production and consumption of all EU Member States.[924] This line of argument indicates that the 'fairness – developmental' frame is employed. As regards the contention that the Commission did not take into account the diversity of situations in the various regions, the Court first noted that 'the Commission had to adopt Union-wide and fully-harmonised'.[925] Differentiating the treatment of the EU's regions according to a criterion such as energy sources used on these territories would 'lead to accepting higher levels of [GHG] emissions in some regions'.[926]

Such differentiation would have been contrary to the objective of the scheme, which was to maximise GHG emission reductions.[927] Thus, the 'economic efficiency' frame was given prevalence over the 'fairness' frame. The Court further noted that the EU did effectively take into account the situation of the various regions, with the gradual introduction of the scheme and the distribution of revenues.[928] This highlights that the 'economic efficiency' frame can be lawfully implemented through compensatory measures, without breaching the principle of sustainable development ('developmental – fairness' frame).

5.3.2. *Poland v. Parliament*

In the case *Poland v. Parliament*, Poland went before the Court to annul Decision 2015/181 that set up a market stability reserve for the EU-ETS.[929] Poland's contention was that the legislature erred in its choice of legal basis; the litigated act, it was argued, should have been based on Article 192, § 2, c TFEU requiring unanimity for measures significantly affecting a Member State's choice between different energy sources and the general structure of its energy supply. This seemed to respond to the judgement *Poland v. Commission* (T-370/11) in which the Court precisely pointed out that Poland did not contest the validity of the EU-ETS legal basis. In particular, Poland contended that the decision in question was adopted in accordance with the ordinary legislative procedure, on the basis of Article 192, § 1 TFEU, while this measure significantly affected a Member State's choice between different energy sources and the general structure of

[922] *Ibid*, § 96 and 108.
[923] *Ibid*, § 108.
[924] *Ibid.*
[925] *Ibid*, § 110.
[926] *Ibid.*
[927] *Ibid.*
[928] *Ibid*,
[929] CJEU, Poland v Parliament, 21 June 2018, C 5/16.

its energy supply and hence, pursuant to Article 192, § 2, c TFEU, should have been based on unanimity.

The Court did not follow Poland's claim. It first underlined that 'the assessment of the effect of an EU measure on a Member State's energy policy is not a factor that must be assessed in addition to the aim and content of that act, or by derogation therefrom'.[930] It then noted that Article 192(2) TFEU was to be read in conjunction with Article 191 TFEU which referred to the goal of tackling climate change, submitting that:

> 'As the measures taken to that end necessarily affect the energy sector of Member States, a broad interpretation of point (c) of the first subparagraph of Article 192(2) TFEU would risk having the effect of making recourse to the special legislative procedure, which the Treaty FEU intended as an exception, into the general rule.'

This statement suggests that the Court opted for a strict interpretation of this provision and thus limited the role of the 'autonomy' frame, in order to guarantee that climate change was sufficiently addressed. Given that Decision 2015/1814 introduced a market stability reserve 'merely as a supplement or a correction of the ETS', the Court concluded that Article 192(1) TFEU was not a wrong legal basis.[931] For that reason, it did not assess the effect of the Decision on Poland's energy mix.

5.4. **New entrants**

The next case is *Ingredion Germany*. In this case, the criterion of competition was implicitly used to compare installations covered by the EU-ETS, and not the emission level as in *Arcelor de Lorraine*.[932] The Court had to interpret Decision 2011/278/EU implementing the ETS Directive. This Decision concerned the treatment of new entrants, that is, new installations that received a GHG permit after 30 June 2011 or with a significant capacity extension after that date.[933] The question was whether the above decision was to be interpreted for the purposes of allocating emission allowances free of charge to new entrants, in a way so as to limit the relevant capacity utilisation factor to a value of less than 100%. This had an implication on the level of allowance

[930] *Ibid*, § 42.
[931] *Ibid*, § 69
[932] CJEU, Ingredion Germany, 3 December 2020, C-320/19.
[933] Explanation borrowed from European Commission (2021). ETS Handbook, available at https://aeaep.com.ua/en/wp-content/uploads/2015/07/ets_handbook_en.pdf. Article 3 of Directive 2003/87, (h) defines 'new entrant' as 'any installation carrying out one or more of the activities listed in Annex I, which has obtained a greenhouse gas emissions permit for the first time within the period starting from three months before the date for submission of the list under Article 11(1), and ending three months before the date for the submission of the subsequent list under that Article'.

that could be attributed to these installations.[934] Although this case is remarkably technical, it provides important elements to assess the comparability of ETS installations, as the Court interpreted the litigated provision in light of the principle of equal treatment.

The CJEU made a double distinction. First, it judged that existing installations and new entrants were in different situations. It was noted that 'having regard to their different circumstances', the legislature had established two distinct sets of rules for incumbent installations and new entrants'.[935] Second, the Court ruled that all new entrants were in a comparable situation. It underlined that in light of the objective of both the ETS Directive and its implementing decision, 'the situation of a new entrant with a fuel benchmark sub-installation, such as Ingredion Germany, must be assessed having regard to the situation of new entrants with sub-installations falling under other benchmarks'. Then, in a second step, it held that treating new entrants differently without due justification would have impeded the attainment of these objectives.

In contrast with the *Arcelor de Lorraine* case, however, the relevant objectives were economic not environmental. The Court, in effect, referred to the *sub-objectives* the EU-ETS, namely safeguarding economic development and employment and the preservation of the integrity of the internal market and of conditions of competition.[936] In light of this, it concluded that the litigated provision could not be interpreted in such a way that 'the use of a different benchmark as a fallback option (…) may lead to more favourable treatment for new entrants that operate sub-installations with heat, fuel or process emissions benchmarks, to the detriment of new entrants operating product benchmark sub-installations'.[937] Consequently, this judgement highlights the predominance of the 'free market & fair competition' frame in the Court's assessment.

This conclusion seems puzzling as it differs from the *Arcelor de Lorraine*[938] judgement. As with the previous case, the difference of approach compared to Arcelor can be explained by the raison d'être of the contested rules. In contrast with the *Arcelor* judgement, the Court in *Ingredion* did not

[934] The relevance of this question must be understood as follows. Emission benchmarks used to determine the number of free allowances granted to each company depends on their historical data. This amount can be adapted in case of significant capacity change. By contrast, for new entrants, given that there is no historical activity, the activity levels are determined on the basis of standard capacity utilisation.
[935] CJEU, Ingredion Germany, 3 December 2020, C-320/19, *op. cit.*, § 64. the Advocate General noted 'I would add that it seems to me, as the Federal Republic of Germany and the Commission submitted, that any difference in treatment between incumbent installations and new entrants is objectively justified given that the preliminary annual number of emission allowances allocated free of charge is not a function of the actual emissions of the beneficiary, but of the theoretical 'benchmarks' calculated by the Commission on the basis of the emissions of the 10% most efficient installations, pursuant to Article 10a(2) of Directive 2003/87.' Advocate General Saugmandsgaard, in CJEU, Ingredion Germany, *op. cit.*, § 56.
[936] CJEU, Ingredion Germany, *op. cit.*, § 76. See also CJEU, DK Recycling, *op. cit.*, § 49
[937] *Ibid*, § 74.
[938] By contrast, in line with the judgement General Court, Poland v. Commission, T370/11, *op. cit.*, discussed Infra.

have to interpret the ETS Directive itself but its implementing Decision 2011/278/EU. It appears from the recitals of the Decision in question that equal treatment of new entrants responds to the objective 'to avoid distortions of competition, to avoid any undue administrative burden and to ensure equal treatment of installations across Member States'.[939] This implies, as summarised by Advocate General Saugmandsgaard, that 'the limits imposed on the standard capacity utilisation factor used to determine the level of activity should be the same for all 'new entrants'.[940] As such, it is the free market & fair competition frame and not the economic efficiency frame that was relevant.

5.5. **Delegation of power**

Whereas in dimensions involving political decisions, the role of the court is limited to a control *à la marge*, that is not the same when it comes to allocation of competences between the EU and Member States. In this case, the control of the Court is greater. Delegation of power is one issue that pertains to the allocation of competences. It has been relevant in both the decentralised design of the EU-ETS and in the centralised one. In several cases concerning NAPs, the Court has rejected the power of the Commission to review NAPs so as to enhance the functioning of the EU-ETS (5.5.1). In another series of cases, it judged that in a centralised system Commission did not have the power to validate allowance distribution based on hardship cases, as the ETS framework (5.5.2) did not provide for this.

5.5.1. *Delegation of power & NAPs*

Two judgements of the General Court and their appeal before the CJEU have dealt with delegation of power, namely *Poland v. Commission* and *Estonia v Commission.*[941] These cases share a common legal and factual background. At the time of the dispute, the EU-ETS was still decentralised. The applicants contended that the Commission had exceeded its regulatory powers under the ETS Directive by replacing national data with its own data. This line of argument corresponds to the 'autonomy' frame; by failing to stay within its regulatory powers, the Commission encroached Member States' discretion to frame the response to climate change. In *Poland v. Commission,* Poland, which was supported by Hungary, Lithuania and Slovakia, submitted that the Commission's action had violated the principles of equal treatment and of subsidiarity[942].

[939] Decision 2011/278, Recitals § 35.
[940] Advocate General Saugmandsgaard, in CJEU, Ingredion Germany, *op. cit.*, § 43.
[941] Court of First Instance, Estonia v Commission, 23 September 2009, T-263/07; Court of First Instance, Poland v Commission, 23 September 2009, T-183/07. These were followed by the appeal before the Court of Justice in CJEU, Commission v. Estonia, 29 March 2012, C-505/09; CJEU, Commission v. Poland, 29 March 2012 C-504/09.
[942] The same argument was advanced by Estonia.

It regarded this as 'an attack on its national energy security', which is reminiscent of the 'autonomy' frame and further highlights the sensitivity of the topic of energy.[943]

The Commission, on the contrary, sustained that replacing the above data aimed to avoid a situation 'in which surpluses of allowances build up, thereby risking a "collapse in the market"'.[944] The focus of the Commission was therefore on the proper functioning of the EU-ETS, which converges with the 'economic efficiency' frame. A deficient scheme would indeed be incapable of sending the appropriate price signal and thus be inefficient. The Commission added that using a single method of economic analysis for all Member States would guarantee the principle of equal treatment between them.[945] Failing to ensure that the same rules are applied across EU Member States jeopardises the proper functioning of the internal market. This concern corresponds to the 'free market and fair competition' frames, which in the Commission's view should prevail over Member States' discretion and thus over the 'autonomy' frame.[946]

The General Court, which was subsequently followed by the Court of Justice, rejected the Commission's argument, considering that[947]

> 'it is for the Member States to choose the measures which, in their view, are the best suited to attaining the objective set by the Directive in the specific context of the national energy market. The approach of the Commission (…) consisting of the view that only the data which it has chosen may be used for the purposes of drawing up a NAP, clearly deprives Member States of their margin for manœuvre (…).'

This statement clearly expresses the influence of the 'autonomy' frame in the Court's reasoning. Accordingly, the contested decision was annulled. This case also illustrates the role of the Court in guaranteeing the respect Member States' margin of discretion.

In the appeal, the Court of Justice upheld the judgement of the General Court.[948] It first recalled that the primary objective of the EU-ETS was to achieve GHG emission reductions at lowest cost. It added that this scheme also pursued a series of sub-objectives, namely the safeguarding of economic development and employment and the preservation of the integrity of the internal market and of conditions of competition.[949] This suggests that EU-ETS is shaped primarily by

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943 Court of First Instance, Poland v Commission, *op. cit.*, On this case see J. de Larragan (2010). Case Note: Republic of Poland v. Commission (Case T-183/07, 23 September 2009). Climate Law, 1, 199-206.
944 *Ibid*, § 26.
945 Court of First Instance, Poland v Commission, *op. cit.*, § 57.
946 In this sense S. BOGOJEVIĆ, *Emissions trading schemes*, *op. cit.*, p. 127.
947 Court of First Instance, Poland v Commission, *op. cit.*, § 130 and confirmed by C-505/09; CJEU, Commission v. Poland, *op. cit.*, § 65 & f.
948 CJEU, Commission v. Poland, *op. cit.*.
949 *Ibid*, § 77.

the 'economic efficiency' frame (primary objective) and secondarily by the 'developmental – fairness' and the 'free market and fair competition' frames (secondary objectives). In response to the Commission's argument that by substituting Member State's data with its own, the Commission aimed to ensure functioning of the EU-ETS, the CJEU observed that this fact 'could not alter the allocation of powers between the Commission and the Member States as provided for in Articles 9 and 11 of Directive 2003/87'. Consequently, it confirmed the strict interpretation of allocation of competence rules and the role of the 'autonomy' frame.

The Court's position was similar in the *Commission v. Estonia* judgement.[950] In this decision, the CJEU further clarified that the principle of equal treatment cannot modify the allocation of power between institutions as they are determined by an EU act. This highlights the predominance of the 'autonomy' frame.[951] As in the *Poland v. Commission* case, the Commission also relied on the principle of equal treatment to reject national allocation plans (NAPs). The CJEU, on the contrary, considered that the Commission had to respect the margin of manoeuvre left to Member States and therefore, could not reject NAPs on that ground.[952] As such, it confirmed the judgement of the General Court. Equal treatment, the Court ruled, could have been sufficiently ensured by 'examining the plan submitted by each of them with the same degree of diligence'.[953] This again ensured that the role attributed to the 'autonomy' frame by the Treaties was guaranteed.

5.5.2. *Delegation of power & hardship clauses*

In several cases, the Court has dealt with hardship clauses introduced by Germany in the context of the EU-ETS.[954] The clauses in question permitted German authorities to differentiate the free allocation of allowances, so as to distribute additional allowances for free to undertakings in situations of economic risk.[955] This measure matched with the 'fairness – developmental' frame, as the clauses aimed to compensate the economic impacts of the EU-ETS on some firms. The Commission was of the view that these clauses were not allowed by the Decision 2011/278, as they risked distorting competition and causing cross-border effects. This refers to the 'free

[950] CJEU, Commission v. Estonia, *op. cit.*
[951] *Ibid*, § 69.
[952] *Ibid*, § 53.
[953] *Ibid*, § 69.
[954] General Court, Romonta, 26 September 2014, T-614/13; CJEU, Romonta, 13 September 2016, C 565/14; General Court, DK Recycling, 26 September 2014, T-630/13; CJEU, DK Recycling, 22 June 2016, C-540/14; General Court, Raffinerie Heide v. Commission, 26 September 2014, T-634/14; CJEU, Raffinerie Heide v. Commission, 13 September 2016, T 631/13; Arctic Paper Mochenwangen GmbH v. Commission, 26 September 2014, T-629/13.
[955] General Court, Romonta*, op. cit.*, § 7.

market and fair competition' frame. It also argued that these clauses violated the principle of equal treatment of installations under the EU-ETS.[956] On these grounds, the Commission rejected the inscription of several companies on the list of firms eligible for free quota. The validity of the Commission's decision was challenged by these companies against the principles of proportionality and subsidiarity, and against fundamental rights.

These cases were mostly apprehended through the angle of the distribution of competence between the EU and Member States. Nonetheless, some of them dealt with the principle of solidarity and thus on the interaction between the 'free market & fair competition frame' and the 'developmental – fairness' frame.[957] The General Court considered that the Commission was competent to introduce such clauses but that the Commission did not err in law in rejecting their use by German authorities. The court considered that these clauses 'could be envisaged if free allocation of emission allowances under the allowance trading scheme was governed by the principle of solidarity' as was the case under ECSC Treaty.[958] However, the EU-ETS – as an environmental measure – was governed by the polluter pays principle.[959] Hardship clauses were 'difficult to reconcile with the principle that the polluter should pay'.[960] Under this scheme, it was noted, the polluter pays principle 'is essentially designed to make each installation concerned individually accountable'.[961]

In this case, the reasoning of the General Court was based on the 'economic efficiency' frame which it placed above the 'developmental – fairness' frame, on the grounds that the EU-ETS was a measure of environmental policy. In the appeal, the CJEU followed a different approach. The Commission contested the General Court's decision on the grounds that it admitted the Commission's competence to introduce hardship clauses. To decide on this case, the CJEU had to distinguish essential from non-essential elements of the EU-ETS. Because the EU-ETS was fully harmonised, the Commission's implementing decision could only amend non-essential elements. The Court clarified that preventing distortion of competition, albeit a mere sub-objective, was an essential element that the Commission could not alter. By referring to

[956] *Ibid*, § 12.
[957] In particular, the question was whether the Commission could have included a 'hardship clause' (the Commission considered it could not); the GC considered it could but that the decision of the Commission was lawful; this ruling was challenged by the Commission before the Court of Justice.
[958] General Court, Romonta, *op. cit.*, § 81.
[959] *Ibid.*
[960] *Ibid*, § 77.
[961] *Ibid*, § 81.

competition, the Court employed the 'free market & fair competition' frame and not the 'economic efficiency' frame, which was used by the General Court.

In its Opinion, the Advocate General further clarified that hardship clauses 'Would permit one installation to be allocated more allowances than another installation even though the two installations manufacture the same product and are entirely comparable. It must be stated that such allocation would therefore cause a distortion of competition.'[962] What this stipulation suggests is that (in the name of fairness) treating comparable firms in different ways and doing so based on a competition criterion would distort competition. This indicates the prevalence of the 'free market & fair competition frame' over the 'fairness & developmental' frame. This opinion also highlighted the contradiction between hardship clauses and the polluter pays principle, leading to the conclusion that the General Court made an error in judging that the Commission was competent to authorise such a clause.[963]

6. CONCLUSION

The analyses above are seemingly technical. However, they point to several important findings as regards definition of the EU-ETS. The first key point is that there is a gap between the justification behind the adoption of this scheme and its objectives and the actual definition of this response. While cost-effectiveness and economic efficiency were the explicit objectives of the EU-ETS, in line with the 'economic efficiency' frame, they instead represented a programmatic intention rather than an accurate description of reality. In several ways, the design of the EU-ETS has varied from that implied by 'economic efficiency'. The step-by-step approach, leading to limited coverage of emission sources and gases, the separate system for aviation and differentiation in the treatment of installations according to the risk of carbon leakage illustrate this point. This confirms the previous conclusions that the 'economic efficiency' frame is not easy to implement in the EU legal setting. Although it has held an important place in the discourse of the EU, in particular the Commission, this role has been more limited in law.

This brings me to the second point. The definition of the EU-ETS has varied over time. In the ETS Directive, the 'autonomy' and 'developmental – fairness' frames prevailed over other frames. The shift towards a centralised system progressively based on auctioning under the

[962] Opinion of Advocate General Mengozzi, 8 March 2016 in C-540/14 P, C-551/14 P, C-564/14 P and C-565/14 DK Recycling und Roheisen GmbH, European Commission (C-540/14 P) and Arctic Paper Mochenwangen GmbH v European Commission (C-551/14 P), and Raffinerie Heide GmbH v European Commission (C-564/14 P) and Romonta GmbH v European Commission (C-565/14 P), § 62.
[963] *Ibid*, § 66-71.

Revised ETS Directive has changed this matter of fact. It has attributed a greater role to the 'economic efficiency' and 'free market & fair competition' frame. The use of revenue recycling to address fairness and solidarity concerns is also in line with the 'economic efficiency' frame. However, the limited scope of the EU-ETS suggests that the 'autonomy' frame remains important. These analyses confirm the previous finding that the definition of the legal response to climate change can vary over time, depending on the frame employed. This raises the question of whether this can be linked to a change in its legal environment, which is addressed hereafter.

The third point concerns the comparison between the EU-ETS and the CO_2/energy tax proposals analysed in the previous Chapter. The EU-ETS and the CO_2/energy tax proposals not only differed in terms of the instrument used (ETS vs tax). Their respective design also highlights deeper variations as to the way climate change and its remedies are framed. The fact that the legal basis of the EU-ETS is solely the environment, as opposed to the environment-internal market in the 1992 Proposal and the internal market only in the 2011 Proposal, suggests that the 'economic efficiency' frame is supposed to be greater than in the CO_2/energy tax proposals. This influence, however, is not reflected in determination of the scopes of these schemes. This scope of the CO_2/energy tax proposals was more comprehensive than that of the EU-ETS, including after its revisions. In terms of distribution of efforts among emission sources, none of the schemes scrutinised fully responded to the 'economic efficiency' frame. This matter of fact has been reinforced by the scope for differentiation across EU countries. In this regard, the Revised ETS Directive stands as an exception with its centralised system. The use of revenue distribution in the Revised ETS Directive is a final element of the divergence between the schemes.

Finally, analysis of the case-law surrounding the EU-ETS has shed light on the following elements. The Court has generally validated the choices made by the legislature, save when the 'autonomy' frame was involved. In some cases, the instrumental approach followed by the Court has been decisive in the legalisation of the EU-ETS, such as in the case *ATAA* and *Arcelor de Lorraine*. Ultimately, a large number of claims surrounding the EU-ETS have concerned diverging visions of which frame should prevail in the definition of the response to climate change. This is in line with the conclusion in the literature that the framing of climate change is contentious and involves disagreement. The design of the EU-ETS and the frames to which such design corresponds is summarised in Table 10 below.

	Economic efficiency	**Developmental – fairness**	**Free market – fair competition**	**Autonomy**
ETS Directive	Legal basis environment	Free allocation Common criteria NAPs (based on fairness)	Common criteria NAPs (distortion of competition)	Stepwise approach Decentralised
Revised ETS/ aviation Directives	Legal basis environment Centralised Gradual shift towards auctioning Revenue recycling	Transitional periods	Separate system for aviation Common criteria for free allocation based on benchmarks	Stepwise approach

Table 10 Comparison between ETS and Revised/aviation ETS as to frames and corresponding categories

Chapter 7
Prevailing frames and legal categories in climate legislation: a general overview

1. INTRODUCTION

The previous Chapters showed that several frames of climate change exist in EU primary law and that these frames have been employed in the three initiatives scrutinised. The purpose of this Chapter is to study the legal environment of these initiatives in order to illuminate which situations they regard as being comparable or different and, on this basis, to detect the frames to which these categories respond. I start this inquiry with direct climate legislation, that is, legislation that 'explicitly take[s] climate change issues into account' (Section 2).[964] Concentrating on direct climate law implies that, similar to the initiatives under study, the purpose of these acts is to mitigate climate change. This is important because it means that they should all establish the comparability of situations in light of this purpose, but they could differ in the frames employed. In a second step, I turn to indirect climate legislation (Section 3), that is, laws having 'the capacity to affect climate change mitigation (…) through their operation, including by providing climate "co-benefits" or by setting up regulatory tensions in policy terms'.[965]

As noted earlier, indirect climate legislation intersects with climate change because of its subject matter. Since indirect climate laws do not address the problem of climate change directly, they will not compare situations in the same way as if they were aimed at responding to climate change. The breadth of indirect climate legislation poses a methodological challenge. Given that many regulatory objects relate in one way or another to climate change, it is not feasible to study all pieces of EU law that interact indirectly with climate change, especially because I follow a historical perspective. I will focus on energy law, including the fiscal dimension, in order to determine how climate considerations have or have not been integrated in this field. The reason I concentrate on energy law is because of the intertwining between energy and climate change, as fossil fuel combustion is the main cause of climate change.

964 E. SCOTFORD et S. MINAS, 'Probing the hidden depths of climate law', *op. cit.*, p. 14.
965 *Ibid.*

There are two key messages to be taken away from this Chapter. The first message is that over time EU law has attributed an increasing importance to the problem of climate change. From a minor, if not almost inexistent, legal appraisal of climate change in the 1990s, climate change mitigation has now reached the forefront of the legal scene. This is particularly true since the adoption of the 2030 Package and the European Climate Law. With the latter, EU law has entered an era of profound and accelerated transformation to attain carbon neutrality by 2050. This evolution is crucial, as it shows that the CO_2/energy tax proposals and the EU-ETS have taken place in different legal contexts. However, and this is my second point, the 'economic efficiency' frame has never played a significant role outside the EU-ETS. Rather, these areas have been dominated by the 'developmental – fairness' and 'autonomy' frames. As a result of the 'autonomy' frame, climate change law has been particularly fragmented. In some specific regulations (*e.g.* IED), it is a new frame, referred to as 'technology' that has prevailed.

2. DIRECT CLIMATE LEGISLATION

Direct climate legislation in the EU has experienced an extraordinary evolution over the past three decades, even if it has fallen short in its response to the climate - and other inter-related – crises we face. This framework was embryotic when the 1992 Proposal was drafted and was still limited at the time of the EU-ETS adoption. At that time, the legal framework on climate change was predominated by the 'autonomy' and 'developmental – fairness' frames. The adoption of the EU-ETS marked a turning point for two reasons. Firstly, this scheme represented the most comprehensive mitigation measure that was implemented at the time, even though this ambition needs to be placed in the context of the limited legal framework above. Secondly, it provided the first meaningful legal response to climate change implementing the 'economic efficiency' frame, even though this frame was largely supplanted by the 'autonomy' and 'developmental – fairness' frame. I refer to this period as 'the early years' of climate law (2.1).

The second key period began with the adoption of the 2020 Climate and Energy Package of 2009 (2.2). This Package encompassed the Revised ETS Directive, which among other things amended the EU-ETS towards a greater centralisation and to allocation of allowances through auctioning. It initiated another turning point in EU climate law: it created a distinction between energy and climate targets (prior to this time there was no separate target for energy) and between ETS and other sectors. This line of demarcation distinguished two areas, which corresponded to two different approaches to framing climate change: the predominance of the 'economic efficiency' and 'free market & fair competition' frames in ETS sectors and of the 'autonomy' and

'developmental – fairness' frames in other sectors. The latter were also characterised by a large degree of fragmentation. Hence, these two pillars were not only different from the viewpoint of the instruments used, they also diverged from a substantive perspective.

The latest period started with the adoption of the Climate & Energy Package for 2030 (2.3). While this Package maintained the distinction between ETS and other sectors, it instituted a new pillar in the land use, land use change and forestry sectors (LULUCF). It confirms the substantive differences between these areas of climate law, the former being characterised by the 'economic efficiency' and 'free market & fair competition' frames and the latter by the 'autonomy' and 'developmental – fairness' frames. Nonetheless, we also see that 'economic efficiency' has been gained some importance outside the EU-ETS. Finally, the European Climate Law (Regulation 2021/1119) marks a new era for the EU. For the first time, it committed itself to legally binding targets.[966] This Regulation also contains a new type of target, the so-called 'net zero' or 'climate neutrality'.

The differences in terms of framing across the different pillars are significant because they highlight that responding to climate change through a carbon tax in non-ETS sectors encapsulated more than a change of instrument: it would have required reframing climate mitigation according to economic efficiency. In addition, it would have implied addressing simultaneously the sectors that had been historically regulated in a fragmented way. The legal architecture of EU climate mitigation is charted in Table 11 below.

[966] Regulation 2021/1119 of 30 June 2021establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law'), OJ L 243/1, 9 July 2021.

<table>
<tr><td></td><td colspan="3">Climate</td><td colspan="2">Energy</td></tr>
<tr><td></td><td colspan="5">European Climate Law Regulation 2021/1119
Energy and Climate Governance Regulation 2018/1999</td></tr>
<tr><td></td><td>ETS</td><td>ESR sectors</td><td>LULUCF</td><td>Renewable energy</td><td>Energy Efficiency</td></tr>
<tr><td>Frames</td><td>‘Economic efficiency’ – ‘free market & fair competition’</td><td>Autonomy – ‘developmental – fairness’ – (‘economic efficiency’)</td><td>Autonomy -- developmental – fairness’(?)</td><td colspan="2">‘Autonomy’ – ‘developmental – fairness’ – (‘economic efficiency’)</td></tr>
<tr><td rowspan="2">Target</td><td colspan="3">55% net GHG emission reduction by 2030
Net zero by 2050</td><td rowspan="2">EU-wide at least 40% renewable by 2030</td><td rowspan="2">EU-Wide energy efficiency improvement at least 36-29% by 2030</td></tr>
<tr><td>60% reduction by 2030, from 2005</td><td>40% reduction by 2030, from 2005
60% by 2050</td><td>No debit</td></tr>
<tr><td rowspan="5">Implementing measures</td><td rowspan="2">ETS Directive (last amended by Directive 2018/410)</td><td>Effort Sharing Regulation 2018/842</td><td rowspan="4">LULUCF Regulation 2018/841</td><td rowspan="2">Renewable energy Directive (EU) 2018/2001</td><td rowspan="3">Energy Efficiency Directive (EU) 2018/2002</td></tr>
<tr><td>Regulation 2019/631 (CO_2 emission standard for LDV)</td></tr>
<tr><td>IED</td><td>Regulation 2019/1242 (CO_2 standard for HDV)</td><td>Fuel Quality Directive 2009/30/EC</td></tr>
<tr><td></td><td>Other (certain provisions of the PAC, landfill directive, etc)</td></tr>
<tr><td></td><td colspan="4">Taxonomy Regulation 2020/852</td></tr>
</table>

Table 11 EU climate legal framework architecture with examples of implementing measures

2.1. **The early years**

This Sub-Section deals with the early years of EU climate law. This framework can be divided in two parts: the general framework on climate change (2.1.1.) and the Industrial Pollution Prevention and Control (‘IPPC’) Directive (2.1.2.), which was repealed and replaced by the Industrial Emission Directive (IED) in 2010.

2.1.1. *General overview*

When the 1992 Proposal was made, both EU and international climate law were only nascent. Even though scientists had been warning of about climate change since the 1950s, the UNFCCC

had not yet been concluded and the first IPCC report had just been released.[967] The only mitigation measure at the time was the EU program on energy efficiency, established by the Decision 91/565/EEC, but it was a mere program.[968] The situation was different for GHGs that also deplete the ozone layer, as the Montreal Protocol[969] addressed ozone depletion at the international level. These gases, therefore, were already regulated through a dedicated legislation.[970] The line of distinction between these gases is thus an example of vertical borrowing. The 1992 Proposal was part of a broader package of measures aimed at mitigating climate change, which was presented in the 1991 Communication discussed previously.[971] These measures encompassed development programmes, sectoral measures, other regulatory and voluntary measures as well as fiscal measures. This scarce framework already underscores that the Proposal was ambitious, despite its notable limitations.[972]

Several acts were implemented after the Proposal was made. Of particular importance was Decision 93/389/EEC which set out a GHG emission monitoring mechanism and specified the first elements for distribution of climate mitigation among EU countries.[973] Article 2 of that decision provided that Member States had to design their national programmes to attain EU stabilisation target but

> 'on the understanding that Member States which start from relatively low levels of energy consumption and therefore low emissions measured on a per capita or other appropriate basis are entitled to have CO_2 targets and/or strategies corresponding to their economic

[967] See https://www.ipcc.ch/about/history/.
[968] Decision 91/565/EEC of 29 October 1991 concerning the promotion of energy efficiency in the Community (SAVE programme), OJ L 307, 8 November 1991, pp. 34–36.
[969] Montreal Protocol on Substances that Deplete the Ozone Layer (adopted 16 September 1987, entered into force 1 January 1989). About this Protocol and its amendments see P. SANDS *et al.*, *Principles of international environmental law*, *op. cit.*, chap. 7; M.W. ROBERTS, 'Finishing the job: The Montreal Protocol moves to phase down hydrofluorocarbons', *Review of European, Comparative & International Environmental Law*, November 2017, vol. 26, n° 3, pp. 220-230.
[970] Implementing measures in EU law include Regulation (EEC) No 3322/88 of 14 October 1988 on certain chlorofluorocarbons and halons which deplete the ozone layer, *OJ* L 297, 31 October 1988, p. 1–7; Regulation (EEC) No 594/91 of 4 March 1991 on substances that deplete the ozone layer. *OJ* L 67, 14 March 1991, p. 1–10; Council Decision 80/372/EEC of 26 March 1980 concerning chlorofluorocarbons in the environment.
[971] Commission of the European Communities (1991). A Community Strategy to limit carbon dioxide emissions and to improve energy efficiency, 14 October, SEC(91) 1744 final, (hereinafter '1991 Communication), pp. 4 and f. For an overview of the early years of EU climate law see A. JORDAN et T. RAYNER, 'The evolution of climate policy in the European Union: an historical overview', *in* A. JORDAN *et al.* (eds.), *Climate Change Policy in the European Union*, Cambridge, Cambridge University Press, 2010, pp. 52-80, available at https://www.cambridge.org/core/product/identifier/CBO9781139042772A017/type/book_part (Last consulted on 2 June 2022).
[972] *E.g.* conditionality of its entry into force.
[973] Council Decision 93/389/EEC of 24 June 1993 for a monitoring mechanism of Community CO_2 and other greenhouse gas emissions, *OJ* L 167, 9 July 1993, p. 31–33.

> and social development, while improving the energy efficiency of their economic activities'

This stipulation suggests that mitigation efforts could be differentiated among Member States according to development level. This differentiated approach mimicked the distribution method under the UNFCCC.[974] Therefore it suggests that vertical borrowing did in fact take place. While this criterion corresponds to the 'developmental – fairness' frame, the fact that EU law itself did not distribute the efforts indicates that the 'autonomy' frame prevailed.

By the time the ETS Directive was negotiated, the legal landscape on climate change had changed, at both the international and EU level. At the international level, the Kyoto Protocol had been concluded in 1997.[975] This protocol committed industrialised countries to reduce their GHG emissions. It also introduced the idea of emission trading in international law. The EU's pledge was to reduce by 8 percent its levels of emission compared to 1990, and do so by 2012 (Annex I). This was a target for the EU as a whole, which had to be distributed internally among Member States.[976] At EU level, Decision 2002/358/EC allocated the individual contributions of Member States on the basis of 'expectations for economic growth, the energy mix and the industrial structure of the respective Member State'.[977] These criteria converge with the 'developmental – fairness' frame, similar to the previous burden sharing decision.[978] Beyond Decision 2002/358/EC, EU legal framework on climate change remained limited (*e.g.* voluntary pledges by carmakers).[979]

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974 See Infra, Chapter 4, 3.1.
975 *Ibid.*
976 Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder, OJ L 130, 15 May 2002 p.1-3. (already agreed in Council Conclusions of 16 June 1998). On this decision see N. LACASTA *et al.*, 'From sharing the burden to sharing the effort : Decision 406/2009/EC on Member State Emission Targets for Non-ETS Sectors', *in* S. OBERTHÜR et M. PALLEMAERTS (eds.), *The new climate policies of the European Union: internal legislation and climate diplomacy*, Institute for European studies publication series, n° 15, Brussel, VubPress, 2010. See also C. HAUG et A. JORDAN, 'Burden sharing: distributing burdens or sharing efforts?', *in* A. JORDAN *et al.* (eds.), *Climate Change Policy in the European Union*, Cambridge, Cambridge University Press, 2010, pp. 83-102, available at https://www.cambridge.org/core/product/identifier/CBO9781139042772A019/type/book_part (Last consulted on 2 June 2022).
977 *Ibid*, Recital § 12.
978 See also 2001 proposal, p. 5: 'The quantities of allowances issued would not be harmonised. This reflects the fact that the Burden Sharing Agreement redistributes effort by Member States to reflect Community solidarity.' Emphasis added.
979 See https://www.eesc.europa.eu/sites/default/files/resources/docs/029-private-act.pdf; See also Decision No 1753/2000/EC of the European Parliament and of the Council of 22 June 2000 establishing a scheme to monitor the average specific emissions of CO2 from new passenger cars, OJ L 202, 10 August 2000, p. 1–13. In other sectors see Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, OJ L 182, 16 July 1999, p. 1–19.

2.1.2. *The IPPC Directive*

In the field of industrial emissions, the IPPC Directive aimed to prevent and control pollution. This Directive was adopted in 1996, thus after the introduction of the 1992 Proposal and its revised version of 1995. It was concerned with pollution at large from industrial installations,[980] including GHG emissions. It was based on the environmental competence, implementing the polluter pays principle and the principle of pollution prevention.[981] Unlike most EU environmental regulations which emerged in a fragmented way, this framework endorsed an integrated approach to environmental protection.[982] It aimed to ensure a high level of protection of the environment as a whole, by 'prevent[ing] or solv[ing] pollution problems rather than transferring them from one part of the environment to another'.[983] This was intended to replace the 'media-oriented' approach, where legal frameworks were limited to one type of environmental problem (*e.g.* air, soil or water pollution).[984]

Even though the reference to the polluter pays principle relates to the 'economic efficiency' frame, the IPPC Directive was largely shaped by the 'autonomy' frame. It was intended to be a framework Directive setting out the general principles of integrated pollution prevention and control, leaving as much freedom as possible for the Member States.[985] In addition, its design indicates the existence of a new frame, which can be referred to as 'technology'. This frame generally corresponds to Hulme & al.'s 'technological/energy challenge', according to which 'Fossil-fuel based energy technologies are the root cause of climate change and/or technological innovation (…) that aim at reducing (…) GHG emissions and/or solar engineering technologies are essential to tackle climate change'.[986] I define the categorising criterion of this frame as

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980 IPPC Directive, *op. cit.*, recital § 1.
981 *Ibid.*
982 It replaced two separate frameworks, which compelled industrial installation causing air pollution to hold a permit and imposed an authorisation requirement for the discharge of certain dangerous substances into the aquatic environment. Council Directive 84/360/EEC on the combating of air pollution from industrial plants [1984] OJ L 188/20 and Council Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community [1976] OJ L 129/23, respectively. See D. LANGLET et S. MAHMOUDI, *EU Environmental Law and Policy*, *op. cit.*, pp. 195-196. See also T. BRAAKSMA et H. TOLSMA, 'Integrated Pollution and Prevention: A critical legal perspective on all-inclusive integration', *in* M. PEETERS et M. ELIANTONIO (eds.), *Research handbook on EU environmental law*, Research handbooks in European law, Cheltenham, UK ; Northampton, MA, USA, Edward Elgar Publishing Limited, 2020, p. 313.
983 IPPC Directive, *op. cit.*, recital, § 8 and Commission of the European Communities (1993). Proposal for a Council Directive on integrated pollution prevention and control. COM (93) 423 final, 14 September, p. 3. Note that this 'internal dimension' of integration is not established by the Treaty, in contrast to its external dimension. See F. OOSTERHUIS et M. PEETERS, 'Limits to integration in pollution prevention and control', in *EU Environmental Legislation*, s.l., Edward Elgar Publishing, 2014, pp. 91-115, available at http://www.elgaronline.com/view/9781781954768.00013.xml (Last consulted on 2 June 2022).
984 Communities of the European Communities (1993). Proposal for a Council Directive on integrated pollution prevention and control, *op. cit.*, p. 11.
985 *Ibid*, p. 12.
986 M. HULME *& al.*, 'Framing the challenge of climate change in Nature and Science editorials', *op. cit.*

technology; that is, emitters are comparable where comparable technologies or techniques are available to them. It overlaps with the 'free market & fair competition' frame insofar as technologies or techniques are specific to certain economic (sub)-sectors.

This scheme applied for certain industrial activities from installations, i.e. 'a stationary technical unit where one or more activities listed in Annex I are carried out' or a group of technically connected activities.[987] Stationary installations were opposed to diffuse sources, such as vehicles and aircraft. The focus of the Directive was on industrial sectors, such as energy, metal, chemical and waste activities, as well as pulp and paper.[988] For some activities, the Directive established a minimum threshold, thereby focusing on larger installations.[989] It also covered industries only from a certain size. The concept of pollution was understood broadly and it was admitted that it also covered climate change.[990] The explanatory memorandum specified that the types of installations and substances covered by the Directives as well as the setting of minimum thresholds were defined in accordance with the principle of proportionality, which highlights the role of the 'autonomy' frame.[991]

At the heart of the IPPC Directive lies the concept of 'permits', defined as a decision 'granting authorisation to operate all or part of an installation, subject to certain conditions which guarantee that the installation complies with the requirements of this Directive'.[992] New installations and certain existing installations covered by the IPPC Directive, had to hold a permit established in accordance with that Directive.[993] With those permits, Member States were under obligation to prevent and control pollution.[994] Permits needed to contain emission values (or limits) for pollutants 'likely to be emitted from the installation concerned in significant quantities'.[995] Emissions encompassed 'the direct or indirect release of substances, vibrations, heat or noise from individual or diffuse sources in the installation into air, water or land'. [996]

[987] IPPC Directive, Article 2, (3).
[988] *Ibid*, Annex I.
[989] *Ibid.*
[990] *Ibid*, Article 2, (2). "the direct or indirect introduction as a result of human activity, of substances, vibrations, heat or noise into the air, water or land which may be harmful to human health or the quality of the environment, result in damage to material property, or impair or interfere with amenities and other legitimate uses of the environment;"
[991] Commission of the European Communities (1993). Proposal for a Council Directive on integrated pollution prevention and control. *op. cit.*, p. 11.
[992] *Ibid*, Article 2, al. 1, 9.
[993] *Ibid*, Article 5-6.
[994] *Ibid*, Article 3.
[995] *Ibid*, Article 9, § 3.
[996] *Ibid*, Article 2, § 2 § 5.

Under the IPPC Directive, emission limits had to be based on BATs, that is 'the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as whole'.[997] BATs considered the specific 'technical characteristics of the installation concerned, its geographical location and the local environmental conditions'.[998] They also aimed to be technology-neutral so avoided prescribing the use of any technique or specific technology. The reference to technology to set emission levels across firms corresponds to the 'technology' frame above. Member States retained discretion to fix emissions limits and determine BATs, in line with the 'autonomy' frame.[999]

The broad scope of the IPPC Directive raises the question of its interaction with mitigation measures on stationary installations. The imposition of emission limits on these installations pursuant to the 'technology' and 'autonomy' frames indeed differs from the response implied by the 'economic efficiency' frame. Another relevant question is whether an integrated approach to environmental protection, as opposed to a climate exceptionalism approach, should be maintained and if so how?

2.2. **The 2020 Package: the division between ETS and non-ETS sectors**

The Revised ETS Directive and the 2011 Proposal were part of the 20-20-20 Climate and Energy Package.[1000] By contrast, the Aviation Directive was enacted earlier. The 2020 Climate and Energy Package introduced a clear-cut distinction at two levels: first, between energy and climate and second, between ETS sectors and other sectors. With this package, the EU put forward a triple target consisting of a 20 percent reduction of GHG emissions, a 20 percent share of renewable and a 20 percent improvement in energy efficiency by 2020.[1001] Besides the revision of the EU-ETS, this package included a series of measures, in particular the Effort Sharing Decision 406/2009, Regulation 443/2009 setting CO_2 performance standards for cars and the Directive

[997] *Ibid*, Article 2, § 11.
[998] *Ibid.*
[999] 'the setting of emission limit values can generally best be done at local level, taking into account appropriate environmental conditions. The same standards are not always appropriate at each and every location in the Community.'
[1000] See *Infra*, Chapter 5.
[1001] The year 2020 corresponded to the second commitment period of the Kyoto Protocol

2009/31/EC on carbon capture and storage.[1002] In the field of energy, this package led to the adoption *inter alia* of Renewable Energy Directive 2009/28/EC and Directive 2012/27/EU.[1003]

The distribution of efforts among ETS and non-ETS sectors responded to the 'economic efficiency' frame (2.2.1). In ETS sectors, the distribution of mitigation efforts among Member States was dominated by 'economic efficiency' whilst in the effort sharing sectors, the 'autonomy' and the 'developmental – fairness' frames prevailed (2.2.2). In non-ETS sectors, the regulation of GHG emissions has been largely fragmented (2.2.3). The fragmentation of EU climate law can be viewed as the result of a stepwise approach under the 'autonomy' frame but it was also connected to distinctions in place at the international level (e.g. for fluorinated GHGs). In the area of energy efficiency and renewable energy, the 'fairness – developmental' frame and the 'autonomy' frame dominated. In all, we see that other than the EU-ETS, the 'economic efficiency' frame did not play a key role in climate mitigation.

2.2.1. *Distribution among sectors*

The communication '20 20 by 2020 - Europe's climate change opportunity' conceived the 2020 Climate and Energy Package as follows:

> 'The architecture of the proposals has been driven by two factors. First, the proposals are designed in such a way that the targets are reached in the most *cost-effective* way possible. Second, the effort required of particular Member States and particular industries remains balanced and proportionate, and takes their own circumstances into account. *Fairness* and

[1002] Commission of the European Communities (2008). 20 20 by 2020 - Europe's climate change opportunity. 23 January, COM(2008)30 final.; Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, *OJ L 140, 5 June 2009, p. 16–6;* Decision 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, *OJ L 140,* 5 June 2009, p. 136–148; Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, OJ L 140, 5 June 2009, p. 114–135; Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, OJ L 315, 14.11.2012, p. 1–56. J. DE CENDRA DE LARRAGÁN, 'EU Climate and Energy Law: Challenges for Member States', *in* M. PEETERS, M. STALLWORTHY et J. DE CENDRA DE LARRAGÁN (eds.), *Climate law in EU member states: towards national legislation for climate protection*, New horizons in environmental and energy law, Cheltenham, UK ; Northampton, MA, Edward Elgar, 2012.

[1003] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L 140, 5 June 2009, p. 16–62; Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, OJ L 315, 14 November 2012, p. 1–56.

> *solidarity* have been at the heart of the Commission's thinking in developing the proposals.'[1004]

The reference to cost-effectiveness highlights that the 'economic efficiency' frame is involved whilst solidarity and fairness evidence the presence of the 'developmental – fairness' frame.

The basic idea underpinning the 2020 Package was that emission reduction contributions should be differentiated, that is, 'balanced and proportionate, and takes their own circumstances into account'.[1005] Accordingly, sectors were split up into ETS and effort sharing sectors.[1006] By doing so, the EU removed ETS sectors from the effort sharing decision.[1007] This change corresponded to the moment when the EU-ETS became centralised and gradually governed by auctioning, and thus more in line with the 'economic efficiency' frame.[1008] The target in ETS sectors was more stringent than in effort sharing sectors. This was based 'on economic analysis showing that it would be relatively cheaper to reduce emissions in the ETS sectors than in the non-ETS sectors'.[1009] Distributing efforts where they are the cheapest echoes the 'economic efficiency' frame. It is the scope of the EU-ETS that served as a line of demarcation between these two pillars, effort sharing sectors constituting a residual category.[1010]

2.2.2. *Distribution among countries*

In effort sharing sectors, 'developmental – fairness' and 'autonomy' remained the main frames involved. In these sectors, Decision 406/2009/EC distributed the mitigation target among Member States on the basis of fairness and solidarity, i.e. by taking into account the relative per capita GDP of Member States.[1011] On this basis, some Member States could continue to increase their emissions whilst others had to reduce them. These objectives and criteria correspond to the

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[1004] Commission of the European Communities (2008). 20 20 by 2020 - Europe's climate change opportunity. *op. cit.* p. 4.
[1005] *Ibid.*
[1006] Namely a 21% reduction in emissions from 2005 levels in the ETS sectors and a 10% reduction in emissions in the non-ETS sectors. Commission of the European Communities (2008). 20 20 by 2020 - Europe's climate change opportunity. *op. cit.*, pp. 6-7. The commitment for all sectors to participate to climate change mitigation appears inter alia from Decision 406/2009/EC, *op. cit.*, Recitals § 2.
[1007] Decision 406/2009/EC, *op. cit.*, Article 2, § 1 and Article 10.
[1008] *Infra*, Chapter 6.
[1009] J. DELBEKE et P. VIS, 'EU climate leadership in a rapidly changing world', *op. cit.* p. 18. DG Clima was created in 2010, being previously under the remit of DG environment.
[1010] Decision 406/2009/EC, *op. cit.*, Article 10 which stipulated that a change in the material scope of the EU-ETS should result in a revision of the level of emissions to be distributed.
[1011] Decision 406/2009/EC, *op. cit.*, § 8, highlights: 'Member States that currently have a relatively low per capita GDP, and thus high GDP growth expectations, should be allowed to increase their greenhouse gas emissions compared to 2005, but should limit this greenhouse gas emissions growth to contribute to the independent reduction commitment of the Community. Member States that currently have a relatively high per capita GDP should reduce their greenhouse gas emissions compared to 2005.' See also N. LACASTA *& al.*, 'From sharing the burden to sharing the effort : Decision 406/2009/EC on Member State Emission Targets for Non-ETS Sectors', *op. cit.* See also C. HAUG & A. JORDAN, 'Burden sharing', *op. cit.*

fairness – developmental' frame. Unlike ETS sectors, the responsibility but also the discretion as to how to achieve the targets in effort sharing sectors rested on Member States, which is in line with the 'autonomy' frame. This also means that Member States were generally free to decide how to distribute emission reduction efforts among firms and sectors outside the EU-ETS, save when the EU-ETS adopted implementing regulations (*e.g.* with respect to carmakers).

These rules were supplemented by flexibility mechanisms, so as to foster cost effectiveness, i.e. through emission borrowing, banking of surplus to a later use and transfers between EU countries and credits.[1012] This points to the role of 'economic efficiency' frame. Nonetheless, this role should be viewed merely as secondary as it did not influence the distribution of the targets.

2.2.3. *Distribution among firms & individuals*

Even though Member States were (and are still today) responsible for attaining mitigation targets in effort sharing sectors, the EU enacted a series of implementing regulations to help them achieve their targets. Some of these acts allocated emission efforts among emitters (*e.g.* in the field of road transport).[1013] In this area, the EU generally embraced a stepwise approach, which matches the 'autonomy' frame. In particular, the 2020 Package contained several implementing regulations which were restricted to certain products or sectors (*e.g.* CO_2 performance targets for cars and transport fuel quality standards).[1014] These acts differed in terms of legal basis, ambition and method used to allocate emission reduction efforts. In some cases, climate mitigation policies were integrated into existing acts whilst others implemented dedicated frameworks.

Several acts were based on the internal market competence.[1015] Others relied on the transport competence[1016] or on the agricultural competence[1017] but most of these legislations were adopted

[1012] *Ibid*, Article 3, § 3-4 and article 5.
[1013] These rules are detailed *Infra* in chapter 8.
[1014] Regulation 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO2 emissions from light-duty vehicles, OJ L 140, 5 June 2009, p. 1–15; Directive 2009/30 of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC, L 140/88, OJ 6 June 2009.
[1015] For instance, Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of eco-design requirements for energy-related products, OJ L 285, 31 October 2009, p. 10–35; Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC, OJ L 94, 28 March 2014, p. 65–242.
[1016] Such as Directive 2011/76/EU of the European Parliament and of the Council of 27 September 2011 amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, OJ L 269, 14 October 2011, p. 1–16.
[1017] Regulation 1305/2013 of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation 1698/2005, OJ L 347, 20.12.2013, p. 487–548; Regulation 1306/2013 of the European Parliament and of the Council of 17 December 2013 on the financing, management and monitoring of the common agricultural policy

on the basis of the environmental competence.[1018] It is also clear that these pieces of law have differed in terms of content. The first reason for this is that not all of them impose an obligation directly to reduce GHG emissions. Regulations 443/2009 and 510/2011 (energy performance of vehicles), were among the only pieces of legislation to impose limits on emitters.[1019] The second reason is that these acts did not apportion efforts among emitters in the same way. For instance, an EU-wide target of 95 gr/km of exhaust CO_2 emissions was set for new passenger cars and differentiated among carmakers based on the vehicle's mass[1020]. By contrast, a 6% emission reduction obligation was imposed on each transport fuel supplier, based on a life cycle approach.[1021]

The regulation of transport emissions was different from that of industrial installations under the IED.[1022] To a large extent, the IED pursued the same approach as the IPPC Directive but it addressed some of its shortcomings.[1023] The implication of the autonomy left to Member States in the IPPC Directive, was that BATs were implemented in disparate ways. Some Member States defined BATs according to EU Reference (BREF) Documents, whilst other used less stringent technology standards.[1024] In light of this, the IED compels Member States to use BREF

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and repealing Council Regulations 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005 and 485/2008, OJ L 347, 20.12.2013, p. 549–607.
Regulation 1307/2013 of the European Parliament and of the Council of 17 December 2013 establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy and repealing Council Regulation 637/2008 and Council Regulation 73/2009, OJ L 347, 20 December 2013, p. 608–670

[1018] Decision 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020, OJ L 140, 5 June 2009, p. 136–148; Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO_2 emissions from light-duty vehicles, OJ L 140, 5 June 2009, p. 1–15; Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, OJ L 140, 5 2009, p. 114–135.

[1019] Regulation 443/2009, *op. cit.*; Regulation 510/2011 of the European Parliament and of the Council of 11 May 2011 setting emission performance standards for new light commercial vehicles as part of the Union's integrated approach to reduce CO2 emissions from light-duty vehicles, OJ L 145, 31 May 2011, p. 1–18.

[1020] These rules are detailed *Infra*, Chapter 8.

[1021] Directive 2009/30/EC, *op. cit.*, Article 7a and Recitals § 9.

[1022] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control), OJ L 334, 17 December 2010, p. 17–119 (hereafter 'IED). About the IED see M. DOPPELHAMMER, « The IPPC Directive and its Implementation », *European Energy and Environmental Law Review*, 2000, vol. 9, p. 246. I. MC LEAN, 'Integrated Pollution and Control – the Industrial Emissions Directive', *in* K.E. MAKUCH et R.M. PEREIRA (eds.), *Environmental and energy law*, Chichester, U.K. ; Malden, MA, Wiley Blackwell, 2012; MISONNE, D., « Les installations industrielles : nouvelle cible du législateur européen? », *Jounral de droit européen*, 2012, pp. 213-216.

[1023] Commission of the European Communities (2007). Proposal for a Directive of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control, COM(2007)844 final

[1024] B. LANGE, 'The EU Directive on Industrial Emissions: Squaring the Circle of Integrated, Harmonised and Ambitious Technology Standards', *op. cit.*, p. 200; A. FARMER, « Incremental Change Rather than Radical Overhaul of EU Industrial Emissions Policy », *Environmental Law Review*, 2008, vol. 10, n° 4, pp. 258-282.

Documents as the reference for setting the permit conditions.[1025] This highlights that the role of the 'autonomy' frame has receded and that environmental problems have remained framed according to 'technology'. On the other side, the IED allows competent authorities to deviate from emission levels based on BATs, to avoid 'disproportionately higher costs compared to the environmental benefits', so as 'to take into account certain specific circumstances'.[1026] The role of cost-benefit analyses in the establishment of emission limits highlights the influence of the 'economic efficiency' frame.

The IED integrated six existing sectoral frameworks on pollution prevention: the IPPC Directive, the Large Combustion Plants Directive, the Waste Incineration Directive, the Solvent Emissions Directive and three Directives on Titanium Oxide.[1027] Therefore, it placed into a single framework installations and environmental problems that were previously regulated through different channels. However, the IED has not fully integrated them. As Bettina Lange underlines 'it is questionable whether the incorporation of the six sectoral Directives leads to greater substantive integration of environmental regulation'.[1028] Notably, the frameworks pulled together by the IED were mostly placed into separate titles.[1029] What the Directive did instead was to provide for greater procedural control.[1030]

2.2.4. *Renewable energy and energy efficiency*

Climate and energy have been attributed separate targets, which have been apportioned in distinct legislative acts according to different methods. In the area of energy, climate mitigation has been implemented in two main ways: through the promotion of renewable energy and energy

[1025] IED, Article 14, § 3, emphasis added.
[1026] *Ibid*, Recital 16 and article 15, § 4, including: the geographical location or the local environmental conditions of the installation concerned or the technical characteristics of the installation concerned.
[1027] Respectively OJ L 85, 29 March 1999, pp. 1-22; OJ *L* 332, 28 December 2000, pp. 91-111; OJ L 309, 27 November 2001, pp. 1-21; Directive 78/176/EEC on disposal, OJ L 54, 25 February 1978, pp. 19-24; Directive 82/883/EEC on monitoring and surveillance, OJ L 378, 31 December 1982, pp. 1-14; Directive 92/112/EEC on programmes for the reduction of pollution, OJ L 409, 31 December 1992, pp. 11-16.
[1028] B. LANGE, 'The EU Directive on Industrial Emissions: Squaring the Circle of Integrated, Harmonised and Ambitious Technology Standards', *op. cit.*, pp. 201-202. She notes 'A significant number of the environmental standards of the sectoral Directives, which constitute a minimum BAT standard, have been determined without taking into consideration their impact on all three environmental media (air, water and land). The incorporation of the Large Combustion Plants Directive into the new Directive has, however, led to a tightening of environmental standards, with existing LCPs having to apply stricter emission limits from 2016 onwards and a transition period between 2016 and 2020 during which reductions in nitrogen oxides, sulphur dioxide and dust must be achieved.' In the same vein see Commission Staff Working Document, of the Industrial Emissions Directive (IED) Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control), 23 September 2020, SWD(2020) 181 final, p. 65.
[1029] Chapter II establishes provisions that apply to installations listed in Annex I of the Directive on Industrial Emissions and contains the core of the previous IPPC Directive. Chapters III- VI contain requirements for large combustion plants, waste incineration plants, solvents installations, and titanium dioxide installations.
[1030] B. LANGE, 'The EU Directive on Industrial Emissions: Squaring the Circle of Integrated, Harmonised and Ambitious Technology Standards', *op. cit.*, pp. 201-202.

efficiency. As far as renewable is concerned, the EU followed a step-by-step approach, pursuant to the 'autonomy' frame. The first Directive related to renewable energy was indeed limited to electricity (Directive 2001/77/EC).[1031] It was followed shortly by the Renewable Biofuel Directive, which was limited to biofuels used in transport.[1032] It is only with Directive 2009/28/EC that the EU embraced a comprehensive approach covering renewable energy sources more broadly.[1033] Rules distributing renewable energy targets among Member States have been keen to consider their national circumstances in terms of energy supply and consumption, which is in line with the 'developmental – fairness' frame.

The Renewable Energy Directive 2009/28/EC allocated the renewable energy target for 2020 on the basis of the following criteria:

> 'an equal increase in each Member State's share weighted by their GDP, modulated to reflect their starting points, and by accounting in terms of gross final consumption of energy, with account being taken of Member States' past efforts with regard to the use of energy from renewable sources.'[1034]

The reference to diverging Member State starting points and GDP clearly matches with the 'developmental – fairness' frame. This converges with the approach followed in effort sharing sectors. Furthermore, the Directive sets out an exemption in favour of insular States (Cyprus and Malta), which rely on aviation as a mode of transport. These were viewed as 'disproportionately affected by the current technological and regulatory constraints', given the 'disproportionally high' share of air transport in their total energy consumed.[1035] This argument is in line with the 'developmental – fairness' frame. The target above did not apply in the calculation for overall transport where a fixed target of 10 percent for all Member States was in place.[1036] The justification of this separate target is not entirely clear.[1037]

[1031] Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market OJ L 283, 27 October 2001, p. 33–40.
[1032] Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport, OJ L 123, 17.5.2003, p. 42–46.
[1033] Directive 2009/28/EC, *op. cit.*
[1034] *Ibid.* Recitals, § 15; See also Commission of the European Communities (2008) *op. cit.*, p. 7, where it is noted: 'The Commission's proposal is based on a methodology according to which half of the additional effort is shared equally between Member States. The other half is modulated according to GDP per capita. In addition, the targets are modified to take into account a proportion of the efforts already made by those Member States that have achieved a certain increase in their share of renewable energy in recent years. This allocation methodology, combined with a new flexibility mechanism, means that the European Council mandate has been respected to the full.'
[1035] *Ibid*, Recitals § 33
[1036] *Ibid*, Article 3, § 4.
[1037] It seems to be justified by competition considerations, in line with the 'free market & fair competition' frame recital 16, noting 'By contrast, it is appropriate for the 10 % target for energy from renewable sources in transport to be set at the same level for each Member State in order to ensure consistency in transport fuel specifications and

To determine whether Member States comply with this target, the Renewable Energy Directive 2009/28/EC established accounting rules. These rules have not been neutral towards all types of energy. Article 3 specifies that electricity used in the transport sector 'shall be considered to be 2.5 times the energy content of the input of electricity from renewable energy sources'.[1038] Further, Article 17 establishes sustainability criteria for biofuels and bioliquids, which must be fulfilled to count for the renewable energy target. These criteria take into account the broader interaction with other policy fields (*e.g.* agriculture and forest) and with problems other than climate change. While these criteria match with the 'developmental – fairness' frame, a common approach aimed to ensure a level playing field in this area, which corresponds to the 'free market & fair competition' frame.

Energy efficiency was tackled in Directive 2012/27/EU, which replaced Directive 2006/32/EC on energy end-use efficiency and energy services.[1039] This Directive was complemented by sectoral acts such as the Energy Performance of Buildings Directive.[1040] The Energy Efficiency Directive 2012/27/EU left Member States free to decide on their own target.[1041] In determining their respective national targets, Member States had to consider the EU measures in place to promote energy efficiency as well as national circumstances affecting primary and final energy consumption. These included:

> (a) remaining cost-effective energy-saving potential; (b) GDP evolution and forecast; (c) changes of energy imports and exports; (d) development of all sources of renewable energies, nuclear energy, carbon capture and storage; and (e) early action.[1042]

These criteria highlight the presence of the 'economic efficiency' (cost effectiveness) and 'developmental – fairness' frames (GDP). Nonetheless, given that the choice of the target ultimately rests with the Member States, this indicates that the 'autonomy' frame prevails.

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availability. Because transport fuels are traded easily, Member States with low endowments of the relevant resources will easily be able to obtain biofuels from elsewhere.'

[1038] Directive 2009/28/EC, *op. cit.*, Article 3, § 4 (c).

[1039] Directive 2012/27/EC, *op. cit.,* which followed Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC, OJ L 114, 27 April 2006, p. 64–85.

[1040] Directive 2010/31/EC, *op. cit.* See also Regulation 1222/2009 of the European Parliament and of the Council of 25 November 2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters, OJ L 342, 22 December 2009, p. 46–58; Commission Regulation 228/2011 of 7 March 2011 amending Regulation 1222/2009 of the European Parliament and of the Council with regard to the wet grip testing method for C1 tyres, OJ L 62, 9 March 2011, p. 1–16; Commission Regulation (EU) No 1235/2011 of 29 November 2011 amending Regulation 1222/2009 of the European Parliament and of the Council with regard to the wet grip grading of tyres, the measurement of rolling resistance and the verification procedure, OJ L 317, 30 November 2011, p. 17–23

[1041] See in particular Directive 2006/32/EC *op. cit.*, Article 7.

[1042] Directive 2012/27/EC, *op. cit.*, Article 3, § 1, al. 2.

2.3. **The 2030 Climate & Energy framework**

As part of the 2030 Climate & Energy framework, the EU has passed a series of laws to increase the breadth and robustness of its legal response to climate change.[1043] This framework has maintained the distinction between energy and climate as well as between ETS and effort sharing sectors. By contrast, three notable changes must be underlined. Firstly, a new pillar has been instituted in the sectors of land use, land use change and forestry (LULUCF), establishing a three-pillar structure (2.3.1). Secondly, the area of climate mitigation is now enriched by Regulation 2021/1119 (so called 'European Climate Law'), which establishes a framework for achieving climate neutrality, (2.3.2). This regulation provides an overarching *legal* structure to climate mitigation and the law enshrines binding mitigation targets and the relevant criteria to distribute them. Finally, the Energy and Climate Governance Regulation tightens the links between energy and climate, by delivering an overarching structure between both dimensions of climate mitigation (**Erreur ! Source du renvoi introuvable.**).

The adoption of such overarching regulations does not mean that the energy and climate or the three pillars above are now subject to the same rules. On the contrary, these areas remain regulated by different rules and continue to respond to different frames. To be more precise, they generally employ the same frames but these frames are not attributed the same role in all areas. Another key point is that outside the framework of the EU-ETS, the 'economic efficiency' frame is not dominant. This highlights that EU law regards ETS and other areas as substantially different. A plethora of measures regulate emissions from effort sharing sectors, including with respect to emissions from road transport, shipping and waste.[1044] I will outline in more detail one legislation that I find particularly remarkable in light of the systemic approach it uses to categorise products: the Taxonomy Regulation (2.3.4).

2.3.1. *A three-pillar structure*

The 2030 Climate & Energy framework endorses a three-pillar structure (ETS, effort sharing and LULUCF sectors) and maintains separate targets for mitigation, on the one hand, and energy, on the other. This package originally contained an emission reduction target of 40% compared to

[1043] European Commission (2014). A policy framework for climate and energy in the period from 2020 to 2030, COM(2014)15 final. About this framework see the special issue of the Review of European, Comparative & International Environmental Law, 2020, 19. For a critical take on this package see K. KULOVESI & S. OBERTHÜR, 'Assessing the EU's 2030 Climate and Energy Policy Framework: Incremental change toward radical transformation?', *Review of European, Comparative & International Environmental Law*, August 2020, available at https://onlinelibrary.wiley.com/doi/10.1111/reel.12358 (Last consulted on 2 June 2022).
[1044] For an overview see https://ec.europa.eu/clima/index_en (Last consulted on 2 June 2022).

2005 levels, which was divided into a 43% emission cut in ETS sectors and 40% in the non-ETS sectors.[1045] This target has since been reviewed in the context of the 'European Climate Law', discussed in the next section but it has not yet been apportioned.

The Effort Sharing Regulation 2018/842 allocates the targets outside the ETS and LULUCF sectors for 2030.[1046] In this area, achievement of emission reduction remains the responsibility of Member States, in line with the 'autonomy' frame. The method used to allocate emission cuts in these sectors continues to be based on the Member States' GDP level, which corresponds to the 'developmental – fairness' frame. Nevertheless, the Regulation has adjusted the targets of Member States having a higher GDP per capita 'to reflect cost effectiveness in a fair and balanced manner'.[1047] The reference to cost effectiveness suggests an increased penetration of the 'economic efficiency' frame. Nevertheless, the prevalence of the 'autonomy' and 'developmental – fairness' frames contrast with the ETS sectors where the 'economic efficiency' and 'free market & fair competition' frames have been predominant.

In these sectors, EU law remains fragmented and has been influenced by a variety of frames. Emissions from road transport have remained regulated by various acts, which have distinguished among subsectors or products (*e.g.* light or heavy-duty vehicles, tyres).[1048] EU legislative action on emissions from agriculture, aviation and shipping, on the other side, has been lagging behind. *Inter alia*, the EU lacks a meaningful framework to tackle methane emissions, which is the main type of GHG in the agriculture sector.[1049] In addition, whereas Member States have benefited from common rules to monitor ships' emissions since 2015, EU law does regulate emissions from this sector.[1050] The consequence is that the conclusion made with respect to the 2020 Package remains largely true today. Outside the EU-ETS, climate mitigation is addressed in

[1045] Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814, OJ L 76, 19 March 2018, p. 3–27, Recitals, § 2.
[1046] Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013, OJ L 156, 19 June 2018, p. 26–42. On this regulation see S. ROMPPANEN, 'The EU Effort Sharing and LULUCF Regulations: The Complementary yet Crucial Components of the EU's Climate Policy beyond 2030', in *Research Handbook on EU Environmental Law*, Chelthenam, Edward Elgar Publishing, 2020, pp. 428-442, available at https://www.elgaronline.com/view/edcoll/9781788970662/9781788970662.00039.xml (Last consulted on 2 June 2022); M. PEETERS et N. ATHANASIADOU, 'The continued effort sharing approach in EU climate law: Binding targets, challenging enforcement?', *Review of European, Comparative & International Environmental Law*, July 2020, vol. 29, n° 2, pp. 201-211.
[1047] *Ibid*, Recitals, § 2.
[1048] See *Infra* Chapter 8.
[1049] European Commission (2020). EU strategy to reduce methane emissions, COM(2020)663 final, 14 October.
[1050] See Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC, OJ L 123, 19 May 2015, p. 55–76. By contrast, there is no harmonized regulation of GHG emissions.

a fragmented way and according to distinct frames. The key difference is that, with the increasing coverage of implementing regulations, the role of the 'autonomy' frame has decreased.

The institution of a separate pillar for the LULUCF sectors by Regulation 2018/841 (hereinafter 'LULUCF Regulation'), in addition to the ETS and effort sharing pillars has increased the fragmentation of EU legal framework on climate change.[1051] Before, emissions from these sectors were not regulated, primarily because of difficulties surrounding the accounting of emissions, and they were not included in the EU mitigation target for 2020.[1052] The integration of the LULUCF sectors into the EU-ETS was envisaged but it was discarded at an early stage in light of the problems posed by the 'temporary and reversible nature of LULUCF activities'.[1053] The option to include LULUCF sectors in the effort sharing decision was also abandoned. The EU instead opted for an intermediate approach where LULUCF would be a stand-alone pillar whilst providing bridges between this pillar and the ETS and efforts sharing sectors.

In light of these discussions, it is not surprising that LULUCF Regulation has distributed emission reduction efforts in a different way than in the ETS and effort sharing sectors. Under this regulation, Member States are compelled to ensure that emissions do not exceed removal, which is known as the 'no net emissions' or 'no debit' rule.[1054] Similar with the effort sharing sectors, compliance with this obligation rests on Member States, not on the EU ('autonomy' frame). It appears nowhere that the regulation aims to distribute efforts where they are the cheapest, in line with the 'economic efficiency' frame.[1055] LULUCF Regulation contains several flexibility mechanisms, including temporary increases of harvest intensity and specific rules for Member States with very high forest coverage (compensation factor).[1056] The rationale underpinning these rules is unclear. However, it could hide the influence of the 'developmental – fairness' frame, given that it takes into account the geographical specificities of Member States.[1057]

[1051] Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU, OJ L 156, 19 June 2018, p. 1–25.
[1052] A. SAVARESI, L. PERUGINI et M.V. CHIRIACÒ, 'Making sense of the LULUCF Regulation: Much ado about nothing?', *Review of European, Comparative & International Environmental Law*, July 2020, vol. 29, n° 2, p. 213.
[1053] Commission (EU), 'Impact Assessment of the Directive amending Directive 2003/87/ EC so as to improve and extend the EU greenhouse gas emission allowance trading system, COM(2008) 16 final.
[1054] LULUCF Regulation, *op. cit.*, Article 4.
[1055] Nonetheless, accounting rules are not neutral Emissions and removals from forest depend on a reference level for each Member States. Which period to choose for this reference level was particularly contentious. A. SAVARESI, L. PERUGINI et M.V. CHIRIACÒ, 'Making sense of the LULUCF Regulation', *op. cit.*, p. 215.
[1056] *Ibid*, Articles 11-14. There is even a specific derogation for Finland, which is the most forested Member State (Article 13, § 4).
[1057] This is mentioned in https://ec.europa.eu/clima/eu-action/forests-and-agriculture/land-use-and-forestry-regulation-2021-2030_en .

The different rules applicable in the three pillars composing EU climate change legislation suggest that these have been viewed as substantively different. The frames and categories established pursuant to these frames have indeed diverged. These distinctions have nonetheless been watered down by interlinkages between them. To be more specific, flexibility mechanisms have allowed excess of emissions in one pillar to be compensated in another pillar.[1058] In the Effort Sharing Regulation, flexibility mechanisms have been increased with the 2030 Package to allow certain Member States to cancel a determined amount of emission allowances of the EU-ETS sectors, to achieve their target in the effort sharing sectors.[1059] In a similar vein, debits and credits are permitted between the LULUCF sectors and the effort sharing sectors.[1060] The rationale behind such flexibility mechanisms is not specified but these mechanisms are generally promoted to increase the cost effectiveness of the measures implemented, in line with the 'economic efficiency' frame.

2.3.2. *The path towards net zero: the European Climate Law*

In the aftermath of the EU Green Deal of 2019, the EU enacted Regulation 2021/1119, known as the 'European climate law'.[1061] One of the key aims of the EU Green Deal is to ensure that there are no net emissions of greenhouse gases in 2050.[1062] This objective, also known as 'net zero' or 'climate neutrality' has been legally anchored in the 'European climate law', with intermediary targets in 2030 and 2040. The European Climate Law is seemingly not the first EU legislative act in the area of climate change, as this Chapter as shown. One can assume that this qualification stresses the overarching nature of this act and its resemblance with national climate laws.[1063] The question is therefore whether anything differentiates this regulation from other

[1058] On this topic see M. PEETERS et N. ATHANASIADOU, 'The continued effort sharing approach in EU climate law: Binding targets, challenging enforcement?', *Review of European, Comparative & International Environmental Law*, July 2020, available at http://doi.wiley.com/10.1111/reel.12356 (Last consulted on 2 June 2022); A. SAVARESI, L. PERUGINI et M.V. CHIRIACÒ, 'Making sense of the LULUCF Regulation', *op. cit.*; S. ROMPPANEN, 'The EU Effort Sharing and LULUCF Regulations', *op. cit.*

[1059] This rule applies only to Member States having national reduction targets significantly above both the Union average, Belgium, Denmark, Finland, Sweden and the Netherlands, and aims inter alia to increase cost-effectiveness in reducing emissions. Regulation (EU) 2018/842, *op. cit.*, Article 6, § 1, Recital § 21 & Annex II.

[1060] Regulation (EU) 2018/842, *op. cit.*, Article 7 and LULUCF Regulation, Article 12.

[1061] Regulation (EU) 2021/1119, *op. cit.*

[1062] European Commission, The European Green Deal, 11 December 2019, COM(2019)640 final, p. 2. On the EU Green Deal see L. KRÄMER, 'Planning for Climate and the Environment: the EU Green Deal', *Journal for European Environmental & Planning Law*, July 2020, vol. 17, n° 3, pp. 267-306; E. CHITI, 'Managing the ecological transition of the EU: The European Green Deal as a regulatory process', *Common Market Law Review*, February 2022, vol. 59, pp. 19-48.

[1063] As noted by M. PEETERS & D. MISONNE, 'The European Union and its rule creating force at the European continent for moving to climate neutrality in 2050', *op. cit.*

climate laws and if so what? I respond to this question in three steps: by distinguishing the frames involved, the regulation's binding nature and its transformational role.

My first point regards the frame(s) employed in the European Climate Law. Article 2, § 1, which sets out the climate-neutrality objective, establishes a collective target, stating that 'Union-wide (GHG) emissions and removals regulated in Union law shall be balanced within the Union at the latest by 2050'. This collective burden does not disrupt the existing approach, where emission efforts have been differentiated among Member States. To put it another way, it does not establish an individual national climate neutrality. Article 2, § 2 further stipulates that:

> 'The relevant Union institutions and the Member States shall take the necessary measures at Union and national level, respectively, to enable the collective achievement of the climate-neutrality objective set out in paragraph 1, taking into account the importance of promoting both *fairness and solidarity* among Member States and *cost effectiveness* in achieving this objective.'

The reference to 'fairness and solidarity' underlines the role of the 'developmental – fairness' frame while the mention of 'cost effectiveness' refers to 'economic efficiency' frame.

The relevance of these two frames is in the continuity of previous EU climate legislations. However, Article 2, § 2 of the European Climate Law seems to place these frames on an equal footing. This is questionable for two reasons. The first reason is that these frames lead to diverging, albeit partially overlapping responses to the problem of climate change. The reference to fairness and solidarity tends to argue that emission reduction efforts should take into account the diverging capabilities in reducing emission reductions (*e.g.* GDP) while cost-effectiveness refers to the abatement costs. As put before, the criteria are not reconcilable. One way to balance these different objectives is by revenue redistribution but this places cost-effectiveness as the main criterion to distribute emission reduction efforts.[1064] The second reason is that the Treaty does not consecrate cost-effectiveness in the same way by as solidarity and fairness.

The 'net' zero target, on the contrary, might suggest that another frame is employed. The emphasis on the removal of emissions through new technologies (*e.g.* carbon capture and storage) could be a sign that the 'technology' frame is employed. Article 3 institutes a scientific advisory board that will 'serve as a point of reference for the Union on scientific knowledge relating to climate change by virtue of its independence and scientific and technical expertise'. Responding to climate change by improving scientific knowledge is in line with a scientific frame of climate

[1064] Infra, Chapter 3, section 2.

change that embeds that 'Scientific understanding of climate change is incomplete/inadequate (that is, due to complexity/uncertainty) and/or investing in science is necessary for adequate mitigation/adaptation responses'.[1065] Although this would be a new frame in climate EU legislation, it is one that has been recognised as playing a key role at the international level.[1066]

The frames employed in the European Climate Law are further expressed in Article 4, § 3, which establishes the criteria that the Commission should consider to set intermediary targets for 2040. This provision read as follows:

> 'When proposing the Union 2040 climate target in accordance with paragraph 3, the Commission shall consider the following: (a) the best available and most recent scientific evidence, including the latest reports of the IPCC and the Advisory Board; (b) the social, economic and environmental impacts, including the costs of inaction; (c) the need to ensure a just and socially fair transition for all; (d) cost-effectiveness and economic efficiency; (e) competitiveness of the Union's economy, in particular small and medium-sized enterprises and sectors most exposed to carbon leakage; (f) best available cost-effective, safe and scalable technologies; (g) energy efficiency and the 'energy efficiency first' principle, energy affordability and security of supply; (h) fairness and solidarity between and within Member States; (i) the need to ensure environmental effectiveness and progression over time; (j) the need to maintain, manage and enhance natural sinks in the long term and protect and restore biodiversity; (k) investment needs and opportunities; (l) international developments and efforts undertaken to achieve the long-term objectives of the Paris Agreement and the ultimate objective of the UNFCCC; (m) existing information on the projected indicative Union greenhouse gas budget for the 2030-2050 period referred to in paragraph 4.'

This quote provides valuable information as to which elements must be considered when setting GHG emission level.

In particular, this provision confirms several of the previous findings. It highlights that the 'economic efficiency' frame ('costs of inaction'; 'cost-effectiveness and economic efficiency') is only one of the many frames employed by EU law to set the mitigation target. Other frames are relevant, including 'developmental & fairness' ('just and socially fair transition'; fairness and solidarity between and within Member States), 'free market & fair competition', 'technology' (best available technologies and 'scientific' ('best available and most recent scientific evidence'). It also shows that other challenges must be taken into account to determine admissible emissions levels, such as security of energy supply and biodiversity. This provides an increased transparency as to which frames are relevant in EU climate law. As the European Climate Law does not establish a

[1065] M. HULME *et al.*, 'Framing the challenge of climate change in Nature and Science editorials', *op. cit.*
[1066] M. HULME, *Why we disagree about climate change*, *op. cit.*

hierarchy between these criteria, it is not possible to identify which frame should prevail. Nevertheless, the level in question will have to comply with a high level of environmental protection and arguably with other substantive duties such as human rights protection.[1067]

The second point is concerned with the nature of the European Climate Law. The use of the term 'law' could suggest that this act supersedes other EU climate legislation. Nevertheless, behind this catchy name, the European Climate Law takes the form of a regulation in its most classical form. Therefore, this act does not rank higher than other regulations or directives.[1068] Although it consists of a regulation, the most relevant comparison is probably with framework directives. Framework directives have developed in the field of the environment 'because of their integrative capacities and their ability to establish a coherent approach'.[1069] However, this does not remove an important novelty from the regulation: it establishes binding targets. These could be used as reference commitments to establish the inadequacy of mitigation measures by the European Union, as in the case of the member states. This requires the existence of a legal ground and fulfilment of standing criteria.

The final point is that the European climate law seems to provide an impetus to review existing legislation, in relation to direct but also indirect legislations, and this both at EU and national levels. Towards this end, Article 6, on the one side, aims to ensure that EU law is in line with the climate neutrality objective. It charges the Commission with the task of assessing the consistency of existing EU measures, draft measures or legislative proposals with this objective. Where the Commission finds one of these acts inconsistent or insufficient, it must take the necessary measures or justify inconsistencies in the case of draft legislation. Article 7, on the other side, vests the Commission with the power to assess the consistency of national measures with the above targets. Where such an assessment reveals inconsistencies, the Commission must make recommendations to the Member State in question. These provisions are important because they reduce the scope of 'autonomy' in climate law and because they have the ability to drive EU law's transformation towards a greater integration of the climate change mitigation objective.

[1067] This requirement is discussed *Infra*, Chapter 4, 3.2.

[1068] As Article 288 of the TFEU put "To exercise the Union's competences, the institutions shall adopt regulations, directives, decisions, recommendations and opinions. A regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States. A directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods. A decision shall be binding in its entirety. A decision which specifies those to whom it is addressed shall be binding only on them. Recommendations and opinions shall have no binding force.'

[1069] M. BOGAART, 'The emergence of the Framework Directive in EU environmental policy', *op. cit.*, p. 67.

One can conclude from the descriptions above that EU law attributes to the European Climate Law a transformational role of existing legislation. This act provides an architecture to drive the revision of prevailing laws to fit them with the objective of attaining climate neutrality in 2050. Nevertheless, in the current state of the law, regulation of GHG emission across the different sources has not advanced at the same pace. Certain activities such as agriculture and shipping are still lagging behind, especially compared to the automobile industry and installations covered by the EU-ETS. Catching up is unlikely to happen overnight. Furthermore, the European Climate Law employs different frames. While it seems to put the 'developmental – fairness' and 'economic efficiency' frames on the same footing, it does not define the place of the other frames.

2.3.3. *Renewable energy and energy efficiency*

With the 2030 climate and energy package, the EU has modified existing legislation in the area of energy efficiency and renewable energy. In particular, it adopted a new Renewable Energy Directive 2018/2001 that replaces Directive 2009/28/EC, Directive 2018/2002 amending Directive 2012/27/EU on energy efficiency, and the Energy and Climate Governance Regulation 2018/1999.[1070] Directive 2018/2002 on energy efficiency left the existing approach unchanged. On the contrary, the two other acts introduced more notable changes. The Renewable Energy Directive 2018/2001 suggests a greater role of the 'autonomy' frame, compared to the past. It has introduced two key changes: it grants a greater autonomy to Member States to determine their target and it also removes the distinction between transport and other sectors.

This Renewable Energy Directive 2018/2001 has set an EU-wide target, a renewable energy consumption of at least 32% in 2030, while leaving each EU country with the discretion to determine its own target.[1071] This approach aims to increase Member States' flexibility and boost cost effectiveness, whilst being in 'in accordance with their specific circumstances, energy mix and capacity to produce renewable energy'.[1072] National circumstances are defined by EU law as

[1070] Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council, OJ L 328, 21 December 2018, p. 1–77; Directive 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources, OJ L 328, 21 December 2018, p. 82–209; Directive 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency, OJ L 328, 21 December 2018, p. 210–230.
[1071] Directive 2018/2001, op. cit. Article 3, § 1
[1072] *Ibid*, Recitals, § 9.

including economic conditions and potential (*e.g.* GDP per capita), potential for cost-effective renewable energy deployment, level of interconnection, natural constraints and early efforts.[1073] All of this suggests a subtle balance between the 'economic efficiency' frame, the 'autonomy' and 'developmental – fairness' frames. In my view, the increased role of the 'autonomy' frame can be explained by the limited competence of the EU in the field of energy. The greater impact of increasingly ambitious renewable energy targets on national energy mix would have been likely to engender significant impacts on national energy mix, which is subject to unanimity.[1074] This increased autonomy is nonetheless balanced by the adoption of the Energy and Climate Governance Regulation, which is discussed in the next Chapter.[1075]

Accounting rules to determine fulfilment of the renewable energy targets continue to differentiate among energy sources and even deepened the degree of differentiation. Article 27 of the Renewable Energy Directive 2018/2001/EU stipulates that:

> '(a) the share of biofuels and biogas for transport produced from the feedstock listed in Annex IX may be considered to be twice its energy content;
>
> (b) the share of renewable electricity shall be considered to be four times its energy content when supplied to road vehicles and may be considered to be 1,5 times its energy content when supplied to rail transport;
>
> (c) with the exception of fuels produced from food and feed crops, the share of fuels supplied in the aviation and maritime sectors shall be considered to be 1,2 times their energy content.'

What this stipulation suggests is that emissions are accounted in different ways depending on the type of energy or the sector in which they are used. The justification behind such differentiated rules is unclear, which is contrary to the principle of equal treatment.

Directive 2018/2001/EU also sets out a separate system in the transport and heating sectors. In the transport sector, Member States are compelled to impose an 'obligation on fuel suppliers to ensure that the share of renewable energy within the final consumption of energy in the transport sector is at least 14 % by 2030' (Article 25, § 1). This obligation is thus the same for all transport fuel suppliers.[1076] In the heating and cooling sectors, it is a mere indicative target that is

[1073] *Ibid*, Article 5, § 2, (e).
[1074] *Infra*, Chapter 4, 5.3.
[1075] M. VANDENDRIESSCHE, A. SAZ-CARRANZA et J.-M. GLACHANT, *The Governance of the EU's Energy Union: Bridging the Gap?*, Florence, EUI, 2017, p. 18. Noting that 'The unique and idiosyncratic governance of the Energy Union is, to a large degree, a response to the 2030 renewables and energy efficiency targets which are not nationally binding.'
[1076] In the proposal of directive (European Commission, Proposal for a Directive on the promotion of the use of energy from renewable sources, COM(2016) 767 final, 30 November 2016), recitals 64 specified that 'It is

established and Member States are free to decide how to attain it. Article 23, § 1 stipulates that 'each Member State shall endeavour to increase the share of renewable energy in that sector by an indicative 1.3 percentage points (…). Even though the targets are not differentiated in function of the cost-effective potential of renewable energy scale up across Member States, the freedom to decide how they achieve responds to the 'economic efficiency' frame. It aims to leave 'the Member States the possibility to adapt to local circumstances in the most cost-efficient way'.[1077]

2.3.4. *The Taxonomy Regulation*

My focus is now on the Taxonomy Regulation 2020/852.[1078] This act is quite exceptional in EU legal landscape on climate mitigation. Even though its scope is limited to the financial sector, it provides a broad classification of 'environmentally sustainable activities' so as to determine whether investments can be characterised as environmentally sustainable or not.[1079] This classification is intended to apply uniformly across the EU. Whether an activity is environmentally sustainable depends on four conditions: it should substantially contribute to one or several environmental objectives (1), it should not significantly harm any of the environmental objectives (2), it should respect some minimum standards (3) and it should fulfil the technical screening criteria to be established by the Commission (4).[1080] The regulation is based on the internal market competence, pursuant to the 'free market & fair competition' frame. It also follows a comprehensive approach and provides a fully harmonised scheme, which differs from the 'autonomy' frame.[1081]

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appropriate to set the obligation on fuel suppliers at the same level in each Member State in order to ensure consistency in transport fuel specifications and availability. As transport fuels are traded easily, fuel suppliers in Member States with low endowments of the relevant resources should be able to easily obtain renewable fuels from elsewhere.' This was thus similar with the previous system but it has been removed. In the adopted version, the recitals clarify in § 83 that 'Since renewable alternatives might not be available or cost-efficient to all fuel suppliers, it is appropriate to allow Member States to distinguish between fuel suppliers and to exempt, if necessary, particular types of fuel supplier from the obligation. As transport fuels are traded easily, fuel suppliers in Member States with low supplies of the relevant resources are likely easily to obtain renewable fuels from other sources.'

[1077] European Commission, Proposal for a Directive on the promotion of the use of energy from renewable source, op. cit. p. 5-7. The development of renewable energy in non-ETS sectors aims to ensure that the pledges resulting from the Effort Sharing Regulation are met in a cost-effective way, which corresponds to the 'economic efficiency' frame.

[1078] Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, OJ L 198, 22 June 2020, p. 13–43. About this regulation see C. VAN OOSTRUM, 'Sustainability Through Transparency and Definitions: A Few Thoughts on Regulation (EU) 2019/2088 and Regulation (EU) 2020/852', *European Company Law*, February 2021, vol. 18, pp. 15-21.

[1079] Regulation (EU) 2020/852, *op. cit.*, Article 1.

[1080] *Ibid*, Article 3.

[1081] The regulation is based on the internal market competence, which means that Member States are not allowed to adopt unilateral measures to increase environmental protection.

The Taxonomy Regulation is not limited to the problem of climate change but is intended to tackle a wider range of environmental problems, which, in some ways, echoes the integrated approach of the IED. The criterion to balance these objectives is the 'do not harm principle'. Nevertheless, in contrast with other environmental problems, Article 10 of the Regulation provides a list of categories substantially contributing to climate change mitigation and adaptation (e.g. increasing clean or climate-neutral mobility). This provision also specifies that economic activities for which there is 'no economically and technologically feasible low-carbon alternatives' can be considered to contribute substantially to climate change mitigation under certain conditions.[1082] In addition, rules related to climate change objectives will enter into force before those addressing other environmental objectives.[1083] This is reminiscent of the 'climate exceptionalism' approach discussed previously.[1084]

The Regulation in question vests the Commission with considerable power, including the competence to set out the relevant technical screening criteria.[1085] Establishing these criteria is inevitably challenging.[1086] Whereas the taxonomy can build on well-developed categories in the field of environmental protection, the difficulty will be ensuring consistency between them as well as balancing contradictory considerations. The Recitals, at § 40, illustrate this point:

> When establishing and updating the technical screening criteria the Commission should take into account relevant Union law (…). To avoid unnecessary inconsistencies with classifications of economic activities that already exist for other purposes, the Commission should also take into account the statistical classifications relating to the environmental goods and services sector (…) the Commission should also take into account the specificities of the infrastructure sector and should take into account environmental, social and economic externalities within a cost-benefit analysis. (…) the Commission should assess whether the establishment of those criteria would give rise to stranded assets or would result in inconsistent incentives, or would have any other adverse impact on financial markets.

[1082] Namely § 2. where it supports the transition to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1.5°C above pre- industrial levels, including by phasing out greenhouse gas emissions, in particular emissions from solid fossil fuels, and where that activity: (a) has greenhouse gas emission levels that correspond to the best performance in the sector or industry; (b) does not hamper the development and deployment of low-carbon alternatives; and (c) does not lead to a lock-in of carbon-intensive assets, considering the economic life time of those assets.
[1083] Regulation (EU) 2020/852, *op. cit.*, Article 27.
[1084] *Infra*, Chapter 3, 3.1.
[1085] Regulation (EU) 2020/852, *op. cit.*, Article 3, (d).
[1086] In this sense M. PEETERS et D. MISONNE, 'The European Union and its rule creating force at the European continent for moving to climate neutrality in 2050', *op. cit.*

The Commission has already published a screening list with respect to climate change mitigation and adaptation.[1087] It is thus much awaited in the other areas and a central point will be the transparency behind its establishment.[1088]

The Taxonomy Regulation does not impose binding obligations on the financial sector to invest in sustainable activities. It limits itself to introducing a disclosure requirement, even though the power of such a naming and bashing approach should not be underestimated. Nonetheless, the systemic/integrated approach of the Taxonomy Regulation argues in favour of its disruptive force. I believe it offers the potential to redefine categorisations established by EU law outside the mere financial sector. The list provided could be used to direct or guide investments made by firms, individuals or public institutions.

One can question, however, the extensive role of the Commission and question whether it is the most legitimate institution to determine these categories. Balancing contradictory objectives requires an assessment that cannot be presented as merely technical. Hence it is arguable that the establishment of these categories should be subject to democratic debates in the Parliament and the Council. In addition, the implementation of the Taxonomy Regulation is likely to be complex and challenging, as already illustrated by the Commission's Decision setting the screening list as regards climate change mitigation and adaptation. For this reason, it will be central in the coming years to scrutinise the processes of setting the screening list, in order to exert increased vigilance and unveil the rationale underpinning Commission's choices.

3. INDIRECT CLIMATE LEGALISATION: THE INTEGRATION OF CLIMATE CHANGE IN ENERGY LAW

While the link between energy and climate is well established, integrating climate considerations in the field of energy law has been a tremendous task, which has never been fully achieved. Addressing climate change has been one, yet only one, goal of EU energy policy (3.1). Other goals, such as securing energy supply and tackling energy poverty have played an important role.[1089] An integrated response should simultaneously achieve these goals, but this has not been the case so far. In this area, the EU legal response to the twin challenge energy/climate has been dominated by the 'autonomy' frame, which is in line with Article 194 and 192 of the TFEU. This

[1087] Not yet officially published.
[1088] For instance, the inclusion of gas and nuclear. See Euractiv (2021). The Green Brief: Gas, nuclear and the EU taxonomy saga, retrieved from https://www.euractiv.com/section/energy-environment/news/the-green-brief-gas-nuclear-and-the-eu-taxonomy-saga/. (Last consulted on 2 June 2022).
[1089] This is in line with Article 194 TFEU.

area is also largely shaped by the 'free market & fair competition' frame, which is also in line with Article 194 of the TFEU and less prominently by the 'developmental – fairness' frame. By contrast, the role of the 'economic efficiency' frame in this area has been marginal.

This challenge is reinforced by another. Energy represents a large source of revenues for Member States. Therefore, the energy – climate transition poses a question as to how public budgets can be kept afloat with decreasing revenues from taxes levied on fossil fuel.[1090] Historically, taxation on energy products was intended to collect revenues. However, over time these taxes have been attributed a broader range of objectives, including environmental protection.[1091] During the 1990s the harmonisation of energy taxes was limited, pursuant to the 'autonomy' frame. Harmonisation in that field has come about through a stepwise approach. It was originally restricted to mineral oils products with the adoption of the Mineral Oils Directive (3.2) and left a broad margin of appreciation to the Member States. These Directives were subsequently repealed and replaced by the larger framework of the ETD (3.3). This framework been largely dominated by the 'free market & fair competition' and 'autonomy' frames, while the influence of the 'economic efficiency' frame is not apparent.

The EU legal framework on energy taxation has also remained largely disconnected from environmental considerations.[1092] The ETD is notorious for having a detrimental effect on climate mitigation, and environmental protection more broadly.[1093] The EU sought to address this problem with the 2011 Proposal but, as noted before, it could not be enacted. As a result, as things currently stand, the present framework on energy taxation is unfit for attaining the objective of climate neutrality by 2050. This question arises regardless of whether or not a carbon tax is adopted. For that reason, the revision of the ETD is part of the 'Fit for 55' Package discussed next. In short, the legal framework on energy has diverged from the model response to climate change of Chapter 3.

[1090] On this topic see F. VANRYKEL (26 September 2019). *An analysis of energy taxes in light of electrification of transport*. Paper presented at 20th Global Conference on Environmental Taxation, Limassol, Cyprus.
[1091] J. AUTENNE et A. PIRLOT, "'Quand la fiscalité se met au vert… '", in *Les dialogues de la fiscalité: anno 2013 nouveautes fiscales - abus fiscal - fiscalité environnementale*, Bruxelles, Larcier, 2013.
[1092] Although I do not analyse VAT, there are indeed possible synergies between carbon taxes and VAT and the topic definitely deserves attention for future research. See for instance the ground-breaking paper of E. TRAVERSA et B. TIMMERMANS, 'Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives', *op. cit.*
[1093] J. VAN EIJNDTHOVEN, 'Energy Taxation at European Level: What does it do for the Environment and Sustainability?', *op. cit.*; A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*

3.1. **Energy & climate integration: two distinct, yet entangled, fields of law**

Energy law preceded climate mitigation by several years. For instance, the first Directive on minimum oil stocks dates back to the 1960s.[1094] For that reason, a key issue has been how to integrate climate objectives into energy law.[1095] This question was already discussed in the 1990s, as illustrated by the following statement of the Commission's Communication 'Strengthening environmental integration within Community Energy Policy':

> Integrating energy and environment have been a major component of Energy Policy developments in the 1990s. The Single Act set closer integration of environmental policy and the Community's other policies as one of the principles of the Treaty (…). Simultaneously climate change emerged as a major challenge in environmental policy, supplementing traditional energy/environmental concerns.[1096]

Integration has been a key theme in EU environmental law more broadly and, as explained earlier, Article 11 of the TFEU provides that environmental protection should be integrated in other fields of law.[1097]

Integrating climate objectives into energy law has proved challenging. Energy law has in effect several peculiarities that make it different from climate law. Firstly, energy is not like any good that moves within the internal market.[1098] Because of its central importance for the sheer functioning of a country, security of energy supply must be guaranteed.[1099] This goal has justified the positive discrimination of oil, compared to other energy products.[1100] At EU level, several acts have aimed to limit the free movement of oil products (*e.g.* minimum oil stocks).[1101] In the *Campus*

[1094] Council Directive 68/414/EEC of 20 December 1968 imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil and/or petroleum products, OJ L 308 , 23 December 1968, p. 14 - 16.
[1095] On environmental integration in the field of energy see F. ERMACORA, 'Integration of Environmental Requirements into EC energy policy', *in* R. MACRORY (ed.), *Reflections on 30 years of EU environmental law: a high level of protection?*, The Avosetta series, n° 7, Groningen, Europa Law Publishing, 2006.
[1096] Commission of the European Communities (1998). *op. cit.*, p. 2. See also Commission of the European Communities (1997). The Energy Dimension of Climate Change, 14 May, COM (97) 196 final.
[1097] *Infra*, Chapter 4, 3.2.
[1098] Even though the Court recognised early on that energy is a good that should move freely in the internal market. CJEU, Flaminio Costa v E.N.E.L. 15 July 1964, C-6/64.
[1099] This is key concern is observable in Article 194 TFEU.
[1100] As underlined by Commission of the European Communities, The Internal Market, Commission Working Document, 2 May 1988, COM(88) 238 final, p. 41.
[1101] For example, Council Decision 77/186/EEC, of 14 February 1977 on the exporting of crude oil and petroleum products from one Member State to another in the event of supply difficulties, *OJ L 61, 5.3.1977, p. 23–25,* which stipulated that in times of difficulties in oil supply, 'protective measures may prove necessary' (recitals); Directive 73/238/EEC, on measures to mitigate the effects of difficulties in the supply of crude oil and petroleum products, *OJ L 228, 16.8.1973, p. 1–2,* introduced measures to offset or at least reduce the impacts of difficulties in the supply of crude oil and petroleum products, allowing Member States to restrict consumption. See also Council Directive 2009/119/EC of 14 September 2009 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products, *OJ L 265, 9* October 2009, pp. 9–23. Commission of the European Communities, The Internal Market, Commission Working Document, *op. cit.*, p. 41. See also Commission of the

Oil case, the Court sanctioned a national act that was contrary to the internal market, given the 'fundamental importance (of oil) for a country's existence', qualifying it as a matter of 'survival'.[1102] In the same vein, the EU has admitted subsidies in favour of indigenous production of coal and statutory limitations of oil for certain uses.[1103] Accordingly states aids for coal were for a long time settled by primary law, i.e. ECSC Treaty, and accepted, in spite of their non-compliance with the polluter pays principle.[1104] These examples underline a contradiction between these rules and other objectives, including free movement and the environment.

Second, energy sources are so varied that there is no straightforward way to fit them all into the same framework. There is no meaningful EU legislative act that covers all conventional energy sources. Behind expressions such as 'internal energy market' or 'energy union', there is a heterogenous set of frameworks.[1105] The successive packages on the liberalisation of energy markets only concerned gas and electricity. By contrast, EU law on oil can rather be qualified as a 'law of crisis' that largely rests on EU competence on conjectural policy.[1106] As Sirja-Leena Penttinen underlines, 'while the regulation of electricity and gas, being more network-bound commodities, has focused particularly on the network themselves in the form of, inter alia, access regimes and market structures, EU regulation of oil deals largely with security elements and taxation'.[1107] The separate treaties in the area of nuclear power (Euratom) and of coal (ECSC), mentioned before, also illustrate this point.

The final point is that energy law has been predominated by the 'autonomy' frame. This frame was expressed by the absence of EU competence in the field of energy until the adoption of the Lisbon Treaty. This frame is still relevant today as EU primary law explicitly limits the EU's

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European Communities, Taxation of Petroleum Products, 11 September 1981, COM(81) 511, pp. 9-10, noting that the higher tax level on mineral oils was also a way to protect indigenous energy resources, especially coal, and in the case of transport to recouple infrastructure cost.

[1102] CJEU, Campus Oil Limited and others v Minister for Industry and Energy and others, 10 July 1984, C-72/83, § 34. For a comment see K. TALUS, *EU Energy Law and Policy*, *op. cit.*, pp. 160-161; S.-L. PENTTINEN, 'The Treaty Freedoms in the Energy Sector: Overview and State of Play', *in* S.-L. PENTTINEN et I. MERSINIA (eds.), *Energy Transitions*, 1st ed., Morstel, Intersentia, 28 February 2017, pp. 75-108, available at https://www.cambridge.org/core/product/identifier/CBO9781780685007A029/type/book_part (Last consulted 2 June 2022); D. VANDERMEERSCH, 'Restrictions on the Movement of Oil In and Out of the European Community: The Campus Oil and Bulk Oil Cases', *Journal of Energy & Natural Resources Law*, 1987, vol. 5, n° 1, p. 25.

[1103] As noted by Commission of the European Communities, The Internal Market, Commission Working Document, *op. cit.*, p. 17.

[1104] Treaty establishing the European Coal and Steel Community (ECSC Treaty), Paris 18 April 1951. When this treaty ended, this issue was tackled by Council Regulation (EC) No 1407/2002 of 23 July 2002 on State aid to the coal industry. This Decision provided a specific regime for state aids on coal, whilst planning for a reduction of this aid.

[1105] Expression used *e.g.* in European Commission, A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, COM(2015)80 final.

[1106] Article 103 of the Treaty of Rome.

[1107] S.-L. PENTTINEN, *Free movement and the energy sector in the European Union*, *op. cit.*, p. 27.

legislative action in this field when measures have a (significant) impact on Member States' energy mix or structure.[1108] Whereas the absence of a dedicated legal basis did not keep the EU from adopting harmonised legislation in other policy areas (*e.g.* environmental law), EU legislative action in the field of energy was in waiting until the mid-1990s. Energy was largely kept outside the EU legislative agenda until the 1980s, being characterised as a commodity 'too strategic' and 'politicized' to be amenable to an easy legislative fix'.[1109] For a long time, Member States remained reluctant to surrender their sovereignty with respect to energy, preventing the EU's efforts to deregulate energy markets and thereby create an internal energy market.[1110]

When the 1992 Proposal was made, the EU legal framework on energy was narrow. The liberalisation directives in the field of gas and electricity had not yet been adopted.[1111] Pieces of law adopted in this area mostly related to security of energy supply, in particular to deal with oil crises.[1112] A key act was the Hydrocarbon Licensing Directive 94/22/EC which was adopted two years after the 1992 Proposal.[1113] This Directive, which is still in force today, has aimed facilitate the prospection, exploration and production of indigenous hydrocarbon reserves, by laying down the conditions for granting and using authorisation for prospection, exploration and production activities related to hydrocarbons.[1114] This objective was thus at odds with environmental protection. Directive 94/22/EC has been recently amended by the Energy Climate Governance Regulation.[1115] The liberalisation of energy markets started only in 1996. It took place pursuant to

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[1108] Article 194 TFEU (see *Infra*, Chapter 4, Section 5). On the difficulty to harmonise EU energy law see K. Talus, *EU Energy Law and Policy*, *op. cit.* Chapter 2; J. FISHBANE, 'Troubled evolution of energy policy in the eec: A discordant note in the harmonization process', *Akron Law Review*, 1994., vol. 27, n° 4, pp. 301-354. D.L. Hancher, « A Single European Market for Oil and Gas - The Legal Obstacles », *Journal of Energy & Natural Resources Law*, 1990, vol. 8, p. 29.

[1109] K. TALUS, *EU Energy Law and Policy*, *op. cit.*, p. 107.

[1110] S.-L. PENTTINEN, *Free movement and the energy sector in the European Union*, *op. cit.*, p. 50; J. SLOT, 'Energy and Competition', *op. cit.*, p. 511.This is confirmed by the absence of EU competence in this area, until the Lisbon Treaty was adopted (Article 194). See *Infra*, Chapter 4, Section 5.

[1111] See Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity, OJ *L 27,* 30 January 1997, p. 20–29. In the field of gas see Directive 98/30/EC of 22 June 1998 concerning common rules for the internal market in natural gas, *OJ L 204, 21* July *1998, p. 1–12.*

[1112] For instance, Regulation 1893/79, which introduced registration obligations for crude oil and petroleum products, was introduced in response to the 1979 oil crisis. 'Present oil shortages, though small overall, are leading to very sharp increases in the cost of marginal supplies on spot markets, and are causing some unequal distribution within countries. If the shortages continue, they will make it more difficult to 'build up stocks to an acceptable level' before next winter.' Council Regulation (EEC) No 1893/79 of 28 August 1979 introducing registration for crude oil and/or petroleum product imports in the Community, OJ L 220, 30 August 1979, p. 1–2.

[1113] Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons, *OJ L 164, 30 June 1994, p. 3–8*. About this directive see K. TALUS, *EU Energy Law and Policy*, *op. cit.*, pp. 53-59; S. KANKELY, B. WESTBROOK et P. WARNE, 'The EU Hydrocarbon licensing directive', *Oil & Gas Law & Taxation Review*, 1994, n° 12, pp. 283-6.

[1114] *Ibid*, Recitals.

[1115] Regulation 2018/1999, *op cit.*, Article 46.

a step-by-step approach through the implementation of successive packages, which in line with the 'autonomy frame'.[1116]

In the field of electricity and gas, the first package in the late 1990s launched a process of gradual restructuration of the market.[1117] It intended to separate electricity generation and sales from electricity transmission and distribution (known as unbundling). However, in line with the 'autonomy' frame, it left a great leeway to Member States, which resulted in uncoordinated national frameworks.[1118] This led to the implementation of a second energy package.[1119] This package, which was negotiated at the time of the EU-ETS, accelerated the liberalisation of the energy market. Notably, it deepened the unbundling of electricity supply and sought to increase competition on the wholesale and retail energy supply market, guarantee third party access to infrastructure and monitor transmission and distribution networks.

The second package entailed a number of shortcomings.[1120] It failed to meet its objectives, given that some consumers experienced higher tariffs than in the past and that discrimination for firms in access to the network persisted. Based on this backdrop, the EU adopted a third energy package in 2009.[1121] With this new package, it continued the liberalisation of the electricity and gas markets by seeking to improve competition conditions and the level playing field. It also pursued environmental protection, notably through the integration of renewable energy into the electricity market. This process continued on with the adoption of the 'Winter Package' of 2016.[1122] This package contained a series of proposals increasing the liberalisation process in the

[1116] For an overview see G. BLOCK et E. SAITOVA, 'Electricity and gas markets', *in* R. LEAL-ARCAS et J. WOUTERS (eds.), *Research handbook on EU energy law and policy*, Research handbooks in European law, Cheltenham, UK, Edward Elgar Publishing, 2017.
[1117] Directive 96/92/EC, *op. cit*. In the field of gas see Directive of 22 June 1998 concerning common rules for the internal market in natural gas, OJ L 204, 21 July 1998*, p. 1–12*.
[1118] G. BLOCK et E. SAITOVA, 'Electricity and gas markets', *op. cit.*, p. 257 & f.
[1119] Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC - Statements made with regard to decommissioning and waste management activities, OJ L 176, 15 July 2003, p. 37–56. In the field of gas see Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/ECOJ L 176, 15 July 2003, p. 57–78.
[1120] Commission of the European Communities (2007). Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report). Brussels 10 January 2007, COM (2006)851 Final.
[1121] *Inter alia* Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, OJ L 211, 14 August 2009, p. 55–93; Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003, OJ L 211, 14 August 2009, p. 15–35 ; Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators, OJ L 211, 14 August 2009, p. 1–14.
[1122] See M. RINGEL et M. KNODT, 'The governance of the European Energy Union: Efficiency, effectiveness and acceptance of the Winter Package 2016', *Energy Policy*, January 2018, vol. 112, pp. 209-220.

field of energy and gas. It also kept on integrating environmental protection in the field of energy and addressed new issues, such as prosumers.[1123]

As part of the Winter Package, the EU enacted the aforementioned Energy Governance Regulation.[1124] This regulation has been intended to increase the integration of climate and energy policies. It 'creates integrated structures for planning, reporting and review of climate and energy policy', [1125] *inter alia* by requiring Member States to adopt integrated national energy and climate plans and long-term strategies.[1126] These acts must integrate the five dimensions of energy policy: energy security, internal energy market, energy efficiency, decarbonisation, and research, innovation and competitiveness.[1127] This list largely mimics article 194 of the TFEU. While it establishes energy efficiency and decarbonisation as the relevant objectives EU energy policy, the Regulation leaves Member States with the discretion to balance the five objectives, which is in line with the 'autonomy' frame. Member States' margin of appreciation is not absolute; the more stringent the decarbonisation and energy efficiency target is, the more limited the room for prioritising other goals.

The Energy and Climate Governance Regulation also integrates, amends, replaces and withdraws a number of planning, reporting and monitoring obligations which were contained in prevailing energy legislation, with a view to ensuring a 'streamlined and integrated approach to the main planning, reporting and monitoring strands'.[1128] However, this act did not go so far as revising all EU act that could be considered as contrary to the EU climate objectives, such as granting licenses for hydrocarbon prospection, exploration and production of hydrocarbon, instead of leaving them in the ground.[1129] In all, the Energy and Climate Governance Regulation strengthens the link between energy and climate but does not fully assimilate them. To put this another way,

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[1123] About the regulation of prosumers see T.G. ILIOPOULOS, 'Regulating Smart Distributed Generation Electricity Systems in the European Union', *in* L. REINS (ed.), *Regulating New Technologies in Uncertain Times*, 32, Information Technology and Law Series, The Hague, T.M.C. Asser Press, 2019, pp. 153-171, available at http://link.springer.com/10.1007/978-94-6265-279-8_9 (Last consulted on 2 June 2022).
[1124] About this framework see K. KULOVESI et S. OBERTHÜR, 'Assessing the EU's 2030 Climate and Energy Policy Framework', *op. cit.*; M. VANDENDRIESSCHE, A. SAZ-CARRANZA et J.-M. GLACHANT, *The Governance of the EU's Energy Union: Bridging the Gap?*, *op. cit.*
[1125] K. KULOVESI & S. OBERTHÜR, 'Assessing the EU's 2030 Climate and Energy Policy Framework', *op. cit.*, p. 153.
[1126] Integrated Climate and Energy Plans are ruled by Chapter II, and long-term strategies by Article 15.
[1127] *Ibid*, Article 1, § 2.
[1128] *Ibid*, Recitals § 70. As noted by M. PEETERS et D. MISONNE, 'The European Union and its rule creating force at the European continent for moving to climate neutrality in 2050', *op. cit.*, this mimics managerial approach of the Paris agreement.
[1129] H. VAN ASSELT, 'Governing fossil fuel production in the age of climate disruption: Towards an international law of 'leaving it in the ground'', *Earth System Governance*, September 2021, vol. 9, p. 100118.

while this Regulation displays the objective to enhance the integration between energy and climate, it also acknowledges that these two fields of law differ.

To summarise these descriptions, two points can be emphasised. The first one is that EU secondary law in the field of energy has been dominated by the 'autonomy' frame, which is in line with EU primary law. The prevalence of the 'autonomy' frame in the field of energy underlines a divergence between this field of law and responding to climate change according to the 'economic efficiency' frame. Secondly, legislation in this field has pursued a wealth of objectives that are not always easy to reconcile with climate change mitigation. This is also in line with primary law. These two elements explain the difficult interplay between energy and climate. It also underlines that a climate exceptionalism approach does not fit well in this area.

3.2. **The Mineral Oils Directives**

The first directives in the area of energy taxation were the General Arrangement Directive 92/12/EC and the Mineral Oils Directives 92/81/EC and 92/82/EC.[1130] The 1992 CO_2/energy tax Proposal was drafted just after the adoption of these directives, which therefore represent a key element of its legal environment. The General Arrangement Directive set out the rules on determination of the chargeability of excise duties in general whilst the latter two dealt with the tax elements of mineral oils in particular, including their tax rates. The legal basis of these acts was the internal market, which suggests the predominance of the 'free market and fair competition' frame. The operation of excise duties by Member States was viewed as an obstacle to the internal market, as it implied setting up physical controls at the border.[1131] An EU harmonised framework aimed to address this question. However, the 'free market and fair competition' frame was not the only frame employed. The 'autonomy' frame shaped some key elements of the system, including the stepwise approach followed, the use of minimum rates and the facultative derogation.

The harmonisation of mineral oils taxation was made according to a stepwise approach. It was part of a broader process aiming to harmonise duties on different products (*e.g.* alcohol and tobacco). The focus on mineral oils was justified by the volume of revenues collected, which engendered a high risk of economic distortion. The reference to economic distortion matches with the 'free market & fair competition' frame. In addition, energy taxes accounted for a

[1130] *Op. cit.*
[1131] Commission of the European Communities, White Paper, Completing the Internal Market, Brussels, 14 June 1985, COM(85) 310 final, p. 45, § 179-182.

significant share of firms' end price and hence their disparities created considerable distortion of competition between firms.[1132] This argument also corresponds to the 'free market and fair competition' frame. Directive 92/81/EC defined mineral oil products according to an exhaustive list, demarcating them on the basis of CN codes, that is, a system that categorises products for the purpose of applying tariffs.[1133] This can be viewed as an application of the *building blocks hypothesis*. The scope of the proposal was restricted to harmonisation of mineral oil products used in transport or as heating fuel.[1134] This line of demarcation is based on the criterion of competition which also matches with the 'free market & fair competition' frame.

Directive 92/81/EEC also set out common design elements for excise duties on mineral oils, including tax exemptions or reductions.[1135] These derogations were adopted in light of domestic tax policies, corresponding to predominant practices at national level.[1136] The role of national practices in shaping EU law is an example of vertical interaction. Some of these derogations were mandatory, and thus applicable uniformly across the EU. These encompassed energy uses for purposes other than heating and transport, as well as for commercial aviation and commercial navigation.[1137] Most derogations, however, were facultative, pursuant to the 'autonomy' frame, including passenger and goods transport, agricultural work and renewable energy.[1138] The Directive also allowed the Council to authorise, upon unanimity, Member States to introduce additional exemptions or reductions for specific policy considerations.[1139] This clause further highlights the significance of the 'autonomy' frame, as the Council immediately granted fifty derogations.[1140]

The mandatory exemption of commercial aviation and commercial navigation, pursuant to the 'free market & fair competition' frame, has prevented the adoption of national taxes levied on energy used for the purpose of commercial navigation, including when they pursue an

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[1132] Two-thirds of the price of petrol and half of the price of gasoil. *Ibid*, p. 53, § 24.
[1133] Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff, OJ L 256, 7 September 1987, p. 1–675. This represented the 'only agreed and legally established inventory of products which can be used for fiscal products '. Commission of the European Communities, Proposal for a Council Directive, on the harmonization of the structures of excise duties on mineral oils, Brussels, 7 November 1990, COM(90) 434 final, p. 8.
[1134] Council Directive 92/81/EEC, *op. cit.*, Article 2, § 2.
[1135] *Ibid*, Article 8. These were added to the general exemptions set by the Directive 92/12/EEC.
[1136] Commission of the European Communities, Proposal for a Council Directive on the harmonization of the structures of excise duties on mineral oils, Brussels 7 November 1990, COM(90)434 final. See also Commission of the European Communities, Taxation of Petroleum Products, 11 September 1981, COM(81)511, pp. 12-13.
[1137] Directive 92/81/EEC, Article 8, § 1.
[1138] Directive 92/81/EEC, *op. cit*, Article 8, § 2.
[1139] *Ibid*, Article 8, § 4.
[1140] D. BERLIN *& al.* (eds.), *Politique fiscale*, *op. cit.*, p. 535.

environmental purpose. The case *Braathens Sverige AB v. Riksskatteverket* illustrates this point.[1141] This decision dealt with the question of whether the above exemptions prevented Member States (in this case Sweden) from adopting an environmental tax on domestic commercial aviation.[1142] The litigated tax was calculated on fuel consumption and emissions of hydrocarbons and nitric oxide. The claimant contended that this was a violation of Directive 92/81/EEC. Sweden's argument was that the litigated tax was not charged directly on fuel consumption but on the polluting emissions from aircraft, and therefore fell outside the scope of the mandatory exemption.[1143]

The Court, on the contrary, followed a different line of reasoning. It first ruled that there was a 'direct and inseverable link between fuel consumption and the polluting substances' and hence that the tax had to be regarded 'as levied on consumption of the fuel itself for the purposes of Directives 92/12 and 92/81'.[1144] It then concluded that 'To allow the Member States to levy another indirect tax on products which, as in this case, must be exempted from harmonised excise duty under Article 8(l)(b) of Directive 92/81 would render that provision entirely ineffective'. Therefore, it concluded that the litigated tax violated EU law.

Directive 92/82/EEC, on the other side, approximated the rates of excise duties on mineral oils.[1145] The Commission followed a common method to determine the tax rates, based on the arithmetic average of national tax rates.[1146] It implied determining individually for each product category the arithmetic average of national taxes on that product.[1147] The purpose was twofold: firstly to be 'suited to the product sector concerned', which suggests that the 'free market & fair competition' frame is employed (comparison based on competition), and secondly, to be 'consistent as far as possible with the current general practice in the Member States.[1148] This is another occurrence of a vertical interaction between national and EU law. The arithmetic average

[1141] CJEU, Braathens Sverige AB and Riksskatteverket, op. cit. The mandatory exemption in favour of aviation was also challenged in the case Deutsche Bahn AG v. Commission, inter alia against the principle of equal treatment. CJEU, 5 April 2006, T-351/02. A similar judgement was rendered with respect to Value Added Tax (VAT). See CJEU, Idéal tourisme, 13 July 2000, C-36/99. Note that the case assessed the compatibility of the Swedish legislation with the Directive 92/81/EEC. About this case see A. PIRLOT et S. WOLFF, 'The Impact and Role of Indirect Taxes Surrounding the Aviation Sector in Mitigating Climate Change: A Legal and Economic Analysis', *op. cit.*
[1142] This case took place in the context of the Directive 92/81/EC. This Directive established an exemption of 'mineral oils supplied for use as fuels for the purpose of air navigations other than private pleasure flying' (article 8, § 1, b). Unlike the ETD, Directive 92/81/EEC did not allow the taxation of domestic or intra-EU aviation fuel.
[1143] CJEU, Braathens Sverige AB and Riksskatteverket, *op. cit.*, § 16.
[1144] *Ibid*, § 23.
[1145] Directive 92/82/EEC, *op. cit.*
[1146] *Ibid*, p. 3, § 7.
[1147] Commission of the European Communities, Proposal for a Council Directive on the approximation of the rates of excise duty on mineral oils*, op. cit.*, p. 3, § 5-6.
[1148] *Ibid.*

was discarded where there was a 'convincing reason' that it would not lead to the expected results.[1149]

The consequence of the above arithmetic approach is that the Directive did not set the tax rates in accordance with a uniform criterion across energy products (*e.g.* calorific or CO_2 content). Member States tax policies indeed pursued many policy objectives in addition to revenue collection. They were also largely influenced by historical patterns.[1150] In the end, Directive 92/82/EEC differentiated the rates both between product categories and between energy uses, distinguishing between motor fuel, heating fuel, and industrial and commercial uses (Table 12).[1151] Motor fuel was taxed at a higher rate than the other categories, in light of Member States' existing practices.[1152] The Directive also differentiated between leaded and unleaded petrol.[1153]

Type of energy product	**Minimum rate level in ECU/1000l**
Leaded petrol	337
Unleaded petrol	287
Kerosene	As propellant: 245
	As heating fuel: 0
	Industrial & Commercial purpose: 18
Gasoil	As propellant: 245
	As heating fuel: 18
	Industrial & Commercial purpose: 18

Table 12 Minimum rate levels of taxes as set by the Directive 92/82/EEC

As a result of the above, the tax rate determination did not totally converge with the 'free market & fair competition' frame. It also differed from the 'economic efficiency' frame, even though the distinction between some uses could be justified by higher externalities (*e.g.* in transport). This was reinforced by the fact that the rates set out by Directive 92/82/EEC consisted of mere minima, pursuant to the 'autonomy' frame. This was intended both to guarantee Member States'

1149 *Ibid.*
1150 Commission of the European Communities (1987). Proposal for a Council Directive on the approximation of the rates of excise duty on mineral oils, Brussels, 21 August, COM(87) 327 final/2, p. 2, § 4. Commission of the European Communities, Amended Proposal, *op. cit.*, p. 3, § 6.
1151 This last category corresponds to Article 8, § 3 of the Directive 92/81/EEC, *op. cit.*
1152 In another Communication, the Commission underlined that 'Unlike other forms of energy (coal, gas and electricity) on which there are virtually no taxes other than VAT (which is charged only on final on petroleum products there are specific charges (excise duty on mineral oils) which can be quite heavy.' It also noted that they are heavier on transport fuel than on heating fuel because they yield revenues. Commission of the European Communities (1981). Taxation of Petroleum Products, *op. cit.*, p. 4.
1153 Commission of the European Communities, Proposal for a Council Directive on the approximation of the rates of excise duty on mineral oils, *op. cit.*, p. 7.

flexibility to determine their tax policies and to take into account their differences.[1154] In addition, in light of the disparities across Member States, some of them were granted a transitional period, during which they were allowed to derogate from the tax rates laid down by the Directive.[1155]

3.3. **The ETD**

The ETD currently harmonises the taxation of the main energy products in the EU.[1156] This Directive was adopted after a long process of six years of negotiations, unlike the ETS Directive which was adopted at the same time but after three years of negotiation.[1157] It repealed and replaced the aforementioned Mineral Oils Directives, but did not overhaul the tax arrangements established by these directives.[1158] Identical frames predominated in both frameworks, oscillating between 'free market & fair competition' and 'autonomy' frames. The main difference is that the ETD has provided a more comprehensive framework and better implements the 'free market & fair competition' frame. Other frames have played a smaller role. Although the recitals of the Directive established that 'The taxation of energy products and, where appropriate, electricity is one of the instruments available for achieving the Kyoto Protocol objectives'[1159] the ETD has been repeatedly criticised for its negative impacts on the environment.[1160]

Like the Mineral Oils Directives it replaced, the ETD was based on the internal market competence. This suggests the preponderance of the 'free market & fair competition' frame. The ETD responded to the risk caused by disparities between national tax policies for the 'unity of the internal energy market' and for the liberalisation of energy markets started in Directive

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[1154] *Ibid* pp. 3-4. See also Council Directive 92/82/EEC, *op. cit.*, Article 1. This is why the term approximation was used instead of harmonisation. Actually, the use of minimum rates was initially conceived as temporary, representing a first step towards a full harmonisation of the tax rates, but this idea changed in the course of the legislative process.
[1155] See Council Directive 92/82/EEC, *op. cit.*, Article 3, 5 and 9.
[1156] About the Directive see D. BERLIN *et al.* (eds.), *Politique fiscale*, *op. cit.*, nos 991-992; A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*; J. VAN EIJNDTHOVEN, 'Energy Taxation at European Level: What does it do for the Environment and Sustainability?', *op. cit.*; I. SCHLEGEL, 'The Future of European Energy Taxes in the Context of Environmental Policy Instruments', *op. cit.*; K. DEKETELAERE, 'EC transport policy and environment and energy taxation.', *op. cit.* B.J.M. TERRA et P.J. WATTÈL, *European tax law*, Alphen aan den Rijn, The Netherlands : Frederick, MD, Kluwer Law International; Sold and distributed in North, Central and South America by Aspen Publishers, 2012, chap. 7; COTTRELL, J., « Everyone's a winner with the new Energy Tax Directive », *International Tax Review*, 2012, vol. 22, n° 10, pp. 55-56. See also EUROPEAN COMMISSION. DIRECTORATE GENERAL FOR TAXATION AND CUSTOMS UNION & DELOITTE., *Technical and legal aspects of Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity: final report.*, LU, Publications Office, 2019, available at https://data.europa.eu/doi/10.2778/91076 (Last consulted 2 June 2022).
[1157] As emphasised by the Court in Arcelor de Lorraine, *op. cit.*
[1158] Directive 2008/118/EC, *op. cit.*
[1159] ETD, Recital, § 7.
[1160] Notably J. VAN EIJNDTHOVEN, 'Energy Taxation at European Level: What does it do for the Environment and Sustainability?', *op. cit.*; A. PIRLOT, 'Exploring the impact of EU law on energy and environmental taxation', *op. cit.*

2018/2001 in the field electricity and natural gas.[1161] Differences between national tax laws also created problems of tax competition, preventing certain Member States from introducing or raising taxes and distorting markets.[1162] These objectives are consistent with the 'free market & fair competition' frame and highlight the links between energy taxation and energy law.

The ETD applies to an exhaustive list of products used for transport and heating purposes.[1163] Its scope is broader than the Mineral Oils Directives it replaced, covering the main energy products including mineral oils, coal, natural gas and electricity. This larger scope of the ETD has redefined the respective roles of the 'autonomy' and 'free market & fair competition' frames; in the latest Directive, the 'free market & fair competition' has been attributed a greater role than in the Mineral Oils Directives. Similar with the previous scheme, energy products have been demarcated on the basis of CN Codes, as an application of the *building block hypothesis*.[1164] In the same vein, it is the marketability of an energy product that conditions their taxation, building on the framework of the General Arrangement Directive 2008/118/EC. This is another application of the *building block hypothesis*.[1165] These rules correspond to the 'free market & fair competition' frame.

A contrario, the ETD does not apply to energy uses other than heating and transport (*e.g.* raw materials),[1166] nor to the dual use of energy products (e.g. chemical reduction, metallurgical processes) or to energy used in mineralogical processes and to heat (*e.g.* cement industry).[1167] In addition, electricity is excluded from the scope of the ETD when it accounts for more than half of the cost of a product, nor does it apply to mineralogical processes.[1168] The taxation of these products and uses falls under the discretion of Member States and is thus dominated by the

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[1161] Commission of the European Communities (1997). Proposal for a Council Directive restructuring the Community Framework for the Taxation of Energy Products, 12 March, COM(97) 30 final, p. 3.
[1162] In this regard, the explanatory memorandum stated: it is undeniable that the lack of harmonisation between Member States for the same fuels directly causes distortions on the markets and affects the choices of consumers and firms. This is particularly true in frontier areas, where there is evidence of relocation of the consumption of motor fuels and heating fuels. Commission of the European Communities (1997). Proposal for a Council Directive restructuring the Community Framework for the Taxation of Energy Products, *op. cit.*, p. 3.
[1163] Energy Taxation Directive, Article 2, §§ 1-2. The exhaustivity of this list has been confirmed by the Court in CJEU, Kernkraftwerke Lippe-Ems GmbH v Hauptzollamt Osnabrück, 4 June 2015, C-5/14, § 47; CJEU, Elecdey Carcelen SA, Energías Eólicas de Cuenca SA, Iberenova Promociones SAU, Iberdrola Renovables Castilla La Mancha SA v. Comunidad Autónoma de Castilla-La Mancha, 20 September 2017, joined cases C-215/16 - C-221/16, § 46. In this case, the Court also clarified that a tax on wind turbines, as the one levied in casu, is not a tax on electricity.
[1164] ETD, in particular Article 2.
[1165] Directive 2008/118/EC, *op. cit.*, Article 7, § 1. Specific cases are determined by Energy Taxation Directive, Article 21.
[1166] European Commission, Proposal for a Council Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity, *op. cit.*, p. 7.
[1167] As underscored by J. van Eijndthoven (2011). *op. cit.*
[1168] ETD, Article 2(4).

'autonomy' frame. The *Fendt* judgement illustrates this point.[1169] In that case, the Court specified that Member States remain free to impose a tax on the consumption of lubricating oils which are 'intended for use, offered for sale or used other than as motor fuels or as heating fuels' as these uses are not covered by the ETD.[1170] The same applies to nuclear energy, which further underlines its peculiarity compared to other energy sources.[1171] In the *Kernkraftwerke* case, the Court confirmed that nuclear energy does not need to be exempted from energy even when it is used to produce electricity.[1172]

The General Arrangement Directive is also relevant in determining national energy taxes.[1173] This Directive applies, among other things, to energy products and electricity covered by the ETD; in other words, if a product does not fall within the scope of the ETD, neither does it fall within the scope of the General Arrangement Directive.[1174]Article 1, § 2 of the aforementioned Directive authorises Member States to levy 'other indirect taxes for specific purposes' other than harmonised excise duties on these products.[1175] In that case, the tax in question must comply with two conditions: to pursue one or more specific purposes and comply with the excise duty or VAT rules with respect to determination of the tax base, calculation of the tax and its chargeability and monitoring but not with respect to provisions on exemptions.[1176] It is generally accepted that environmental protection is such a 'specific purpose'. Nonetheless, these rules empower the Court to control the legality of these taxes, in particular whether they are 'genuinely' related to the goal they pursue.[1177] On these grounds, Member States have been allowed to adopt separate taxes on the CO_2 content of energy products.[1178]

Whereas air and maritime navigation are covered by the ETD, Member States must exempt fuels used in international commercial activities from energy taxes. The ETD, in effect, contains a mandatory exemption for 'energy products supplied for use as fuel for the purpose of air

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[1169] CJEU, Fendt Italiana Srl v. Agenzia Dogane – Ufficio Dogane di Trento, 5 July 2007, Joined cases C-145/06 and C-146/06.
[1170] *Ibid*, §§ 37-38 and 43-45.
[1171] See *Infra*, Chapter 4, 5.3.
[1172] CJEU, Kernkraftwerke Lippe-Ems, *op. cit*. See also CJEU, OKG AB v. Skatteverket, 1 October 2015, C-606/13.
[1173] Directive 2008/118/EC, *op. cit*.
[1174] *Ibid*, Article 1, § 1. CJEU, OKG AB v. Skatteverket, *op. cit*., § 42
[1175] Previously article 3 (2) of Directive 92/12/EC.
[1176] *Transportes Jordi Besora SL* v. *Generalitat de Catalunya*, § *op. cit*., 21-22.
[1177] CJEU, *Messer France SAS* v. *Premier Ministre, Commission de régulation de l'énergie, Ministre de l'Economie et des Finances, Ministre de l'Environnement, de l'Energie et de la Mer*, 25 July 2018, C-103/17; On this topic see F. Pitrone (2015). Defining 'Environmental Taxes': Input from the Court of Justice of the European Union. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2567311. See also A. PIRLOT (2020). Exploring the impact of European Union Law on Energy and Environmental Taxation, *op. cit*.
[1178] *Eg.* Second made in attempt of France, discussed Infra in Chapter 1, 3.2.

navigation other than in private pleasure-flying'.[1179] A similar exemption exists with respect to maritime transport.[1180] On the other hand, excise duties may be imposed on private jet fuels (aviation) as well as on fuels used in domestic and intra-community flights and navigation.[1181] These mandatory exemptions have roots in international obligations and are thus an example of vertical interaction.[1182] They are broadly similar with those prevailing in the Mineral Oils Directive, to the difference that the former did not make a distinction between domestic and intra-community on the one hand and international flights on the other.

The ETD's establishment of the tax rates responded both to the 'free market & fair competition' and 'autonomy' frames. As a matter of principle, the purpose was to have the rates reflect the competitive position of energy products and to calculate the minimum levels as far as possible on the basis of the products' energy content.[1183] These criteria respond to the 'free market & fair competition' frame. However, this idea was discarded in the case of motor fuels, as they were generally taxed at a higher level by Member States, which is an example of vertical interaction.[1184] In all, the ETD maintained the prevailing categories under the Mineral Oils Directives, differentiating the tax rates between motor fuel, motor fuel used for certain industrial and commercial purposes and heating fuels.[1185] The consequence is that the energy content has not been imposed at the same rate across all energy products and uses (Table 13).[1186] The role of the 'autonomy' frame further appeared from the use of minimum rates, similar with the Mineral Oils Directives.[1187]

[1179] ETD, Article 14, § 1, b. On the concept of commercial flights see CJEU, Systeme Helmholz GmbH v Hauptzollamt Nürnberg, 1 December 2011, C-79/10.
[1180] *Ibid*, Article 14, § 1, c.
[1181] *Ibid*, Article 14, § 2. See also, European Commission, Commission staff working document - Annex to the Communication from the Commission: 'Developing the agenda for the Community's external aviation policy', 11 March 2005, COM(2005)79 final.
[1182] International Civil Aviation Organization (ICAO), *Convention on International Civil Aviation*, 7 December 1944, article 24(a); Decision 2007/339/EC of the Council and the Representatives of the Governments of the Member States of the European Union, meeting within the Council of 25 April 2007 on the signature and provisional application of the Air Transport Agreement between the European Community and its Member States, on the one hand, and the United States of America, on the other hand, OJ L 134, 25 May 2007, p. 1–3.
[1183] Commission of the European Communities (1997). Proposal for a Council Directive restructuring the Community Framework for the Taxation of Energy Products, *op. cit.*, p. 3.
[1184] *Ibid.* Also ETD, Recital, § 18.
[1185] *Ibid.* See also ETD, Recital, § 18: "Energy products used as a motor fuel for certain industrial and commercial purposes and those used as heating fuel are normally taxed at lower levels than those applicable to energy products used as a propellant."
[1186] Based on European Commission, Commission Staff Working Paper Impact Assessment *Accompanying document to the* Proposal for a Council Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity, vol. 1, *op. cit.*, pp. 8-9, which concludes: 'The table clearly shows that there is no consistent treatment of energy sources in the ETD.'
[1187] ETD, Article 4.

Type of energy use and electricity	Type of energy product	Minimum rate level	Calorific content (in euro per GJ)
Transport fuel	Unleaded petrol	359 (euro per 1000 l)	11
	Gasoil	330 (euro per 1000 l)	8.9
	Natural gas	2.6	2.6
Heating fuel	Gasoil	21	0.6
	Natural gas[1188]	Business use: 0.15	0.15
		Non business use: 0.3	0.3
Industrial & commercial purposes	Gasoil	21	0.6
	Natural gas[1189]	0,3	0.3
Electricity		Business use: 0,5/MWh	0.15
		Non business use: 1/MWh	0.3

Table 13 Minimum rates & correspondence in terms of calorific content, based on Commission Staff Working Paper Impact Assessment, SEC(2011) 409 final

Pursuant to the 'autonomy' frame, the ETD has also preserved Member States' autonomy in tax matters, through the introduction of facultative tax reductions.[1190] It was also clear that 'Member States should be given the flexibility necessary to define and implement policies appropriate to their national circumstances'.[1191] The number of facultative derogations allowed by the Directive is impressive. Many of them express an economic objective, such as the derogations in favour of energy-intensive industries, whilst others have pursued an environmental objective (*e.g.* in favour of renewable energy) or a social objective (*e.g.* in favour of charitable households and organisations).[1192] As a fill-in clause, Article 19 of the ETD stipulates that 'The Council, under certain conditions, may authorise any Member State to introduce further exemptions for specific policy considerations'. The Directive has also provided for derogations, primarily through transitional periods, in favour of certain Member States.[1193]

The tax treatment of electricity further illustrates the role of the 'autonomy' frame in the ETD.[1194] The EU's choice has been to tax electricity as an output and exempt from taxation products used to produce electricity (mandatory exemption).[1195] This approach was viewed as 'the only means

[1188] In euro per gigajoule gross calorific value.
[1189] In euro per gigajoule gross calorific value.
[1190] *Ibid*, Article 15.
[1191] ETD, Recitals, § 9.
[1192] These are detailed *Infra* in Chapter 9.
[1193] ETD, Article 18.
[1194] Note that the specificity of electricity already appeared from the title of the Directive itself, with refers to the 'taxation of energy products *and* electricity'.
[1195] Energy Taxation Directive, Article 14 (a).

by which the tax burden on energy-intensive industry can be reduced'.[1196] Output taxation, it was noted, also allows to differentiate between business and non-business use.[1197] These economic considerations have, however, prevailed over the objective of environmental protection. The Commission recognised that taxing electricity as an output was not well suited to pursuing environmental purposes,[1198] as it does not allow for differentiating tax rates based on environmental characteristics of electricity inputs.[1199] This was left to the discretion of Member States, which have been permitted to derogate from the mandatory exemption in favour of energy products used to produce electricity so as to protect the environment.[1200]

4. CONCLUSION

The first step of the exposé above provided glimpses of EU climate law, including its energy dimension. Then, in a second step, I conducted a deeper analysis of the regulation of CO_2 emissions from heavy duty vehicles and passenger cars. These analyses have shown that despite the growing importance of the issue of climate change, 'economic efficiency' has never played a central role outside the EU-ETS.

The surface analysis of EU climate law shows that three periods followed one after another. The first period (prior to the 2020 Climate and Energy package) was largely unrelated to climate change. During this period, the 'autonomy' frame prevailed. On the other side, environmental protection within the IPPC Directive was understood in an integrated way. The second period followed the adoption of the 2020 Climate and Energy Package. This package institutionalised a divide between energy and climate, while nevertheless seeing them as interrelated, and also a divide between the ETS and non-ETS sectors. In these different bodies of rules, distinct frames were used. Yet there was a common point in that the 'developmental – fairness' frame and the 'autonomy' frame both played a preponderant role, outside the framework of the EU-ETS. The last period, following the 2030 Package has deepened these differences, by introducing a new pillar (LULUCF). It has also responded more seriously to the problem of climate change.

[1196] Commission of the European Communities (1997). Proposal for a Council Directive restructuring the Community Framework for the Taxation of Energy Products, *op. cit.*, p. 5.
[1197] In the first case, it was set at a level of 1 euro/MWh while in the second it accounts 0.5 euro/MWh. See Annex Table c. Compared on the basis of energy content means 0.3 euro per GJ for non-business use and 0.15 euro per GJ; in comparison, petrol as motor fuel is 11 euro per GJ and gasoil is 8.9.
[1198] Commission of the European Communities (1997). Proposal for a Council Directive restructuring the Community Framework for the Taxation of Energy Products, *op. cit.*, p. 5.
[1199] *Ibid.* On this issue see CJEU, Outokumpu Oy, *op. cit.*
[1200] ETD, Art. 14 and 15, 1, b. The Directive also allows Member States to 'refund to the producer some or all of the amount of tax paid by the consumer on electricity produced from products specified in paragraph 1(b)'. (Art. 15, 2).

In the current state of the law, the role of the 'economic-efficiency' frame has remained limited outside the EU-ETS. The European Climate Law seems to put the 'developmental & fairness' frame and the 'economic efficiency' frame on an equal footing in order to achieve carbon neutrality by 2050. The question is how to reconcile these apparently contradictory frames? Is revenue recycling enough to hold its own against the choice to distribute emission reduction efforts where they are the cheapest? In my view this would give precedence to the 'economic efficiency' frame, which contrasts with the current state of both primary and secondary law. The target for 2040 shows that other frames will also have a role to play, which tends to diminish the role of the economic efficiency frame. Finally, it can also be seen, both in older legislation such as the IPPC directive and in more recent legislation (*e.g.* the European Climate Law and the Taxonomy), that the interaction between climate change and other environmental problems is an important issue. In this regard, it is questionable whether the 'climate exceptionalism' approach endorsed by EU law is consistent with these concerns and hence should have a bright future.

The review of EU energy law, including its fiscal dimension, and how climate change has been integrated in this field brought me to the next point, pointing out the predominant role of the 'autonomy' and 'free market & fair competition' frames in this area, which is in line with the rules established by the Treaty in this field. This further underlines the limited role of the 'economic efficiency' frame outside the framework of the EU-ETS. These analyses also highlight the considerable evolution of EU legislation in relation to energy. The degree of harmonisation in the 1990s was much less advanced than in the 2000s. This means that the legal environments of the 1992 Proposal, of the 2011 Proposal and of the ETS Directive and the Revised ETS Directive were all quite different. Nonetheless, and this constitutes my next point, the current framework of the ETD has been at odds with climate mitigation objectives. From a consistency perspective, therefore, this means that this framework should be revised. Finally, we also see how the Mineral Oils Directives and the ETD have been interconnected with existing frameworks, which confirms the applicability of the hypothesis of interaction.

All of this further supports the case made at the outset of this research that the assumed straightforwardness and simplicity of a carbon tax is illusive. The analyses above indeed show that introducing in EU law a uniform carbon price, at the core of promoting carbon taxes to address climate issues, would face a triple challenge. It would require rethinking the existing legislation to respond to climate change, following the example of other climate legislation; it would require revising this existing legislation according to the 'economic efficiency' frame and finally, it would call for addressing interactions with the regulation of other issues, particularly

environmental ones. In this context, the introduction of a carbon tax in EU law seems neither simple nor straightforward, beyond the question of the unanimity in tax matters. The main frames across the different frameworks are summarised in Table 14 below.

Legislation	Distribution among	Comparability criteria	Frame
Effort sharing decision(s)	Member States	GDP (since 2018 adjustment based on cost-effectiveness) – solidarity, fairness, sustainable growth	Developmental – fairness; Autonomy (limited role of economic efficiency)
	Sectors (ETS-non ETS)	Cost effectiveness	Economic efficiency
LULUCF regulation	Member States	Same objective for each MS: net debit	Developmental – fairness; Autonomy (limited role of economic efficiency)
REDII	Member States	EU legislation Other renewable energy measures; Binding 2020 national target National circumstance - equitable distribution of deployment across the EU - economic conditions and potential, *e.g.* GDP per capita; - Cost-effectiveness - Geographical, environmental and natural constraints - Level of power interconnection - Other relevant circumstances	Autonomy; Developmental – fairness (limited role of economic efficiency)
REDI	Member States	Equal increase in each Member State's share adapted, modulated based on GDP, starting points, past efforts Different rules for island states	Developmental – fairness; Autonomy
	Sectors	Distinct system for transport	/
Energy efficiency directive	Member States	EU target Energy efficiency measures at EU and national level National circumstances, such as - cost-effectiveness - GDP - changes of energy imports and exports; - changes in the energy mix and the development of carbon capture and storage; - early actions.	Autonomy; Developmental – fairness (limited role of economic efficiency)
IPPC - IED	Firms	BATs (which takes into account cost-benefits)	Technology (limited role of economic efficiency)

Table 14 Frames and comparability criteria across direct climate legislation

Chapter 8: Zooming in, climate legislation in the field of transport

1. INTRODUCTION

After having scrutinised direct and indirect climate legislations in the EU broadly, I now wish to zoom in on the area of road transport. This enables me to better capture how the EU has responded to the problem of climate change, by digging into the details of GHG emission regulation and the integration of this challenge in a specific sector. The relevance of road transport is linked to the fact that the CO_2/energy tax proposals, unlike the EU-ETS covered this sector. My focus is first on the regulation of vehicle CO_2 performance (Section 2). Then, I turn to the integration of climate change considerations in the field of vehicle taxation and road pricing (Section 3). These analyses lead to similar findings as in Chapter 3. They underline that the 'economic efficiency' frame has not prevailed in the regulation of CO_2 emissions from road transport, even though this frame has been used more in this area than in others. The 'technology' frame, the 'free market & fair competition' frame and the 'autonomy' frame have played a greater role than 'economic efficiency'. This Chapter also underlines that various interactions have taken place between these legislations and their legal environment.

2. VEHICLE CO_2 EMISSION PERFORMANCE

This Section deals with the regulation of CO_2 emissions from vehicles through so-called 'vehicle performance standards'. I compare the rules applying to passenger cars and heavy-duty vehicles but I exclude from the scope of study light commercial vehicles. The reason is that these rules are extraordinarily technical and complex and I do not wish to bring unnecessary elements that will lose the reader. With these analyses, I show three key elements. Firstly, the measurement of CO_2 emissions from vehicles has been interconnected to the pre-existing framework on vehicles homologation (2.1). This illuminates the interplay between the legal response to climate change and its legal environment. Secondly, the regulation of CO_2 emissions from vehicles has not been framed according to 'economic efficiency' (2.2). Instead, these rules have been dominated by the 'technology' and by the 'free market & fair competition' frames. As a result, individual commitments of vehicle manufacturers have been differentiated to avoid distortion of competition. Thirdly, both the measurement of CO_2 emissions from vehicles and their regulation have been governed to distinct frameworks and subject to different rules.

2.1. **Measuring CO_2 emissions from vehicles**

The regulation of vehicle's CO_2 emissions has built on existing legislation, falling into the *building blocks hypothesis*. Vehicle type-approval has anchored the method to measure and certify CO_2 emissions. The CO_2 emissions level is indeed a necessary information to homologate certain vehicles, appearing on the certificate on conformity of the vehicle.[1201] In essence, EU type approval is a procedure conducted by national authorities, which are charged to certify the conformity of motor vehicles to administrative and technical requirements laid down by EU law.[1202] These requirements pertain to various aspects of the vehicle design including the permissible size, the engine, the brakes, the bodywork, etc.[1203] The original purpose of vehicle type approval was the completion of the internal market, which points at the role of the 'free market & fair competition' frame.[1204]

However, over time, these rules have addressed a wide range of objectives such as reducing accidents and environmental damage. This led to the introduction of security and environmental requirements.[1205] As regards environmental protection, type-approval emission requirements have been introduced for the emission of air pollutants by motor vehicle (Euro standards).[1206] By contrast, the regulation of CO_2 emissions has followed a different path, which suggests that the EU has embraced a climate exceptionalism approach. Vehicle air pollutants have been regulated through binding thresholds and may lead to the refusal of type approval, thus setting 'a dividing

[1201] Directive 70/156/EEC as amended by Commission Directive 2001/116/EC of 20 December 2001 adapting to technical progress Council Directive 70/156/EEC on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers, Annex IX, at 46.2 OJ L 18, 21 January 2002, p. 1–115; Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive), OJ L 263, 9 December 2007, p. 1–160, Annex I. Today see Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations 715/2007 and 595/2009 and repealing Directive 2007/46/EC, OJ L 151, 14.6.2018, p. 1–218, Annex I; Regulation 595/2009 of the European Parliament and of the Council of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information and amending Regulation 715/2007 and Directive 2007/46/EC and repealing Directives 80/1269/EEC, 2005/55/EC and 2005/78/EC, OJ L 188, 18 July 2009, p. 1–13.

[1202] Directive 70/156/EEC, *op. cit.*, Article 2b.

[1203] *Ibid*, Annex II.

[1204] F. PERALDI-LENEUF, 'L'homologation des automobiles en Europe : du laisser-Faire à la mise sous tutelle', *in* F. MARTUCCI et F. PICOD (eds.), *La circulation des automobilistes en Europe*, Collection Droit de l'Union européenne, n° 43, Bruxelles, Bruylant, 2018, p. 55.

[1205] *Ibid.*

[1206] See Regulation 715/2007/EC, *op. cit.*; Regulation 595/2009 of the European Parliament and of the Council of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information and amending Regulation (EC) No 715/2007 and Directive 2007/46/EC and repealing Directives 80/1269/EEC, 2005/55/EC and 2005/78/EC, OJ L 188, 18 July 2009, p. 1–13. See N. DE SADELEER, 'Harmonizing Car Emissions, Air Quality, and Fuel Quality Standards in the Wake of the VW Scandal', *European Journal of Risk Regulation*, 2016, vol. 7, n° 1, p. 14.

line between what is lawful and what is unlawful'.[1207] By contrast, as we shall see, CO_2 emissions have been been regulated through standards but according to an EU-wide target distributed among vehicle manufacturers.[1208]

The measurement of vehicles CO_2 emissions under vehicle type approval contains remarkably technical rules but they point at two central findings. The first finding is that this framework been fragmented. There are several reasons for this. Firstly, these rules do not apply to second-hand vehicles, which ultimately excludes them from CO_2 emission regulation at EU level. Instead, these vehicles fall under mutual recognition obligations set by articles 30-36 TFEU.[1209] Secondly, EU has lacked for a long time of a common framework to measure CO_2 emissions from heavy-duty vehicles. This was in contrast with the situation of passenger cars. This brings me to the second point: EU law has largely differentiated the rules applicable to passenger cars and heavy-duty vehicles. In particular, the measurement method has diverged and it does not cover all types of heavy-duty vehicles.

2.1.1. *Measuring CO_2 emissions from passenger cars*

As far as passenger cars are concerned, the method used to measure their emissions has been based for long on the New European Driving Cycle (NEDC).[1210] It is the method that was also used to measure air pollutants. The NEDC consists of a laboratory test, established by the United Nations during the 1970s for the urban part and in 1990 for extra-urban part.[1211] It was common knowledge from the outset that the NEDC was not intended to reflect real-world driving circumstances, which encouraged the Commission to start looking for a new method.[1212]

[1207] *Ibid.*, p. 15.

[1208] These different approaches are not without consequence as regards the margin left to Member States. Acts addressing the environmental risk of products, such as cars, are normally based on Article 114 TFEU. As such, these rules consist of exhaustively harmonised standards. This implies, in accordance with the judgement *Cassis De Dijon*, that Member States are no longer allowed to unilaterally set stricter requirements, given that their action is pre-empted. As a result Member States are in principle not allowed to unilaterally impose standards on vehicles CO_2 emissions as a condition for vehicle homologation. D. ZANNONI, 'Balancing market needs and environmental protection: Vehicle approval in the European Union', *Maastricht Journal of European and Comparative Law*, August 2018, vol. 25, n° 4, p. 505; N. de SADELEER, *EU environmental law and the internal market*, *op. cit.*, p. 159.

[1209] F. PERALDI-LENEUF, 'L'homologation des automobiles en Europe : du laisser-Faire à la mise sous tutelle', *op. cit.*, p. 64.

[1210] Directive 93/116/EC of 17 December 1993 adapting to technical progress Council Directive 80/1268/EEC relating to the fuel consumption of motor vehicles, *OJ L 329, 30 December 1993, p. 39–53*.

[1211] Commission Regulation (EC) No 692/2008 of 18 July 2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, OJ L 199, 28 July 2008, p. 1–136, Annex XII, directly refers to the UN framework.

[1212] European Parliament (2017). Committee of Inquiry into Emission Measurements in the Automotive Sector on the inquiry into emission measurements in the automotive sector, 2016/2215(INI)), 2 March, p. 5.

The Dieselgate, which was unveiled in 2010 in the EU, confirmed that this test was obsolete.[1213] This scandal evidenced that car manufacturers orchestrated at a large scale the use of defeat devices to pass emission type approval.[1214] It revealed profound shortcomings of EU law, which were exploited by car manufacturers.[1215]

The Dieselgate led to two major changes to EU law: CO_2 emissions and air pollutants measurement method was modified and surveillance was reinforced.[1216] These changes led to the replacement of the NEDC in 2017, by the Worldwide Harmonised Light-duty vehicles Test Procedures (WLTP).[1217] In spite of these changes, authors have casted doubt on whether the EU is actually capable to establish and enforce a measurement method which will reflect the reality. As Delphine Misonne contends, "[t]he technical complexity and expertise to check cars, especially in order to detect sophisticated deceptive devices, raise an issue of capacity".[1218] Manipulations of the new testing procedure have already been reported by the Commission.[1219] Moreover, the drawbacks of the new testing procedures have already been highlighted and the legality of certain provisions has been challenged.[1220] This new procedure makes major

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[1213] About this scandal see L. KRÄMER, 'The Volkswagen Scandal - Air Pollution and Administrative Inertia', *Elni Law review*, 2016, vol. 2, n° 16, pp. 64-75; D. MISONNE, 'EU Dieselgate: unveiling the weirdness of the EU's attitude to compliance on environmental matters', *elni Review*, December 2018, pp. 52-59; N. DE SADELEER, 'Harmonizing Car Emissions, Air Quality, and Fuel Quality Standards in the Wake of the VW Scandal', *op. cit.*

[1214] Even though it primarily concerned air pollutant, it also entailed cheating about CO_2 emissions. See European Parliament (2017). Committee of Inquiry into Emission Measurements in the Automotive Sector on the inquiry into emission measurements in the automotive sector, *op. cit.*, specifically p. 5, § 4.

[1215] Cheating was not unknown as homologation regulation explicitly prohibited in principle the use of 'defeat devices', which enable to reduce the effectiveness of the emission control system. Although such prohibition seems to be common sense, it had to be reminded by the Court in the case *Criminal Proceeding against X* C-693/18

[1216] In this sense, European Commission (2016). European Commission tightens rules for safer and cleaner cars, 27 January, retrieved from https://ec.europa.eu/commission/presscorner/detail/en/IP_16_167.

[1217] Commission Regulation 2017/1151 of 1 June 2017 supplementing Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008; Commission Regulation (EU) No 1230/2012 of 12 December 2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council with regard to type-approval requirements for masses and dimensions of motor vehicles and their trailers and amending Directive 2007/46/EC of the European Parliament and of the Council, OJ L 353, 21 December 2012, p. 31–79.
See Regulation 2017/1153, of 2 June 2017 setting out a methodology for determining the correlation parameters necessary for reflecting the change in the regulatory test procedure and amending Regulation (EU) No 1014/2010, OJ L 175/679, 7 July 2017.

[1218] In this sense D. MISONNE, 'EU Dieselgate', *op. cit.*, p. 56.

[1219] It appears that some carmakers have used methods to inflate CO2 emissions levels, so as to reduce their targets. See Non Paper: CO_2 Regulation for cars/vans. Risk of inflating starting point for calculating the 2025 and 2030 targets. Retrieved from
https://www.transportenvironment.org/sites/te/files/2018_07_18_Commission_non-paper_WLTP_manipulation.pdf.

[1220] For example, Clientearth has challenged before the CJEU the confidentiality clause under the regulation 2017/1154, which allows to keep information confidential as regards the extended documentation package carmakers have to provide to national authorities. This documentation help detect the use of prohibited defeat devices and contains information about carmakers' auxiliary emission strategies. See Regulation 2017/1154 of 7 June 2017 amending Regulation (EU) 2017/1151 supplementing Regulation (EC) No 715/2007 of the European

improvements, compared to the outdated test it replaced, but it remains a laboratory test which 'does not yet accurately measure real world emissions'.[1221]

2.1.2. *Measuring CO_2 emissions from heavy duty vehicles*

Measurement of CO_2 emissions from heavy-duty vehicles has been governed by a distinct and more recent framework than the legislation applicable to cars. This has been justified by the large diversity of this sector, which is characterised by 'a significant number of different vehicle types and models as well as with a high degree of customisation'.[1222] Since almost all heavy-duty vehicles are different and given that these differences are primarily linked to the purpose of the vehicle (as opposed to consumer preferences) it was considered inappropriate to aggregate the CO_2 emissions from different heavy-duty vehicles.[1223] The focus on the differences in terms of market features underlines the role of the 'free market & fair competition' frame. Therefore, the EU has preferred to monitor CO_2 emissions on a per vehicle basis, via a software.[1224] This method differs from the framework applicable on cars, since it implies that no physical test of the vehicle is conducted, neither in the laboratory nor in real driving conditions.

Furthermore, this framework has only applied to several categories of heavy-duty vehicles, namely, category N2 (heavy-good vehicles 3.5 to 12 tonnes) above 7.5 tonnes and all vehicles of category N3 (heavy-good vehicles above 12 tonnes).[1225] The implication is such a limited scope is that CO_2 emission regulation is restricted to certain categories of heavy-duty vehicles. Next, EU law sets out a sub-division among these vehicle groups, on the basis of parameters that pertain to

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Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information, amending Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation 692/2008 and Commission Regulation 1230/2012 and repealing Regulation 692/2008 and Directive 2007/46/EC of the European Parliament and of the Council as regards real-driving emissions from light passenger and commercial vehicles (Euro 6), OJ L 175, 7 July 2017, p. 708–732, Article 1(3), amending article 5, §§ 11 and 12.

[1221] Transport and environment, CO_2 Emissions from cars: the facts, 2018, p. 20, retrieved from https://www.transportenvironment.org/wp-content/uploads/2021/07/2018_04_CO2_emissions_cars_The_facts_report_final_0_0.pdf.

[1222] Regulation 2017/2400, *op. cit.*, recital § 6.

[1223] R. VERMEULEN, V. FRANCO, J. HAMMER, U. TIETGE, R. MUNCRIEF, R. VERBEEK, L-E. SCHULT, Cost-benefit analysis of options for certification, validation, monitoring and reporting of heavy-duty vehicle fuel consumption and CO_2 emissions, Final report, 24 February 2014, specifically pp. 13, 39 & 42.

[1224] *Ibid*, p. 42.

[1225] Regulation 2017/2400 of 12 December 2017 implementing Regulation 595/2009 of the European Parliament and of the Council as regards the determination of the CO2 emissions and fuel consumption of heavy-duty vehicles and amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation 582/2011, OJ L 349, 29 December 2017, p. 1–247, Article 2(1). These concern: '(i) Category N_1: motor vehicles with a maximum mass not exceeding 3,5 tonnes; (ii) Category N_2: motor vehicles with a maximum mass exceeding 3,5 tonnes but not exceeding 12 tonnes; and (iii) Category N_3: motor vehicles with a maximum mass exceeding 12 tonnes.

the purpose of the vehicle.[1226] Vehicle group determines the set of test cycles used for running the simulation. For some of these groups, manufacturers are not required to measure vehicle CO_2 emissions to obtain type approval.[1227] Vehicle group also influences the time frame of the regulation's entry into force.[1228] The obligation to measure the emissions from the relevant categories of vehicles has been implemented gradually, starting with those contributing the most to CO_2 emissions in the heavy-duty sector.[1229]

2.2. **Vehicle emission performance**

After having exposed EU legislation on CO_2 measurement from vehicles, I now wish to analyse the CO_2 performance targets of vehicles. I start by outlining the regime of cars (2.2.1) and then I turn to heavy-duty vehicles (2.2.2). In light of this exercise, I make two points. Firstly, similar with the previous analyses, cars and heavy-duty vehicles have experienced two different stories as regards the regulation of their CO_2 emissions. They have belonged to two distinct frameworks, which have distributed emission obligations among vehicle manufacturers in different ways. In addition, regime of heavy-duty vehicles has been implemented more recently than the regime of cars and is also less comprehensive. The second point is that in both case, the distribution of emission obligations among vehicle manufacturers has been shaped primarily by the 'technology' frame and the 'free market & fair competition' frame and secondarily by the 'economic efficiency' frame.

2.2.1. *The regime of passenger cars*

The Regulation of CO_2 emissions from cars has a long-standing history (Table 15). It dates back from the 1990s when the car manufacturing industry started to make voluntary commitments.[1230] This voluntary pledge was collective and set at the level of 120gr of exhaust CO_2/km by 2005. The establishment of this target responded to the 'technology' frame, similar with the regulation of industrial emissions under the IPPC Directive and subsequently the IED.[1231] The emission

[1226] *Ibid*, Annex I & recital, § 7. These include axle configuration, chassis configuration and technically permissible maximum laden mass.
[1227] In particular, Article 4, al. 2 of the Regulation 2017/2400 stipulates: "Articles 5 to 22 do not apply to motor vehicles of vehicle groups 0, 6, 7, 8, 13, 14, 15 and 17'. The provisions in question sets obligations for manufacturers to measure emissions.
[1228] Regulation 2017/2400, *op. cit.*, Article 24.
[1229] *Ibid*, Recital, § 18. To be more specific, three dates were set: July 2019, January 2020 and July 2020.
[1230] Commission of the European Communities (1995). A Community strategy to reduce CO2 emissions from passenger cars and improve fuel economy, 20 December 1995, COM(95)689. For a critical take on this approach see L. KRÄMER, 'Accords volontaires européens : une voie sans issue', *in* B. JADOT (ed.), Centre d'étude du droit de l'environnement, Bruxelles, Anthemis, 2010.
[1231] See *Infra*, Chapter 7.

level corresponded to what was achievable through BAT.[1232] To help manufacturers attain this target, the Commission envisaged a series of measures, including the revision of motor vehicle taxes and emissions performance standards.[1233] These measures had to be cost-effective and equitable, given 'the importance of cars in today's society'.[1234] The reference to cost effectiveness highlights the role of the 'economic efficiency' while equity refers to the 'developmental – fairness' frame.

Document	Ambition level	Legally binding
1995 Communication	120gr of CO_2/km by 2005	No
1999 Agreement	140 g CO2/km by 2008	No
2002 Communication	120gr of CO_2/km by 2005, or by 2010 at the latest	No
2006 Communication	140gr CO_2/km by 2008-2009 and 120gr CO_2/km by 2012	No
Regulation 2009/443	130gr of CO_2 per kilometre by 2012 for 65% of the fleet and by 2015 for 100% of the fleet 95gr of CO_2 per kilometre by 2020	Yes
Regulation 333/2014	95gr of CO_2 per kilometre by 2020 for 95% of the fleet and by 2021 for 100% of the fleet	Yes
Regulation 2019/631	15 % reduction of the 2021 target from 2025 and a 37,5 % reduction of the 2021 target from 2030	Yes

Table 15 Successive targets with respect to their ambition level and binding nature

Voluntary pledges revealed themselves unsuccessful. The emission target was either postponed or lowered a couple of times.[1235] The EU ultimately decided change its approach, as it was expected that the 2012 target would not be met in the absence of additional measures. It enacted Regulation 443/2009/EC, which replaced voluntary commitments by a binding approach.[1236] Regulation 443/2009/EC set a collective (or 'EU-wide') target of 95gr of CO_2/km by 2020, with several intermediary targets.[1237] This target was apportioned between carmakers on the basis

[1232] Commission of the European Communities (1995). *op. cit.*, p. 6. "In line with the requests made by Member States and the European Parliament, the Commission has considered the average fuel economy targets of 5 l/100 km for new petroleum cars, respectively 4.5 1/100 km for new Diesel cars for 2005. The experts consulted.by the Commission concur that itis possible to reach an average fuel consumption in that range with best available technology."
[1233] Commission of the European Communities (1995). *op. cit.*, pp. 8 and f.
[1234] *Ibid*, p. 7. See also Regulation 333/2014, *op. cit.*, Article 1 (10) amending Article 13 of Regulation 443/2009/EC.
[1235] Commission Recommendation 1999/125/EC of 5 February 1999 on the reduction of CO2 emissions from passenger cars (notified under document number C(1999) 107, OJ L 40, 13.2.1999, p. 49–50; Commission of the European Communities (2002). Communication from the Commission to the Council and the European Parliament - Taxation of passengers cars in the European Union - options for action at national and Community levels, 6 September, COM (2002)431; Council of the European Union (2006). Review of the EU Sustainable Development Strategy (EU SDS) - Renewed Strategy, 26 June, p. 10.
[1236] Regulation 443/2009/EC, *op. cit.*, Recital § 8. A common approach was also justified by the high risk that fragmented national measure to improve fuel efficiency and reduce CO_2 emissions from cars impede the proper functioning of the internal market.
[1237] *Ibid*, Article 1.

vehicles' mass.[1238] Vehicles' mass was supposed to reflect their 'utility'.[1239] The underlying purpose was to 'maintain the diversity of the car market and its ability to cater for different consumer needs', which underlines the predominance of the 'free market and fair competition frame'.[1240]

The distribution of the target was directly correlated to CO_2 emissions and thus to historical emissions of manufacturers (Table 16), but it was set so as to ensure that manufacturers with a higher average fleet emission level would be committed with *lower* emission reduction. This target determined for manufacturers' whole fleet, rather than on each individual car. With this approach, the objective was to guarantee manufacturers' flexibility 'to decide how to meet their targets'.[1241] In other words, despite its misleading title the Regulation did not impose vehicle standards. Flexibility mechanisms further helped ensure flexibility, whilst watering down manufacturers' individual targets.[1242] These mechanisms included pooling, that is attaining together their target[1243], super credit for so-called 'zero-emission vehicles' and 'low emissions vehicles' and credits in favour of eco-innovations.[1244] These mechanisms are recognised to enhance cost effectiveness, which is linked to the 'economic efficiency' frame.

The validity of this approach is questionable light of the principle of equal treatment. The main criterion when a measure is based on Article 192 of the TFEU should in effect be the pollution level and hence treat in different ways carmakers which are in a comparable situation. It is doubtful that such a difference of treatment can be justified, i.e. that is based on an objective and reasonable criterion; that is whether it relates to a legally permitted aim and is proportionate to the aim pursued.[1245] The difference in question indeed empties the polluter pays principle from all contents.

[1238] *Ibid*, Recitals, § 12.
[1239] *Ibid*. Note that the term 'utility' is not defined.
[1240] *Ibid*. See also Regulation 333/2014, *op. cit.*, Article 1 (10) amending Article 13 of Regulation 443/2009/EC, recital 10. The target had to be 'realistic' and 'achievable' as well as balance the objective of maintaining car industry competitiveness with climate goals. As Jos Delbeke & Peter Vis, underline "At the level of fairness between companies, the CO_2 standards do not treat all cars manufacturers in the same way: the composition of each manufacturer's fleet is different and to address fairness between them, the average weight of vehicles is taken into account in the establishment of each manufacturer's targets". J. Delbeke & P. Vis (2019). EU climate policy as a driver of change, in S. Nies (ed.) The European Energy Transition, Actors, Factors Sectors, Leuven, Claeys & Casteel Law Publishers, p. 42.
[1241] Regulation 443/2009/EC, *op. cit.*, Recital § 19.
[1242] In this sense: https://www.clientearth.org/media/kthkuhb4/clientearth-reply-to-call-competition-policy-and-green-deal_20-11-2020.pdf (Last consulted on 2 June 2022).
[1243] Regulation 443/2009/EC, *op. cit.*, Article 7.
[1244] *Ibid*, Articles 5 and 12.
[1245] CJEU, Luxavation, 26 March 2020, C-113/19, § 37.

Car manufacturer	Number of registrations	Average specific emissions of CO_2	Emission target	Average Mass
Automobiles Citroen	626 876	105,584	122,062	1 218,71
Automobiles Peugeot	949 417	104,533	123,476	1 249,64
Bugatti	13	517,769	160,949	2 069,62
Ford Werke GMBH	969 899	119,360	130,121	1 395,05
Opel Automobile GMBH	168 684	123,572	127,263	1 332,52
Renault SA	1 171 619	106,280	126,441	1 314,53
Volkswagen AG	1 634 804	120,391	130,638	1 406,36
Volvo Car Corporation	277 748	124,437	146,260	1 748,19

Table 16 Emission targets and distance to target for the year 2017[1246]

The regime in place allowed further differentiation between carmakers. Specific rules were applied to take account of the volume of sales. For instance, manufacturers being responsible for fewer than 10,000 new passenger cars registered in the EU annually were entitled to propose an alternative emission reduction target.[1247] The distinct treatment applicable to small-volume car manufacturers was justified the willingness to take account of their technological potential to reduce their specific CO_2 emissions in a way that is 'consistent with the characteristics of the market segments concerned'.[1248] Regulation 443/2009/EC also contained a derogation in favour of niche manufacturers. These derogations are illustrated by Table 17 below.[1249] They seem to respond to the 'free market & fair competition' frame (volume of sales, market segment) and to the 'technology' frame (technological potential).

Car manufacturer	Derogation category	Specific target, in gr CO_2/km
Aston martin	Small volume manufacturer	299,000
Bentley motors	Small volume manufacturer	287
Ferrari	Small volume manufacturer	290
Mc Larren	Small volume manufacturer	270
Group TATA Motors LTD, Jaguar cars LTD, Land Rover	Niche	178,025
Jaguar Land Rover Limited	Niche	178,025
Lada Automobile	De minimis exemption	None. Average emission level: 216

Table 17 Derogation regime for the year 2017

[1246] Commission Implementing Decision (EU) 2019/583 of 3 April 2019 confirming or amending the provisional calculation of the average specific emission of CO2 and specific emissions targets for manufacturers of passenger cars for the calendar year 2017 and for certain manufacturers belonging to the Volkswagen pool for the calendar years 2014, 2015 and 2016 pursuant to Regulation (EC) No 443/2009 of the European Parliament and of the Council, OJ L 100, 11 April 2019, p. 66–89.
[1247] Regulation 443/2009/EC, *op. cit.*, Article 11.
[1248] Regulation 2019/631 of 17 April 2019 setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations 443/2009 and 510/2011, OJ L 111, pp. 13-53, 25 April 2019, Recitals 33.
[1249] Commission Implementing Decision (EU) 2019/583, *op. cit.*

The regime above was revised by Regulation 2019/631.[1250] This regulation largely mimicked the system in force, but it integrated the regulation emissions both from cars and light-commercial vehicles into a single framework.[1251] The respective targets, it was explained, were determined on the basis of their 'effectiveness in delivering a cost-effective contribution to reducing emissions' of non-ETS sectors'.[1252] These criteria highlight the role of the 'economic efficiency' frame. The target in question was in turn differentiated between cars and light-commercial vehicles, due to the highest market share and thus of the higher contribution to CO_2 emissions of the former.[1253] The regulation aimed to implement the targets so as to ensure 'competitively neutral, socially equitable and sustainable emissions reduction targets', which highlights that the 'free market and fair competition' frame and the developmental – fairness' frame are employed.[1254]

2.2.2. *The regime of heavy-duty vehicles*

The regulation of emissions from heavy-duty vehicles has a much short history than the regime applicable to passenger cars, as it dates back from Regulation 2019/1242.[1255] This difference can notably be explained by absence of a common framework to measure CO_2 emission level beforehand. The need to regulate emissions from heavy-duty vehicles was justified according to several frames. Besides mitigating climate changes, the regulation aimed to ensure fuel savings by transport operators, lower their costs, and 'increasing global competitiveness pressures' and 'technological leadership' were other alleged reasons to implement heavy-duty vehicles' performance target.[1256] They suggest that the 'technology' frame (technological leadership) and the 'free market & fair' competition frame (competitiveness) are employed. This is similar to the regulation of emissions from cars. Cost-effectiveness was also a relevant objective of the regulation, which converges with the 'economic efficiency' frame.[1257]

The regime of heavy-duty vehicles is very different from the rules applicable to passenger cars. It was decided that Regulation 2019/1242 would not mimic the rules applying to the car industry and that experience gained in this sector could not be simply transplanted to heavy-duty

[1250] Regulation 2019/631, *op. cit.*
[1251] Regulation 2019/63, *op. cit.*
[1252] *Ibid*, Recital § 11.
[1253] Regulation 2019/631, *op. cit.*, Recital 11
[1254] *Ibid*, Recital § 23.
[1255] Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO2 emission performance standards for new heavy-duty vehicles and amending Regulations 595/2009 and (EU) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC, OJ L 198, 25 July 2019, p. 202–240.
[1256] European Commission (2018) Proposal for a regulation setting CO2 emission performance standards for new heavy-duty vehicles, 17 May, COM(2018) 284 final, p. 1.
[1257] Regulation (EU) 2019/1242, *op. cit.*, recitals § 12 & 23.

vehicles.[1258] This is because the features of the heavy-duty vehicles market, including its structure and the vehicle price, and functions these vehicles serve are very different.[1259] The emphasis on the market features is again in line with the 'free market & fair competition' frame. The target has been expressed in a different way that in the regime of passenger cars, i.e. in 'g/tkm'.[1260] The 't' factor enables to take account of the payload, which varies according to the vehicle groups and mission profiles.[1261] Its level reflects 'the deployment of readily available cost-effective technologies for conventional vehicles'.[1262] The reference to technology suggests that the 'technology' frame is employed while 'cost-effectiveness' corresponds to the 'economic efficiency' frame. By contrast, similar with the regime of passenger cars, it corresponds to an EU-wide average, which is then distributed among individual manufacturers. It relates to the manufacturer's whole fleet, not to each individual vehicle.

Pursuant to a stepwise approach, Regulation 2019/1242 has covered only certain categories of vehicles.[1263] This approach converges with the 'autonomy' frame. The reason why this approach was followed that certified emission data were not available for all categories of HDVs.[1264] Furthermore, Regulation 2019/1242 distributed efforts on vehicle manufacturers in a different way than for cars, based on two steps. First, individual targets were set for each vehicle subgroup; they were determined on the basis of the collective emission reduction target which was then based on average CO_2 emission of a manufacturer's sales for the reference year. Second, a weighted average of these vehicle subgroup target is made, based on the assumed average annual mileage and average payload of each vehicle subcategory.[1265] The purpose was 'the diversity of heavy-duty vehicles in terms of their design and driving pattern, annual mileage, payload and trailer configuration', in line with the 'free market & fair competition' frame.[1266]

[1258] Europa Commission (2018). Staff Working Document Impact Assessment Accompanying the document Proposal for a Regulation of the European Parliament and of the Council setting CO_2 emission performance standards for new heavy duty vehicles, COM(2018) 284 final, part I, p. 4.
[1259] *Ibid.* As it was explained "the [heavy-duty vehicles] market is significantly different, in particular due to the wider range of types and models of vehicles, the lack of certified data as well as the size and the market structure, with purchasers of [heavy-duty vehicles] mostly consisting of SMEs. Also, [heavy-duty vehicle] purchase prices are on average around 110,000 EUR per lorry, and thus far higher than for [light-duty vehicles]. The mileages driven by [heavy-duty vehicles] are on average around 1,200,000 km and exceed those of [light-duty vehicles] by about a factor of 6. These key differences (…) need to be taken into account when preparing policies regulating CO2 emissions from [heavy-duty vehicles]."
[1260] *Ibid*, p. 26.
[1261] *Ibid.*
[1262] Regulation (EU) 2019/1242, *op. cit.*, Recitals, §19.
[1263] *Ibid*, Article 2.
[1264] In addition, cost-effectiveness justified the exclusion of vocational vehicles. *Ibid*, Recitals, § 22.
[1265] *Ibid*, Recitals, § 25.
[1266] *Ibid*, Recitals, § 24.

Finally, whereas Regulation 2019/1242 also contains flexibility mechanisms, it took the form of a different system (banking and borrowing).[1267] These flexibilities match with the 'economic efficiency' frame. The regulation does not contain derogations in favour of small-volume manufacturers given that they do not operate in the EU heavy-duty market.[1268] All these elements are summarised in *Table 18* below.

	Passenger cars	**Heavy duty vehicles**
Testing method	NEDC, replaced by WLTP (lab test)	VECTO (simulation tool)
Voluntary / compulsory	Voluntary and then compulsory	Compulsory
Individual manufacturer target/ vehicle	Manufacturer, based on mass (utility)	Manufacturer, based on vehicle subgroup, payload and annual kilometres
Factors to express CO_2 emission reduction	g /km	g /tkm
Flexibilities	Pooling, derogations in favour of small manufacturers and niches	Banking
Consequence of excess of emissions	Fine (Excess premium)	Fine (Excess premium)

Table 18 Comparison between CO_2 emission regulation between cars and heavy-duty vehicles

3. TRANSPORT PRICING & CLIMATE CHANGE

The previous Section has studied the regulation of CO_2 emissions from new passenger cars and heavy-duty vehicles. I now wish to analyse the legal framework on the charging/taxation of passenger cars and heavy-duty vehicles. The main legislative act in this field is the Infrastructure Charging Directive (3.1). This Directive has determined the conditions under which Member States may levy motor vehicle taxes and infrastructure charges with respect to certain categories of heavy-duty vehicles but it excludes light commercial vehicles and cars. This act has pursued several goals, including achieving infrastructure financing in a fair way and reducing air pollution and congestion. On the contrary, it did not seek, until recently, to address climate change. This Directive was also dominated by the 'economic efficiency' frame and to the 'free market & fair competition' frame. Nevertheless, it has also been largely influenced by the 'autonomy' frame because it has not compelled Member States to levy infrastructure charges.

To better respond to climate change, the Commission made two key proposals in this area. The first proposal of 2005 aimed to establish a harmonised framework on passenger cars-related taxes (3.2). The purpose was to revise these taxes *inter alia* to differentiate them on the basis of CO_2

[1267] Simply put, manufacturers which exceed their target may 'bank' CO_2 credits, which can then offset a possible excess of emissions during the following years. On the other side, borrowing implies that manufacturers which to not meet their target may 'borrow' CO_2 credits and pay them back later. *Ibid*, Article 7 and Recitals, § 32 et 33
[1268] European Commission (2018). Staff Working Document Impact Assessment Accompanying the document Proposal for a Regulation of the European Parliament and of the Council setting CO_2 emission performance standards for new heavy duty vehicles, *op. cit.*, p. 29.

emissions. This change responded both to the 'economic efficiency' frame and to the 'free market & fair competition' frame. This unsuccessful proposal was followed by another one, which was intended to revise the Infrastructure Charging Directive ('2017 Proposal').[1269] It has led to the recent adoption of Directive 2022/362.[1270] Its purpose is to ensure the fair financing of road transport infrastructure and address negative externalities, including those generated by climate change. Towards this end, it has expanded the scope of the Infrastructure Charging Directive to new vehicles, including passenger cars, and to set out common rules to establish infrastructure charges, including to take into account CO_2 (3.3).

3.1. **The Infrastructure Charging Directive**

Heavy-duty vehicles-related taxes and infrastructure charges have been harmonised for a long time at EU level.[1271] While this issue was already discussed in the 1960s, a common EU response was awaited until the adoption of the Directive 93/89/EEC.[1272] With this Directive, the EU aimed to harmonise conditions of competition within and between modes of transport and to allocate infrastructure costs to the actual users.[1273] This objective corresponds to the 'free market and fair competition' frame. Accordingly, the Directive aimed to move away from an infrastructure financing system based on nationality towards territoriality, considering that many carriers were driving in other Member States.[1274] This act was annulled by the Court, for a breach of procedural requirements and was replaced by the Infrastructure Charging Directive.[1275] The latest Directive has sought to eliminate distortion of competition between transport undertakings

[1269] European Commission, Proposal for a Directive amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, 31 May 2017, COM(2017)275 final. A separate proposal was made to revise motor vehicle taxes, namely European Commission, Proposal for a Directive amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, as regards certain provisions on vehicle taxation, 31 May 2017, COM(2017)275 final. This proposal was based on Articles 113 and article 91 of the TFEU.
[1270] Directive 2022/362 of the European Parliament and of the Council of 24 February 2022 amending Directives 1999/62/EC, 1999/37/EC and (EU) 2019/520, as regards the charging of vehicles for the use of certain infrastructures, OJ L 69, 4 March 2022, p. 1–39.
[1271] About this process see K. DEKETELAERE, 'EC transport policy and environment and energy taxation.', *op. cit.*
[1272] Council Directive 93/89/EEC of 25 October 1993 on the application by Member States of taxes on certain vehicles used for the carriage of goods by road and tolls and charges for the use of certain infrastructures, OJ L 279, 12 November 1993, p. 32–38. It took place after failed attempt of the Commission of the European Communities (1968). Proposition d'une 1ère directive du Conseil relative à l'aménagement des systèmes nationaux de taxes sur les véhicules utilitaires COM(68) 567 final, OJ No C 96, 21. 9. 1968, p. 44 — OJ No 48, 16 March 1969, p. 5.
[1273] Proposal for a Directive on the charging of transport infrastructure costs to heavy goods vehicles, *op. cit.*, p. 6, at 9 (1987)
[1274] *Ibid* p. 5
[1275] CJEU, European Parliament v Council of the European Union, 5 July 1995, C-21/94. The Directive was declared void as the Council failed to consult the parliament for a second time. That said, the judgement maintained the effects of the Directive.

in the financing of transport infrastructure, which converges with the 'free market and fair competition' frame.[1276]

Towards this end, the Infrastructure Charging Directive aimed to harmonise levy systems and establish 'fair mechanism' for charging infrastructure by heavy-duty vehicles.[1277] It followed stepwise approach, noting that 'these objectives can be achieved only in stages'.[1278] This approach matches with the 'autonomy' frame. This process was viewed as complementary to the process of harmonising mineral oils taxation, which suggests that their interaction fell into the *consistency hypothesis*. The secondary purpose of the Directive was to protect the environment, in particular air pollution but not to mitigate climate change.[1279] This act was deeply influenced by the economic theory of external cost internalisation, which suggests the role of the 'economic efficiency' frame. As the explanatory memorandum explained, the Directive aimed to 'ensure better recovery of costs associated with road use, including externalities' and 'to allow for greater differentiation in charges in line with costs'.[1280]

The Infrastructure Charging Directive has a left a broad margin of appreciation to Member States, which suggests the importance of the 'autonomy' frame. It has set out minimum rates of motor vehicle taxes and harmonised the rules pertaining to tax reduction and exemption.[1281] By contrast, it has not provided for a common structure to levy these taxes (*e.g.* determination of the tax base or taxable event), as in the case of the ETD. With respect to tolls and user charges, the Directive specified the characteristics of the infrastructure on which they apply and introduce maximum rate levels for user charges.[1282] Tolls had to be related to the costs of constructing, operating and developing the infrastructure network concerned.[1283] In both cases, the Directive

[1276] Infrastructure charging directive, recital § 1.
[1277] *Ibid.*
[1278] *Ibid*, § 2.
[1279] The recitals also underline at § 1 that environmental protection should not harm the internal market: "The use of road-friendly and less polluting vehicles should be encouraged through differentiation of taxes or charges, *provided that* such differentiation does not interfere with the functioning of the internal market".
[1280] Commission of the European Communities, Proposal for a Directive on the charging of heavy goods vehicles for the use of certain infrastructures, 10 July 1996, COM(96)331 final, p. 13. In the Proposal, the Recital also referred to the implementation of the 'user pays' principle but this was removed in the course of the legislative process. This line of reasoning followed several Communications in this field, including the 1995 Green Paper 'Towards Fair and Efficient Pricing in Transport Policy'. Commission of the European Communities, The Future Development of the Common Transport Policy. A global approach to the construction of a Community framework for sustainable mobility, Brussels 2 December 1992, COM(92)494 final; Commission of the European Communities, Towards Fair and Efficient Pricing in Transport Policy. Policy Options for Internalising the External Cost of Transport in the European Union. Green Paper. 20 December 1995, COM (95) 691 final.
[1281] Infrastructure Charging Directive, Chapter II and annex I.
[1282] *Ibid*, Chapter III and annex II
[1283] *Ibid*, Article 7, § 9

defined a maximum level of differentiation based on Euro norm (air pollution),.[1284] The approach was different from the 2005 Proposal below and from the ETD, where minimum rates applied.

Since its adoption, the Infrastructure Charging Directive has been modified several times.[1285] Its revision by Directive 2006/38/EC, aimed to implement a 'fairer' road charging system, based on the 'user pays' and the 'polluter pays' principles, in order to encourage sustainable transport in the EU.[1286] The Directive followed the 2001 White Paper on European transport policy for 2010, which concluded that 'one of the principal reasons for the imbalance in the transport system is that the transport modes do not in every case pay the costs for which they are responsible'.[1287] This statement expresses 'economic efficiency' frame. It pointed out the sizable differences across EU countries; these differences risked harming the internal market and undermined incentives for using the cleanest modes of transport and reduce congestion.[1288] This matches with the 'free market and fair competition' frame. In the same vein, it was added that ensuring a fair and efficient pricing required 'equal treatment for operators and between modes of transport'.[1289]

Directive 2006/38/EC set out new goals for infrastructure charging, i.e. protecting the environment, reducing congestion, minimising infrastructure damage, optimising infrastructure use and improving road safety.[1290] To achieve these goals, the Directive allowed tolls differentiation based on the time of day, type of day or season[1291] and required differentiation on the basis of Euro standards category.[1292] Climate change, by contrast, remained unaddressed. These changes were part of a broader approach aiming at external costs internalisation in all

[1284] *Ibid*, Article 7, 7 & Annex I (user charges) and article 7, 10 (toll)s. As regards congestion note that the directive did not preclude certain other specific levies including: (c) regulatory charges specifically designed to combat time and place-related traffic congestion. (article 9).
[1285] Directive 2006/38/EC of the European Parliament and of the Council of 17 May 2006 amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, OJ L 157, 9 June 2006, p. 8–23; Directive 2011/76/EU of the European Parliament and of the Council of 27 September 2011 amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, OJ L 269, 14 October 2011, p. 1–16. There are also two amending Directives in reason of the accession of new EU Members, and several acts amended the tables related to Euronorm.
[1286] Directive 2006/38/EC, *op. cit.*, recital § 2.
[1287] As summarised by Proposal for a Directive amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, 23 July, 2003 COM(2003) 448 final, p. 2
[1288] Commission of the European Communities (2001). White Paper, *op. cit.*, p. 16.
[1289] *Ibid.*
[1290] Directive 2006/38/EC, *op. cit.*
Infrastructure Charging Directive, new Article 7, § 9, as amended by Directive 2006/38/EC, *op. cit.*.
[1291] *Ibid.* This does not apply to time-based charges which can only differentiate on the basis of Euro norm.
[1292] Infrastructure Charging Directive, Article 7, § 9-10, as amended by the Directive 2006/38/EC, *op. cit.* See also new Article 7g, § 1, as introduced by Directive 2011/76/EC, *op. cit.* That said this provision allows exceptions in the following cases: '(i) this would seriously undermine the coherence of the tolling systems in its territory; (ii) it would not be technically practicable to introduce such differentiation in the tolling system concerned; (iii) this would lead to diversion of the most polluting vehicles with negative impacts on road safety and public health; or (iv) the toll includes an external-cost charge.'

transport modes'.[1293] In a subsequent Communication, the need to pick up the 'right instrument' for each category of external cost was underlined, including taxes, tolls and emission trading.[1294] Road pricing was originally discarded to address the problem of climate change, noting that 'it would be more appropriate to use an instrument directly linked to [fuel] consumption, such as a fuel tax or even a CO_2 emissions trading system'.[1295] These stipulations express the influence an instrumental mindset, by focusing on instrument category and the reference to external cost internalisation suggests that the 'economic efficiency frame' is employed.

The Commission further underlined that even though a common method was needed to internalise negative externalities across the transport sector, this should not be done via a single framework. In particular, it was noted that:[1296]

> "Even if it is possible to establish a general principle for internalisation (social marginal cost charging) and a methodology for quantifying externalities, it is difficult to imagine an internalisation mechanism that would be generally applicable to all forms of transport, as these involve different technologies, different numbers of operators, *existing legal and regulatory frameworks*, etc. The same principle should be applied using different instruments."

This statement is notable because it points at the role of the existing legal and regulatory framework as regards how externalities should be addressed.

Directive 2011/76/EC continued the progress in external costs internalisation and the in implementing the polluter pays and the user pays principles.[1297] Tolls were picked out as 'the best pricing instrument for assigning these costs to users in a fair and efficient way'.[1298] This is because of their ability to price infrastructure use and internalise transport external costs, by differentiating the amount due based on vehicles environmental performance, as well as time and place.[1299] In addition, tolls were promoted for being capable to avoid distorting competition, as they are payable by all operators regardless of their origin. Instead, they depend on intensity of infrastructure use.[1300] Time-based user charges were regarded as a useful system to implement the user pays principle, in the absence of distance-based charge but engendering problems of

[1293] As required by Directive 2006/38/EC, *op. cit.*. See Commission of the European Communities, Strategy for the internalization of external costs. 8 July 2008, COM(2008) 435.
[1294] Commission of the European Communities, Strategy for the internalization of external costs. Communication from the Commission, 8 July 2008, COM(2008)435, p. 3.
[1295] *Ibid*, p. 4.
[1296] *Ibid*, p. 5.
[1297] Directive 2011/76/EC, *op. cit.*. In particular recital § 3.
[1298] *Ibid*, p. 3.
[1299] Directive 2011/76/EC, *op. cit.*, recital § 7.
[1300] *Ibid.*

discrimination against occasional users.[1301] The focus on external cost internalisation indicates that the 'economic efficiency' frame is employed. By contrast, the reference to competition or discrimination based on nationality converges with the 'free market & fair competition' frames.

In terms of coverage, the Infrastructure Charging Directive originally focused only on heavy-good vehicles of 12 tonnes or more.[1302] The intent was to concentrate on heavy goods vehicles normally used for the international carriage of goods, as opposed to coaches and buses destined to carry passengers.[1303] Directive 2006/38/EC extended the scope of the Infrastructure Charging Directive to heavy-good vehicles over 3.5 tonnes whilst permitting Member States to exempt heavy-duty vehicles below 12 tonnes.[1304] This change was justified by the fact that these vehicles also damage infrastructure and can increase the level of congestion and accidents. This is in line with the 'economic efficiency' frame.[1305] Vehicles below this threshold were not covered, based on the argument that they rarely make intra-EU journeys.[1306] This is reminiscent of the 'free market & fair competition' frame as the focus is on barriers to the free movement of goods or services. The exclusion of cars, on the other side, was justified by the principle of subsidiarity, pursuant to with the 'autonomy' frame. Infrastructure charging for cars was indeed viewed as a topic 'primarily national in character'.[1307]

3.2. **The ill-fated 2005 Proposal on passenger-car related taxes**

Unlike heavy-duty vehicles, EU legislative action with respect to car-related taxation has been very limited, being circumscribed to the removal of double impositions or of administrative barriers. These goals converge with the 'free market & fair competition' frame. For instance, Directive 83/183/EC set out tax exemptions for the temporary import of certain means of

[1301] For that reason, the Directive has imposed four periods of validity (daily, weekly, monthly and yearly), and determined maximum rate differentiation. See Infrastructure Charging Directive, new article 7a as introduced by Directive 2011/76/EC, *op. cit.*
[1302] Directive 93/89/EEC, *op. cit.*, Article 2 'vehicle' means a motor vehicle or articulated vehicle combination intended exclusively for the carriage of goods by road and with a maximum permissible gross laden weight of not less than 12 tonnes. See also Infrastructure Charging Directive Article 2, d, before it was amended by Directive 2006/38/EC, *op. cit.*
[1303] Commission of the European Communities (1988). Proposal for a Directive on the charging of transport infrastructure costs to heavy goods vehicles, *op. cit.*, p. 10, explanation of Article 2.
[1304] Infrastructure Charging Directive, article 2(d), as amended by Directive 2006/38/EC, *op. cit.* and Article 7, § 5.
[1305] Commission of the European Communities (2003). Proposal for a Directive amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, 23 July 2003 COM(2003) 448 final, p. 6. It was also consistent with road transport legislation which generally targets lorries over 3.5 tonnes (*consistency hypothesis*).
[1306] Commission of the European Communities (2003). Proposal for a Directive amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, *op. cit.*, p. 6.
[1307] *Ibid.* Commission of the European Communities (2001). White Paper, *op. cit.*, p. 72. See also Commission of the European Communities (2008). Proposal for a Directive of the European Parliament and of the Council amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, *op. cit.*

transport, including cars (but not heavy-good vehicles) from one Member State into another.[1308] Likewise, Directive 2009/55/EC has exempted from taxation the permanent introduction from one Member State to another of personal property of individuals, such as cars.[1309] By contrast, the EU has not been able to harmonise the main taxes on cars, i.e. registration tax and annual circulation tax.[1310] In the same vein, it has never established a common framework on infrastructure charging for passenger cars. In 2005, the Commission made an ill-fated proposal to harmonise passenger car-related taxes. Exposing this unsuccessful proposal is relevant for two reasons: firstly, it illuminates the differences between cars and heavy-duty vehicles and secondly, it sheds light on the difficulty to frame car taxation according to 'economic efficiency'.

The 2005 Proposal was part of a series of Communications aimed at mitigating CO_2 emissions from passenger cars.[1311] The differentiation national motor vehicle taxes based on CO_2 emissions was fingered out as a possible means towards this end.[1312] This measure would be, it was argued, 'an important step in internalising one of the external costs of transport and broadening the application of economic instruments in achieving environmental objectives'.[1313] This statement indicates the influence of 'economic efficiency' frame. It also points at the instrumental perspective underlined previously. This strategy viewed was as complementary to the EU energy policy, as it would supplement the 1992 Proposal for a CO_2/energy tax.[1314] The interaction between both proposals suggests that the *consistency hypothesis* was involved. On this basis, the

[1308] Council Directive 83/183/EEC of 28 March 1983 on tax exemptions applicable to permanent imports from a Member State of the personal property of individuals, OJ L 105, 23 April 1983, p. 64–67.
[1309] Council Directive 2009/55/EC of 25 May 2009 on tax exemptions applicable to the permanent introduction from a Member State of the personal property of individuals, OJ L 145, 10 June 2009, p. 36–41.
[1310] The annual circulation tax can be defined as "a specific and periodic tax which relates to the use within its territory of a passenger car and the characteristics of which are identical or similar to those of the taxes listed in Annex I", while the registration tax can be referred to as "any tax which relates to the registration of passenger cars, thereby allowing their use on public roads, and the characteristics of which are identical or similar to the taxes listed in Annex II". See respectively Articles 3 and 11 of the Proposal.
[1311] To be more specific, the Commission adopted documents in various policy areas where fiscal measures affecting vehicles were identified as having a potential role. These include Commission of the European Communities, Future Strategy for the Control of Atmospheric Emissions from Road Transport Taking into Account the Results from the Auto Oil Programme, COM (96) 248 final, 18 June 1996; Commission of the European Communities, A Community strategy to reduce CO2 emissions from passenger cars and improve fuel economy, 20 December 1995, COM(95) 689 final; Commission of the European Communities, White Paper: An Energy Policy for the European Union. 13 December 1995, COM (95) 682 final; Commission of the European Communities, Towards Fair and Efficient Pricing in Transport Policy. Policy Options for Internalising the External Cost of Transport in the European Union. Green Paper. 20 December 1995, COM (95) 691 final.
[1312] Commission of the European Communities, A Community strategy to reduce CO2 emissions from passenger cars and improve fuel economy, *op. cit.*, p. 8 and f.
[1313] *Ibid*, p. 8.
[1314] *Ibid.*

Commission proposed to harmonise the conditions under which Member States are allowed to levy motor vehicle taxes, *inter alia* to differentiate them on the basis of CO_2 emissions.[1315]

The proposal presented taxes as a 'critical instrument' to address climate change, and more precisely to attain the target of 120gr CO_2 per kilometre by 2010 at the latest.[1316] In the same vein, it was noted that 'fiscal provisions can be used as a *tool* to implement the Community's strategy to reduce CO_2 emissions from passenger cars and thus achieve Community's environmental objectives'.[1317] The use of terms like 'instrument or 'tool' display an instrumental perspective. By differentiating on the basis of CO_2 emissions, the proposal aimed to implement the polluter pays principle and internalise external costs, while aiming to remain technology neutral.[1318] These stipulations further indicate the influence of the 'economic efficiency' and point at the role of the 'technology' 'frames. Accordingly, the proposal sought to encourage 'the rapid renewal of the car fleet and to influence consumer's behaviour toward more fuel-efficient passenger cars', rather than limiting car ownership.[1319]

Reducing CO_2 emissions from passenger cars was not the only objective of the proposal. It was also intended to improve the functioning of the internal market.[1320] The Commission underscore that the fragmentation of national taxes prevented the free movement of cars, notably in reason of double taxation in case of cross-border transfers of cars, and of distortions and inefficiencies.[1321] Differences in tax systems, it was argued, precluded the ability of the car industry to achieve the expected benefits associated with a single market and to exploit 'economies of scale, or in producing passenger cars with similar specifications for the entire internal market', as it resulted in major differences in pre-tax and consumer tax-prices.[1322] They also hindered the rights of EU citizens to freely move across the EU with their car.[1323] These elements are in line with the 'free market and fair competition' frame.

In light these goals, the Commission proposed two main measures. The first one was to gradually remove registration taxes and allow Member States to levy only annual circulation tax.[1324]

1315 Proposal for a Directive on passenger car related taxes, 5 July 2005, COM(2005) 261 final (hereafter '2005 Proposal').
1316 *Ibid*, p. 2.
1317 *Ibid*, p. 3. My emphasis.
1318 *Ibid*, Articles 4 and 13.
1319 *Ibid*, p. 3
1320 *Ibid*, p. 2.
1321 *Ibid.*
1322 *Ibid.*
1323 *Ibid*, p. 15.
1324 In addition, it was proposed to establish the registration tax on the residual value of the second-hand car, in case of a registration of a second hand cars in another Member State, thus incorporating the case-law of the Court on this

Registration tax is due at the occasion of car registration, including second registration, while annual circulation is due periodically.[1325] Both of them are associated with ownership, no matter with what intensity the vehicle is used. The reason why the Commission proposed to abolish registration taxes is because were 'a clear obstacle' for the free movement of cars and that they negatively affected the competitiveness of the European car industry.[1326] In addition, registration taxes precluded certain – low-income – citizens, to replace their cars, which undermined EU's strategy of rapid car fleet renewal.[1327] These justifications show the influence of the 'free market & fair competition' frame. From that perspective, the proposal went quite far in reshaping national tax systems in relation to passenger cars.

The second measure proposed was to differentiate national motor vehicle taxes, and ultimately annual circulation tax only, on the basis of CO_2 emissions. The consequence of revising annual circulation tax towards this end is that the whole car fleet would have been concerned, not only newly purchased cars.[1328] In contrast of the first measure, the proposal left a broad discretion to Member States to decide how they would implement CO_2 differentiation.[1329] This means that the 'autonomy' frame played a relatively important role compared to the 'economic efficiency' and 'free market & fair competition' frames. The only obligation imposed on Member States was to ensure that revenues deriving from the CO_2 component would account for a minimum level.[1330] On the contrary, the Proposal did not set out minimum rates.

The exposé above highlights two key elements. Firstly, it is observed that 'economic efficiency' only played a limited role in the design of the proposal. This contrasts with its role in the

topic discussed earlier. *Ibid*, Article 10(1): "The amount of registration taxes to be refunded for a passenger car pursuant to Article 9 shall be in direct relation with its *residual value* and shall be equivalent to the amount of the residual registration taxes incorporated in its residual value."

[1325] The registration tax was referred to as "any tax which relates to the registration of passenger cars, thereby allowing their use on public roads, and the characteristics of which are identical or similar to the taxes listed in Annex II". The annual circulation tax was defined as "a specific and periodic tax which relates to the use within its territory of a passenger car and the characteristics of which are identical or similar to those of the taxes listed in Annex I". See respectively Articles 3 and 11 of the Proposal.

[1326] 2005 Proposal, *op. cit.*, p. 7.

[1327] *Ibid.*

[1328] Unless Member States introduce a temporal limitation but this was not planned by the proposal.

[1329] This contrasted with a previous Communication from the Commission which highlighted the need to provide a harmonised framework to establish the tax. 'In order to ensure the effectiveness differentiated purchase/registration taxes in terms of reducing CO2 emissions from passenger cars, a Community framework would have to set a CO2 emission baseline value which would be in steps under a timetable; set guidelines for the differentiation of tax rates according to CO2 emissions; set the bands within which Member States could vary the relationship between the tax scale and the CO2 emission baseline value.". Communication from the Commission to the Council and the European Parliament of 20 December 1995, A Community strategy to reduce CO2 emissions from passenger cars and improve fuel economy, COM(95) 689 final, 8.

[1330] 2005 Proposal, *op. cit.*, Articles 5 and 14. *Eg.* Article 5, al. 2: By 31 December 2010 the total tax revenue from the carbon dioxide-based element of the annual circulation taxes shall account for at least 50% of the total revenue from these taxes.

justification of using taxes to remedy climate change. This finding is in line with three initiatives studied in this research. Hence, it further corroborates that there exists a difficulty in EU law to define the response to climate change according to an 'economic efficiency' frame. Secondly, the failure of the proposal to be adopted highlights that legislative action in relation to cars may not be so easy than as far as heavy-duty vehicles are concerned. This could be explained by the fact that cars are a regulatory object that relates more to national policies and less to intra-state economic activities than heavy-duty vehicles.

3.3. **Directive 2022/362 on road pricing for light and heavy-duty vehicles**

In a series of Communications, the Commission called for 'getting prices right' in the transport sector.[1331] The 2011 White Paper 'Roadmap to a Single European Transport Area' highlighted the need to respond to a number of recent problems including climate change, congestion and the development of new technologies, besides older problems such as oil dependence.[1332] Another hot issue was infrastructure financing. To address these challenges, the Commission submitted that 'the overall burden for the sector should reflect the total costs of transport including infrastructure and external costs', which matches with the 'economic efficiency' frame.[1333] In light of this, it was submitted that transport taxes and charges had to be restructured to better implement the 'polluter pays' and the 'user pays' principles.[1334] However, as far as climate change was concerned, the Communication regarded the EU-ETS and energy taxation as the most relevant options, rather than using road pricing.[1335]

Amid of the deadlocks to pass the 2011 Proposal for a CO_2/energy tax, the discourse of the Commission slightly changed. In the 2016 Communication 'A European Strategy for Low-Emission Mobility', road pricing was envisaged as 'one of the most economically rational ways of incentivising more energy efficient transport operations, low emission energy and a faster renewal of the fleet'.[1336] Accordingly, it was contended that infrastructure charges should be

[1331] European Commission (2016). A European Strategy for Low-Emission Mobility, 20 July, COM(2016)501 final; European Commission (2011). White Paper Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, 28 March, COM(2011)144 final; Commission of the European Communities (1995). Towards fair and efficient pricing in transport policy- options for internalising the external cost of transport in the European Union - Green Paper, 20 December, COM(95)691 final; Commission of the European Communities (1992). Green Paper on the impact of Transport on the Environment - A Community strategy for 'sustainable mobility', 20 February, COM(92)46 final.
[1332] European Commission (2011). White Paper Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, *op. cit.*, in particular pp. 3-4.
[1333] *Ibid*, p. 15.
[1334] *Ibid.*
[1335] *Ibid.*
[1336] *Ibid*, p. 3.

complementary to existing energy taxation and be applied to passenger transport.[1337] The Commission thus announced its intention to 'revise the Directive on the charging for lorries to enable also charging on the basis of [CO_2] differentiation, and extend some of its principles to buses and coaches as well as passenger cars and vans'.[1338] This was the purpose of the 2017 Proposal, which has led to the recent adoption of Directive 2022/362.[1339]

With the Directive 2022, the EU responds to several problems which are depicted according to distinct frames:

> "Notwithstanding the importance of the road transport sector, all heavy-duty vehicles have a significant impact on *road infrastructure* and contribute to *air pollution*. In spite of their economic and social importance, light-duty vehicles are at the origin of the majority of the *negative environmental and social impacts* from road transport related to *emissions* and *congestion*. In the interest of *equal treatment and fair competition*, it should be ensured that vehicles so far not covered by the framework set out in Directive 1999/62/EC, in respect of tolls and user charges, are included in that framework. The scope of that Directive should therefore be extended to heavy-duty vehicles other than those intended for the carriage of goods and to light-duty vehicles, including passenger cars."[1340]

We thus see from the statement above that the EU aims to address a series of challenges including road infrastructure maintenance, emissions (including air pollution) and congestion. The reference to 'negative environmental and social impacts' seems to point at the 'economic efficiency' frame while the emphasis on 'equal treatment and fair competition' suggests that the 'free market & fair competition' frame is employed.

In light of these objectives, the Directive 2022/362 amend the Infrastructure Charging Directive, inter alia to price CO_2 emissions from road transport. This interaction corresponds to the *integration hypothesis*. The first change concerned the expansion of the scope of this Directive to light duty vehicles, namely passenger cars and light commercial vehicles. Light duty vehicles did not generate infrastructure cost like heavy-duty vehicles, but they were the source of two thirds of environmental and health externalities of road transport.[1341] The second change was to revise the mechanisms in place for infrastructure charging. While the 2017 Proposal gradually replaced time-based charges (or user charges) by distance-based charges (tolls) according to a clear

[1337] *Ibid.*
[1338] *Ibid*, p. 4.
[1339] Directive (EU) 2022/362, *op. cit.*
[1340] *Ibid*, Recitals, § 9.
[1341] *Ibid*, Recitals, § 35

timeline, the Directive goes less far.[1342] Finally, it sets common rules to allow the differentiation of infrastructure charging on the basis of transport externalities, including from climate change.

The expansion of the Infrastructure Charging Directive to light-duty vehicles, i.e. passenger cars, minibuses and vans, was justified in light of the negative externalities they generated.[1343] This corresponds to the 'economic efficiency' frame. Towards this end, the Directive authorises Member States to levy a congestion charge as well as an 'external-cost charge', that is 'a charge levied for the purpose of recovering the costs related to one or more of the following: traffic-based air pollution; traffic-based noise pollution; traffic-based CO_2 emissions.[1344] The Directive defines the 'cost of traffic-based CO_2 emissions' as 'the cost of the damage caused by the release of CO_2 in the course of the operation of a vehicle'.[1345] Another way in which the Directive addresses climate change is through the differentiation of user charges and tolls on the basis of vehicle CO_2 performance.[1346] Such differentiation is based on the level of the EU-wide targets for each category of vehicles, discussed in the previous Section.

In the case of passenger cars, Article 7gb, § 1, specifies that lower rates of tolls and user charges shall apply for passenger cars, when:

> « Their specific CO_2 emissions, determined in accordance with Commission Regulation (EU)2017/1151(*), shall be zero or shall be below the following levels: (i) for the period 2021 to 2024, the EU fleet-wide targets determined in accordance with Part A, point 6, and Part B, point 6, of Annex I to Regulation (EU) 2019/631 of the European Parliament and of the Council (**); (ii) for the period 2025 to 2029, the EU fleet-wide targets determined in accordance with Part A, point 6.1.1, and Part B, point 6.1.1, of Annex I to Regulation (EU) 2019/631; (iii) for the period 2030 onwards, the EU fleet-wide targets determined in accordance with Part A, point 6.1.2, and Part B, point 6.1.2, of Annex I to Regulation (EU) 2019/631; »

This provision displays the clear interplay between the pricing of CO_2 emissions from vehicles by the Directive and the prevailing legal framework on the regulation of those emissions. The relationship between both frameworks falls into the *consistency hypothesis*. The consequence is that

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[1342] Compare 2017 Proposal, Article 1, (3), replacing Article 7 of the Infrastructure Charging Directive and New article 7 § 13-15 under Directive 2022/362.
[1343] *Ibid*, explanatory memorandum, p. 2. In particular, it was noted that 'The current legislation only applies to HGVs, all other vehicles are left unaddressed. In this area, which includes in particular passenger cars, and absent specific limits, there is a risk of short-term vignettes being priced comparatively too high and hence of discrimination vis-à- vis occasional, mostly foreign users. Another potential problem of discrimination, common to all types of vehicles, is compensation of national users in case time-based charges are introduced.'
[1344] Directive 2022/362, Article 2, respectively § 14 and § 9. Note that the inclusion of CO_2 did not exist in the 2017 Proposal.
[1345] *Ibid*, Article 2, § 12.
[1346] *Ibid*, new article 7ga (heavy duty vehicles) and 7gb (light duty vehicles).

the pricing of CO_2 emissions is shaped by the 'technology' frame. While a comparable system applies in the case of heavy duty vehicles, the rules applicable in both cases are not exactly the same.

The second objective of the Directive is to gradually replace infrastructure financing through time-based user charges by distance-based charges (or 'tolls'). User charges are defined as 'a specified amount payment of which confers the right for a vehicle to use for a given period the infrastructures' whilst tolls were referred to as 'a specified amount based on the distance travelled on a given infrastructure and on the type of the vehicle, the payment of which confers the right for a vehicle to use the infrastructures'.[1347] Tolls encompass a least one of the following: an infrastructure charge, a congestion charge and/or an external-cost charge. Time based-user charges have been criticised on the grounds that they 'do not, by nature, accurately reflect the real costs of road use and, for similar reasons, are not effective when it comes to incentivising cleaner and more efficient operations, or reducing congestion'.[1348] This statement underlines the role of the 'economic efficiency' frame. Distance-based charges, on the contrary, were viewed as 'fairer, more efficient and more effective' to achieve these goals, which points at the role of the 'economic efficiency' frame and of the 'free market & fair competition' frame.[1349]

Under the new Directive, distance-based charging has two main features. Firstly, the introduction of an infrastructure charge is not an obligation. In this sense, Article 7 of the Infrastructure Charging Directive, as amended, stipulated that Member States 'may maintain or introduce tolls and user charges'.[1350] Thus, harmonised rules apply only insofar Member States wished to impose such charges. This was found to be consistent with the principle of proportionality.[1351] These elements suggest that the 'autonomy' frame plays a central role. Secondly, rules are differentiated between heavy-duty vehicles and light-duty vehicles. The Directive prioritises the move towards distance-based charging by targeting heavy-duty vehicles; this is explained by the 'significant impact that they have on road infrastructure and their contribution to air pollution'.[1352] It phases

[1347] *Ibid*, Article 1, (2), replacing Article 2, (6) and (14).
[1348] Directive 2022/362, § 12 and 2017 Proposal, explanatory memorandum, pp. 2 & 5.
[1349] 2017 Proposal, recital § 4.
[1350] *Ibid*, Article 1, (3).
[1351] *Ibid*, p. 4. See also European Commission (2017). Commission Staff Working Document Impact Assessment *Accompanying the document* Proposal for a Directive of the European Parliament and of the Council amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures and Proposal for a Council Directive amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, as regards certain provisions on vehicle taxation, 31 May 2017, SWD(2017) 180 final, part 2/2, p. 82, Annex 11. It was noted: "Road charging is a very sensitive issue for Member States, especially when it comes to passenger cars. While this would probably be the most effective solution to the identified problems, it is not achievable at this stage."
[1352] Directive 2022/362, § 12.

out the use of user charges for heavy duty vehicles by 2030.[1353] On the contrary, the appropriateness of applying a comparable rule in the case of light duty vehicles will be assessed by the Commission in 2027.[1354]

The integration of climate change mitigation in the Infrastructure Charging Directive has posed the question of the interaction between this Directive and the current proposals under the 'Fit for 55' Package (including the revision of the EU-ETS and the ETD).[1355] This issue is touched upon by Recitals 27 of Directive 2022/362, which stipulates that:

> In order to ensure the *effectiveness* and *coherence* of the variation of charges according to CO_2 emissions and of external-cost charging for CO_2 emissions, which are both meant to unlock the deployment of low- and zero- emission vehicles, as well as to ensure a coherent application of Directive 1999/62/EC with any other carbon- pricing instrument related to road transport that is adopted in the future, the Commission should evaluate their effectiveness and necessity in a timely manner. Based on that evaluation, the Commission should, where appropriate, propose the amendment of provisions on variation of charges according to CO_2 emissions and of external-cost charging for CO_2 emissions, in order to *prevent double charging* through different carbon-pricing instruments. (…). In the event that another carbon-pricing instrument applicable to road transport is adopted in the meantime, the level of external-cost charges for CO_2 emissions should be limited to what is necessary to internalise those external costs, and the Commission should be empowered to adjust, by means of delegated acts, the reference values set out in Annex IIIc.

We thus see that the interplay between carbon pricing strategies is central to the EU, both in light of the internal consistency of EU law than its effectiveness. The willingness to avoid double regulation is consistent with the organisation of the relationship between the EU-ETS and the IED.

As a final point, the 'developmental – fairness' frame is employed on several occasions.[1356] The interplay between the 'economic efficiency' frame and the 'developmental – fairness' is clearly expressed in recitals 14;

> « When strengthening the user and polluter pays principles, certain characteristics of the Member States or their tolling and user charge systems should be taken into consideration. For example, in respect of particularly sparsely populated areas or a particularly large network of tolled or charged roads, the option of providing for exemptions of road sections should be available. »

[1353] *Ibid*, new Article 7, § 13.
[1354] *Ibid*, new Article 7, § 15.
[1355] *Infra*, Chapter 9, Section 4.
[1356] Most of these points are new compared to the 2017 Proposal.

Accordingly, Member States are allowed to provide for reduced rates or exemption in road section that are situated in sparsely populated areas (new Article 7, § 6).

The Directive also allows (and even encourages) Member States to apply a different treatment with respect to vehicle's frequent users, in order to 'take into account socioeconomic factors'.[1357] This design element is seemingly contrary to the 'economic efficiency' frame. In the same vein, Recitals 18 also underscores that such a system should not 'penalise users of private vehicles which, due to their place of residence in the countryside or in areas that are difficult to access or isolated, are forced to make more regular use of roads subject to charging'. Other provisions highlight a balance between several policy goals. Specific rules are introduced for vehicles of historical interest, in order to 'help safeguard the Union's automobile heritage'.[1358] These are defined in accordance with Directive 2014/45/EU, which is an example of the *consistency hypothesis*.[1359]

4. CONCLUSION

This Chapter has analysed the prevailing frames and corresponding categories in the field of transport. It closes my analysis of the legal environment of the three initiatives studied. This study brought out important elements. Firstly, it highlighted major differences in the way in which EU law regulates the different sources of emissions within the same sector, i.e. passenger cars and heavy-duty vehicles. Regulation of the former began decades ago, while that of the latter is only a few years old. EU law in this area is also fragmented. This can be viewed as the result of the 'autonomy' frame and the 'free market & fair competition' frame. The EU only regulates CO_2 emissions from new vehicles, not second-hand ones. In addition, in the case of heavy-duty vehicles, not all types of vehicles are covered. The rules applicable to these two categories of vehicles have varied. While both are collective targets, set pursuant to the 'technology' frame, the differences between the two markets justified different regimes. This shows the influence of the 'free market & fair competition' frame. This brings me to my second point.

In the case of both passenger cars and heavy-duty vehicles, the 'economic efficiency' frame has played some role (*e.g.* flexibility mechanism). However, it is secondary to that of the 'technology' frame and the 'free market & fair competition' frame. Another notable element is the way in which the regulation of vehicle emissions has been built on the basis of existing homologation

[1357] Directive 2022/362, Article7i, new 2a and recitals § 17.
[1358] Directive 2022/362, recitals, § 28 Article 7, c, § 3 and Article 7gb, § 5.
[1359] Directive 2022/362, new Article 2, § 23.

rules (*building blocks hypothesis*). This confirms the validity of the hypotheses of interaction established in Chapter 3. However, and this is my final point, unlike air pollution which was regulated as a standard integrated in the type approval rules (*integration hypothesis*), CO_2 emissions from vehicles have been addressed through separate frameworks. These frameworks have not taken the form of a standard but of a collective obligation. This approach has made it possible to maintain the variety of vehicles in the market, but also admits that some vehicles can continue polluting more than others. The difference in approach between air pollutants and CO_2 emissions illustrates the 'climate exceptionalism' approach.

The study of road pricing has pointed at an increasing role of the 'economic efficiency' frame. However, these analyses reveal that 'economic efficiency' is neither the only nor the predominant frame employed. Other frames, including 'autonomy' and 'technology', have been determinant in the response to climate change under Directive 2022/362. The relevance of the 'developmental & fairness' frame in this Directive is also remarkable. It is notable that it played a role with respect to passenger cars but not with other vehicle categories. This points at the differences between the emissions from distinct vehicles categories. We have also seen that climate change has been integrated in the existing framework of the Infrastructure Charging Directive in addition to the response to other challenges. Therefore, the responses to these different challenges have to be reconciled. Ultimately, we observe several hypotheses of interactions between Directive 2022/362 and its legal environment, especially with the regulation of CO_2 emissions from vehicles (*consistency hypothesis*) and with the Infrastructure Charging Directive (*integration hypothesis*).

Chapter 9
The mutually consecutive roles of the legal response to climate change and its legal environment

1. INTRODUCTION

In the two previous Chapters, I showed that the legislature has conceptualised the CO_2/energy tax proposals (Chapter 5) and the EU-ETS (Chapter 6) according to multiple frames of climate change. Subsequently, Chapter 7 and 8 shed light on the plurality of frames that climate legislations have employed and the variety of objectives they have pursued. It was observed that the respective role of these frames has varied, influencing the definition of the response to climate change. In this Chapter, I wish to address the following questions. The first is whether, and if so how, the diverging roles attached to these frames across among the initiatives scrutinised can be connected to the relationship with their legal environment. In the affirmative, the second question is whether, and if so how, these differences could explain (certain) differences in the design of both CO_2/energy tax proposals as well as the opposite fates of these proposals and of the EU-ETS.

I distinguish explicit (Section 2) and implicit (Section 3) interactions. This is because, as explained before, different methodologies must be used to unveil both types of interactions.[1360] In addition, explicit interactions, because they are clearly stated, can be evidenced with higher certainty than implicit ones. Next, in Section 4, I build on the findings made in the previous section to provide a critical take on the recent Fit for 55 Package, released by the Commission last July 2021. Section 5 concludes the discussion.

2. EXPLICIT INTERACTIONS

My focus in this section is on the explicit interactions between the three initiatives under study and their legal environment. My aim is to determine whether such interactions exist and to map them according to the distinct hypotheses elaborated previously (*integration, building blocks, consistency, disconnection*). By doing so, I wish to clarify whether (some of) these interactions could

[1360] See *Infra*, Chapter 3.

help explain the definition of the response to climate change, in particular how carbon taxes are designed and why some strategies fail while others succeed. To unveil their existence, I examine the legal provisions and/or the parliamentary work surrounding these pieces of law, including explanatory memoranda preceding legislative proposals, Commission's Communications staff working document.

These analyses are conducted across all the initiatives under study, namely the 1992 Proposal (2.1), the 2011 Proposal (2.2) and the ETS Directive (2.3) and the Aviation/Revised ETS Directives (2.4). Then, these findings are summarised in Sub-Section 2.5.

2.1. **1992 Proposal**

The 1992 Proposal had limited interactions with its legal environment (Table 19). As regards direct climate legislation, the 1992 Proposal tackled the issue of burden sharing among Member States. It did so despite the fact that EU law had not yet tackled this issue. The proposal dealt with this question via introduction of the temporary suspension of the tax arrangement. According to the Commission, the facultative temporary suspension of the tax arrangement 'might help resolve certain aspects of the problem of burden sharing'.[1361] Therefore, the 1992 Proposal deviated from the design implied by a strict 'economic efficiency' frame in favour of a design that better converged with the 'developmental – fairness' frame. This cannot be viewed as a horizontal interaction, given that no secondary legislation organised that question. On the contrary, it could be the result of a vertical interaction, either through the implementation of Treaty principles, such as sustainable development or solidarity, or as a legal borrowing from the approach followed at the international level.

The 1995 Amended Proposal addressed the issue of burden sharing but in a different way. The question was different because Decision 93/389/EEC had established some criteria for Member States to determine their respective efforts.[1362] It was established that Member States had to set their tax rates during a transitional period in conformity with the objectives of Article 2 of Decision 93/389/EEC. Article 8 of the Proposal stipulated:

> 'Member States should determine the structure of their rate in conformity with the objectives set out in Article 2 of the Council Decision 93/389/EEC (in order to contribute to the stabilisation and limitation of CO_2 emissions by encouraging energy efficiency and by taking into account the content of carbon in the products taxed.'

[1361] 1992 Proposal, p. 22.
[1362] *Infra*, Chapter 7, 2.1.1.

The freedom to determine the rates responds to the 'autonomy' frame, while the reference to Decision 93/389/EEC implies that the tax rates would have been set in accordance with the 'developmental – fairness' frames. The words 'in conformity with' suggests that the *consistency hypothesis* is involved. Thus, taking the burden sharing decision into consideration also led to a design that partially diverged from a design implied by an 'economic efficiency' frame. The difference of approach between the 1992 Proposal and the 1995 Amended Proposal underlines possible differences as to how to address this question.

A second area of interaction was with the prevailing framework on energy taxation. The Commission decided to borrow the notions of taxable event and chargeability from existing arrangements for excise duties.[1363] As it was explained, 'Overall, the techniques used for the practical application of the tax are essentially those introduced for excise duties'.[1364] Accordingly, Article 7 of the Proposal stated that

> 'The production, holding, movement and monitoring of the products specified in Article 3 (1) and (2) (a) shall be determined in accordance with the provisions of Council Directive 92/12/EEC'.

The purpose of this approach was to reduce the administrative burden and overall cost, by optimising existing administrative structures.[1365] In other words, the Commission's intention was to create synergies between the national systems in place for excise duties on energy, which were harmonised at EU level to organise the establishment, and the collection of the CO_2/energy tax. The focus of the Commission on cost and simplicity suggests that the 'economic efficiency' frame was employed. Since the CO_2/energy tax would have benefitted from the tax arrangements in place, the interplay between both frameworks thus falls into the *building block hypothesis*.

By contrast, the Commission conceived the CO_2/energy tax under proposal as separate from the Mineral Oils Directives. In this sense, Article 1, § 1 of the Proposal stipulated that:

> 'The rate of the tax shall be in addition to the rates applied by the Member states to the products concerned by the Council Directives on the harmonization of the structures of excise duties on mineral oils and on the approximation of the rates of excise duties on mineral oils.'

This stipulation implies that the CO_2 /energy tax under proposal was seen as additional to existing taxes on energy; that is, it would have been levied on the top of existing energy taxes.

[1363] 1992 Proposal, Explanatory Memorandum, p. 11.
[1364] *Ibid*, p. 10.
[1365] *Ibid.*

This corresponds to the *disconnection hypothesis*. This choice was not consistent with the 'economic efficiency' frame given that the Mineral Oils directives did not address the problem of climate change nor responded to the 'economic efficiency' frame. These Directives were instead shaped by the 'free market & fair competition' frame and by the 'autonomy' frame.

	Hypothesis	**Shapes legal response**	**Shaped by legal response**
	1992 Proposal/ 1995 Amended Proposal		
Burden sharing	1992 issue mentioned but decision not yet adopted	Facultative temporary suspension	///
	1995 consistency	Determination tax rates	
Renewable energy	Disconnection	///	
Energy efficiency			
Energy taxation	Building blocks - disconnection	Builds on tax arrangements of General Arrangement Directive, including CN codes (determination of scope, chargeability, etc) Disconnection with mineral oils directives	
Infrastructure charging Directive	Disconnection	///	
Energy law			

Table 19 Explicit mutual interactions between the 1992 Proposal and its legal environment

2.2. **2011 Proposal**

The 2011 Proposal both shaped and was shaped by several legislative acts that prevailed in the EU legal order. The main interaction was with the ETD (2.2.1). The Proposal aimed to revise that Directive so as to differentiate energy taxes *inter alia* on the basis of CO_2 emissions, which corresponds to the *integration hypothesis*.[1366] The interplay between the 2011 Proposal and the ETD had visible consequences on the design of the CO_2/energy tax, including on its coverage, rates and derogations. As such it partially revised the ETD to respond to climate change according to an 'economic efficiency' frame. At the same time, the ETD shaped the CO_2/energy tax in a way that did not fully match with the 'economic efficiency' frame (*e.g.* with respect to the tax rates and derogations). A second central interaction was with the EU-ETS (2.2.2). The EU-ETS had a notable influence on the scope of the proposal as well as on the tax rates and on the tax treatment of electricity. Unlike the interaction with the ETD, the relationship with the EU-ETS responded to the 'economic efficiency' frame.

[1366] 2011 Proposal, p. 2

The 2011 Proposal also interacted with other frameworks, including the renewable energy directive and the burden sharing decision but these concerned minor design elements (2.2.3). These interactions are laid out in Table 20 below.

	Hypothesis	**Shapes legal response**	**Shaped by legal response**
Burden sharing	**Consistency**	Transitional period for certain MS	///
EU-ETS	**Consistency** – Building blocks	Scope, rate, treatment of electricity Monitoring & reporting guidelines	///
IED	Disconnection	///	///
Vehicle performance regulations	Disconnection	///	///
Renewable energy	Consistency – building blocks	Definition biofuels, sustainability criteria biofuels	///
Energy efficiency	building blocks	Determination of net calorific value	///
Energy taxation	**Integration**	Scope, rates, derogations included in the ETD, partially modified but also partially maintained	
Infrastructure charging Directive	Disconnection	///	///
Energy law	Consistency	Common method to set tax rates	

Table 20 Explicit mutual interactions between the 2011 Proposal and its legal environment

2.2.1. *Integration into the ETD*

The integration of the CO_2/energy tax into the framework of the ETD (*integration hypothesis*) led to reciprocal interactions between these two frameworks. In other words, the 2011 Proposal and the ETD played mutually constitutive roles.

To start with, the 2011 Proposal kept largely unchanged the scope of the ETD although it partially reviewed existing exemptions. Energy products used for purposes other than as transport and heating fuel along with the dual use of energy products were kept outside the scope of the tax arrangements.[1367] The 2011 Proposal also maintained the mandatory exemption for commercial aviation and maritime navigation fuel, even though it was planned to reconsider its justification at a later stage.[1368] In the same vein, the exclusion of energy products used for chemical reduction and in electrolytic and metallurgical processes, and exclusion for energy

[1367] ETD, Article 2, § 4.
[1368] 2011 Proposal, *op. cit.*, Article 1, al. 21, introducing a new Article 29 and Explanatory Memorandum p. 9.

products and electricity used for mineralogical processes were maintained. On the contrary, the exclusion from the ETD scope for electricity intensive use, i.e. when it accounted for over half of the cost of a product, was removed as it risked distorting competition in the internal market.[1369] This justification suggests that the 'free market& fair competition' frame was employed.

The purpose of the 2011 Proposal was to revise the tax base and rates that prevailed in the ETD, on the grounds that they were considered inconsistent with both the proper functioning of the internal market and with the environmental objectives pursued by the EU.[1370] This revision was seen as a process of 'equalising' existing tax rates; the proposal aimed to revise existing tax so as to ensure that each tonne of CO_{2eq} and each GJ embedded into the relevant energy products would be priced at the same level.[1371] This suggests that the Commission's willingness was to revise the ETD to mitigate climate change according to the 'economic efficiency' frame. The Commission planned to introduce these changes gradually. Nonetheless, the Proposal maintained the categorisation of energy products that prevailed in the ETD, by distinguishing heating fuel, motor fuel, and motor fuels used for industrial and commercial purposes. As noted before, this categorisation corresponds to the 'free market & fair competition' frame.[1372]

The 2011 Proposal considerably revised the derogations allowed by the ETD, even though some major derogations were left unchanged (Annex I). In some cases, they were removed for both tax components; this included the differentiation between commercial and non-commercial use of gas oil used as propellant, for taxis, for natural gas and LPG used as propellants, as well as the possibility to apply a level of taxation down to zero for energy products and electricity used for agricultural, horticultural or pisciculture works, and in forestry. This was also the case of biomass, as it was considered that the Proposal took their specificities sufficiently into account.[1373] The distinctions between business and non-business use of energy as well as between leaded and non-leaded petrol were also abolished.[1374] Other derogations were maintained for both tax components, such as the facultative reductions in favour of gas oil used by heavy-duty vehicles when a national road pricing system is adopted, derogations in favour of charitable households.[1375]

[1369] 2011 Proposal, *op. cit.*, p. 9 & Article 1, point (3), modifying Article 3 of the Energy Taxation Directive.
[1370] *Ibid*, pp. 2-3.
[1371] *Ibid*, Recital, § 11
[1372] Compare Annex I of the 2011 Proposal and Annex I of the ETD.
[1373] *Ibid*, p. 10.
[1374] 2011 Proposal, *op. cit.*, Explanatory Memorandum, p. 8.
[1375] Note however that the scope was broadened to new energy products whilst being limited to non-business uses. See 2011 Proposal Article 1, (13) modifying article 15, § 1 (h) of the Energy Taxation Directive and Recitals, § 17.

The possibility was also maintained for the Commission to allow any Member State to introduce further exemptions or reductions for specific policy considerations.[1376] Other derogations were withdrawn but only with respect to the CO_2 component. These encompassed the tax reductions in favour of energy-intensive businesses, the differentiated rates for local public passenger transport, waste collection, armed forces and public administration, disabled people, ambulances, and for energy products and electricity used for the carriage of goods and passengers by rail, metro, tram and trolley bus.[1377] By contrast, one novelty of the 2011 Proposal was the exemption in favour of firms at risk of carbon leakage.[1378] Most of these design elements imported from the ETD represented notable differences between the CO_2/energy tax under the 1992 Proposal and the 2011 Proposal. Therefore, they show that the interaction with a carbon tax legal environment can have an influence on its design.

2.2.2. *Consistency with the EU-ETS*

In addition to the ETD, the EU-ETS also had a crucial influence on the design of the 2011 Proposal. This interaction can further explain some differences in the design of the CO_2/energy tax defined by this proposal compared to the 1992 Proposal (in particular as to the scope and treatment of electricity). The ETD, which the 2011 Proposal aimed to amend, and the EU-ETS indeed overlapped (*e.g.* in the case of pulp, paper and small industrial installations).[1379] This is because the point of regulation was different; the 2011 Proposal was designed as an upstream system imposed on energy suppliers, while the EU-ETS was designed as a downstream system applying to end emitters. At the same time, some activities were covered neither by the ETD nor by the ETS Directive. This situation was considered 'undesirable' given both 'the ensuing cost-efficiency losses and/or distortions in the internal market'.[1380] This refers both to the 'economic efficiency' and 'free market and fair competition' frames.

Accordingly, a central objective of the 2011 Proposal was to complement the carbon price signal established by the ETS while avoiding overlaps between the two instruments'.[1381] This places the relationship between both frameworks into the *consistency hypothesis*. To ensure coherence between

[1376] Article 18 of the ETD.
[1377] Save taxis, for both components
[1378] 2011 Proposal, Article 1, point (12), introducing a new Article 14a in the Energy Taxation Directive.
[1379] *Ibid.* See also Commission of the European Communities, Commission Staff Working Document *Accompanying the* Green Paper on market-based instruments for environment and energy related policy purposes, SEC(2007) 388, pp. 19-20; European Commission, Commission Staff Working Paper Impact Assessment *Accompanying document to the* Proposal for a Council Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity, 13 April 2011, SEC(2011) 409 final, Vol. 1 p. 13. On this topic see C.D. SOARES, 'Energy tax treatment of undertakings covered by emissions trading', *op. cit.*
[1380] 2011 Proposal, *op. cit.*, Recitals § 8 and Explanatory Memorandum p. 3.
[1381] *Ibid*, p. 2.

the energy taxation and the EU-ETS, the Proposal made a series of modifications to the ETD. To be more specific, it expanded its scope to emissions from installations covered by the EU-ETS, regardless of whether those installations reached the threshold of the ETS Directive.[1382] At the same time, it introduced a mandatory exemption from the CO_2 component in the event that energy products were covered by the ETS Directive.[1383] In addition, the rate of the CO_2 component was determined on the basis of the allowance price under the EU-ETS.[1384] The proposal also set out specific rules with respect to electricity to address the fact that power generators were covered by the EU-ETS.[1385] Finally, the Proposal relied on the guidelines for the monitoring and reporting of GHG emissions, adopted pursuant to the ETS Directive, which corresponds to the *building block hypothesis*.[1386]

2.2.3. *Other frameworks*

The 2011 Proposal interacted with other frameworks besides the ETD and the EU-ETS although these interactions tended to concern minor design elements. In the field of energy, the Proposal referred to the definition of biofuels and bioliquids under the Renewable Energy Directive 2009/28/EC, in line with the *consistency hypothesis*.[1387] The CO_2-related tax varied according whether biofuel products met sustainability criteria set out by that Directive.[1388] This is noteworthy because these products were classified on the basis of several criteria, including, but not solely, their CO_2 content.[1389] In case biofuel products did not meet sustainability criteria, the tax was levied based on reference values for the equivalent heating fuel or motor fuel, which

[1382] *Ibid*, Article 1, (2) b.
[1383] *Ibid*, Article 1, (11).
[1384] *Ibid*, Recitals § 7: 'It should be ensured that the minimum levels of taxation preserve their intended effects. Since CO2-related taxation complements the operation of Directive 2003/87/EC, the market price of the emission allowances should be closely monitored in the periodic review of the Directive, incumbent on the Commission. The minimum levels of general energy consumption taxation should at regular intervals be automatically aligned to take into account the evolution of their real value in order to preserve the current level of rate harmonisation'. Explanatory memorandum, p. 7 & new Article 2, § 4.
[1385] 2011 Proposal, *op. cit.*, Explanatory Memorandum, p. 8. Taxing electricity as an input, as the Proposal stipulated, required two main changes to the existing system of the Energy Taxation Directive. First, it involved limiting the mandatory exemption for energy products used to generate electricity to the energy component, as maintaining that exemption would have prevented the application of the CO_2-related tax on input products. Second, it was necessary to limit the rule according to which Member States were allowed to derogate from that exemption for reasons of environmental policy, so as to exclude CO_2 emissions. See Article 1, (11), inserting a new Article 14 of the Energy Taxation Directive.
[1386] In particular, it was established that 'CO_2-related taxation shall be calculated in EUR/t of CO2 emissions, on the basis of the reference CO_2 emission factors set out in point 11 of Annex I to Commission Decision 2007/589/EC of 18 July 2007 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council'. 2011 Proposal new Article 1 § 2. See also Explanatory memorandum p. 5, recitals § 6.
[1387] *Ibid*, Article 1(1), inserting a new § 2 in Article 1 of the ETD.
[1388] As established by Decision 2007/589/EC,
[1389] About these criteria see CJEU, Industrie du bois de Vielsalm & Cie (IBV) SA, *op. cit.*

corresponded to the system applied at that time to biomass.[1390] Furthermore, the Proposal built on that directive to set the net calorific value of biomass products, whilst relying on the Energy Savings Directive with respect to the net calorific value of other energy products (*building block hypothesis*).[1391] The aim of adopting a common method to set the tax rates was to ensure consistency with EU energy policy, to ensure both the proper functioning of the internal market and environmental protection (*consistency hypothesis*).[1392]

The 2011 Proposal also referred to the Effort Sharing Decision 406/2009/EC.[1393] The interaction between both frameworks seems to fall under the *consistency hypothesis*. The recitals of the Directive under proposal provided that:

> 'The minimum levels of CO_2-related taxation should be fixed in the light of the national targets for Member States as laid down in Decision 406/2009/EC (...). Since that Decision recognises that efforts to reduce their greenhouse gas emissions should be fairly distributed between the Member States, transitional periods should be fixed for certain Member States.'[1394]

This stipulation indicates that the distribution method established by the Effort Sharing Decision was taken into account to establish the tax rates. Accordingly, a transitional period was introduced for an exhaustive list of Member States.[1395] The use of minimum rates also enabled differentiation among EU countries although these differences were limited by the obligation to replicate the hierarchy resulting from the minimum tax rates.

Another relevant framework was the Infrastructure Charging Directive, which established harmonised conditions in which Member States may levy road pricing schemes.[1396] Both schemes concerned the pricing of heavy-duty vehicles use and overlapped insofar as distance-based charging was concerned. The ETD organised the interplay with this framework, by allowing reduced rates when road pricing schemes are in place.[1397] The 2011 Proposal removed that

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1390 2011 Proposal, *op. cit.*, Explanatory Memorandum, p. 3.
1391 *Ibid*, p. 5. This is specified in Annex III to Directive 2009/28/EC, *op. cit.*.
1392 *Ibid*, p. 2.
1393 *Ibid*, § 9 and Explanatory Memorandum p. 4.
1394 *Ibid*, Recitals § 8.
1395 Namely Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia may, for uses referred to in Articles 8 and 9, apply a transitional period until 1 January 2021 to introduce CO2-related taxation". This list was however more restrictive than the list of EU countries allowed to increase their emissions under the Effort Sharing Decision, which included Bulgaria, Czech Republic, Estonia, Latvia, Lithuania Malta, Poland, Portugal, Slovenia, Slovakia, Hungary, Romania, were allowed increase their GHG emissions (see notably Annex I and recital § 8). Thus Malta, Slovenia and Portugal are not mentioned in the 2011 Proposal but could increase their emissions.
1396 *Infra*, Chapter 8, 3.1.
1397 ETD, Article 7, § 4.

possibility.[1398] On the contrary the 2011 Proposal did not organise the interplay with other frameworks and therefore, their interaction falls into the *disconnection hypothesis*. Similar with the case of the EU-ETS, defining the interplay between the CO_2/energy tax and the IED would have been relevant to avoid double regulation, in line with the 'economic efficiency'. Nonetheless, this issue was less central than in the case of the EU-ETS since most installations covered by the IED fell outside the scope of the 2011 Proposal. The EU could also have organised the interaction with Regulation 443/2009 on emission performance targets for new cars or the target contained in the Fuel Quality Directive, given that their scope overlapped with the Proposal.[1399]

2.3. **ETS Directive**

The explanatory memorandum preceding the ETS Directive extensively dealt with the interaction between the EU-ETS and prevailing legislation.[1400] This concerned both direct and indirect climate legislation, i.e. acts in relation to distribution of mitigation pledges, the GHG monitoring mechanism, electricity and gas liberalisation, energy taxation, environmental agreements and other areas of environmental law such as industrial emissions (IPPC Directive) and public participation (Aarhus Convention). The 2000 Green Paper also mentioned the existing regime for Ozone Depleting Substances, the Common Fisheries Policy, and the Common Agricultural Policy.[1401] The Ozone Depleting Substances Regulation was hailed as an inspiration for the EU-ETS, as 'practical examples of allowances with some degree of transferability' which the EU could use to build the EU-ETS. This suggests that the focus of the Commission is on the type of instrument used, in line with an instrumental mindset.

As one might expect, the EU-ETS did not have the same relationship with all these pieces of law. The most important interaction was with the IPPC Directive, which established an integrated approach to regulate pollution from the largest industrial plants (2.3.1). As their interplay falls into the *building blocks hypothesis,* this resulted in mutually constitutive interactions. Certain design elements of the EU-ETS (*e.g.* scope) were shaped by the IPPC Directive, pursuant to the 'autonomy' frame. Conversely, the ETS Directive amended the IPPC Directive to avoid double regulation, which corresponds to the 'economic efficiency' frame. The design of the EU-ETS, especially the NAPs, was also influenced by other frameworks in place such as the Effort Sharing Decision 2002/358/EC (2.3.2). On the contrary, the ETS Directive was disconnected from the

[1398] 2011 Proposal, Article 1, § 6.
[1399] See *Infra*, Section 4.
[1400] 2001 Proposal, pp. 4-9.
[1401] 2000 Green paper, p. 8.

ETD, whilst the 'economic efficiency' frame would have justified organising their interplay. These elements are summarised in Table 22 below.

	Hypothesis	**Shapes legal response**	**Shaped by legal response**
ETS Directive			
Burden sharing	Consistency	Decentralised approach, Determination of caps in NAPs	///
IPPC Directive	Building blocks - Consistency	Scope, permitting system, NAPs criteria (but not directly based on BATs)	Prohibition to establish emission limits for gases/installations covered by ETS
Renewable energy	Consistency	NAPs (quantity of allowances in line with national energy policies	///
Energy efficiency			
Energy law			
Energy taxation	Disconnection	///	///
Aviation/Revised ETS Directive			
Burden sharing	Disconnection	///	(scope excluded ETS sectors)
IPPC Directive	Building blocks	Scope (expended to other IPPC installations), permitting system,	Prohibition to establish emission limits for gases/installations covered by ETS
Other frameworks	Disconnection	No further interactions	

Table 21 Explicit mutual interactions between the EU-ETS and its legal environment

2.3.1. *IPPC Directive*

The most central interaction between the EU-ETS and its legal environment was undoubtedly with the IPPC Directive. This interaction was extensively discussed in the Communications preceding the Directive. In the Green Paper, the Commission envisaged two options to conceive this relationship: either to integrate the EU-ETS into the framework of the IPPC Directive by making the permits covering GHG emissions transferable or to keep both frameworks separate.[1402] In the second case, the Commission specified that GHG emissions limit values determined on the basis of BATs could still serve as minimum requirements and/or that these levels could be used to allocate allowances in case of grandfathering.[1403] This means that regulation of GHG emissions from those installations would have been defined both according to the 'technology' frame (employed in the IPPC Directive) and by the 'economic efficiency' frame.

[1402] *Ibid*, p. 21.
[1403] *Ibid.*

However, at the end of the day, the legislature did not choose this option. Instead, it was decided that the EU-ETS would remain separate from the IPPC Directive whilst building upon the permit system established by that Directive. Towards this end, Article 8 of the ETS Directive stipulated that:

> 'Member States shall take the necessary measures to ensure that, where installations carry out activities that are included in Annex I to Directive 96/61/EC, the conditions of, and procedures for, the issue of a [GHGs] emissions permit are coordinated with those for the permit provided for in that Directive. The requirements of Articles 5, 6 and 7 of this Directive may be integrated into the procedures provided for in Directive 96/61/EC.'

What this stipulation suggests is that GHG emission permit used in the EU-ETS could be issued by national authorities together with the permit required by the IPPC Directive.[1404] Therefore, their relationship fell into the *building blocks hypothesis*. At the same time, Member States had to ensure coordination between both procedures, which matches with the 'autonomy frame.

The choice to build the EU-ETS on the IPPC Directive was consistent with the 'economic efficiency' frame, as it aimed to reduce costs and reduce the administrative burden on firms. This approach had major consequences on the design of the EU-ETS. The material coverage of the EU-ETS under the ETS Directive largely husbanded the scope of the IPPC Directive. Installations included in the EU-ETS were defined in the same way as by the IPPC Directive.[1405] In addition, the EU-ETS applied to 'the core activities' of the IPPC Directive, including energy activities, ferrous industry and mineral industry, but initially not to chemicals and waste incineration sectors which were also covered by the IPPC Directive.[1406] By contrast, power and heat generation installations between 20 and 50 MW were covered by the EU-ETS but not by the IPPC Directive.[1407]

[1404] See also 2001 Proposal, p. 8 noting that Member States' competent authorities would grant greenhouse gas emissions permits. These authorities could be the same as those implementing the IPPC Directive or new authorities, depending on each Member State's preference. For activities covered under the IPPC Directive, the greenhouse gas permit could be issued through a single procedure in accordance with that for permits under the IPPC Directive. Any changes that take place to the installation must be reported and could trigger a change in the conditions of the permit.

[1405] ETS Directive, Article 3, (e).

[1406] As noted before, this choice was justified on the grounds of administrative or technical complexity to include them, compared to the benefits in terms of emissions reduction. 2001 Proposal, p. 10. In this regard, Dreger observes "The sectors covered by the IPPC directive had already proved that they could integrate the change into their business model (Zapfel and Gardiner 2002, p. 15) and that they could deal with the monitoring requirements of the IPPC directive'. He explains that the 20MW threshold was directly inspired from the threshold applicable in the US Acid Rain Program, which 'was proved to be manageable as well'. J. DREGER, 'The Commission's Puzzling and Powering over the Revision of the Emissions Trading Scheme', in *The European Commission's Energy and Climate Policy*, London, Palgrave Macmillan UK, 2014, pp. 62-109, available at http://link.springer.com/10.1057/9781137380265_3 (Last consulted on 2 June 2022).

[1407] Compare Annex I in each of both Directives.

The limited scope of the IPPC Directive served as a key justification for the stepwise approach the EU followed to define the EU-ETS. The Green Paper underlined that:

> 'The Large Combustion Plant and Integrated Pollution Prevention and Control Directives appear to offer a useful starting point for defining the trading system population. These Directives do not cover all sectors; nor do they include smaller sources within the sectors that are covered. However, the potential competitive distortions caused by leaving out some sectors, or smaller emission sources within the covered sectors can be limited by ensuring that equivalent policies and measures are imposed on sectors and sources not covered by the trading system.'[1408]

This statement of the Commission identifies the stepwise approach in the field of industrial pollution as a starting point for the EU-ETS. It also underscores the risk of a stepwise approach for the functioning of the internal market but argues that such a risk can be avoided by adopting comparable mitigation policies for non-covered sectors. This indicates that the 'free market & fair competition' frame was employed. However, some twenty years after the ETS Directive, such comparable mitigation policies are still lacking in non ETS sectors.

The IPPC Directive was also influential in determination of NAPs. According to Annex III (criterion 3) of the ETS Directive, allowance allocation had to 'be consistent with the potential, including the technological potential' of the relevant activities. The reason is that the Commission sought to guarantee that 'overall emissions of all the participating installations collectively would not be higher than if the emissions were to be regulated under the IPPC Directive'.[1409] Nonetheless, technological potential was not assimilated to BATs. Several proposed amendments aimed to include BATs or benchmarks into NAP criteria but these were rejected by the Commission, on the grounds that the EU-ETS was 'an instrument that does not need technology standards, but let's operators decide which technologies they use'.[1410] This underscores the legislature's choice to give precedence to the 'technology' frame over the 'economic efficiency' frame.

Following this line of reasoning, the legislature decided to discard using emissions limits based on BATs as minimum requirements. The ETS Directive amended Article 9 of the IPPC Directive so as to add the following paragraphs: [1411]

[1408] 2000 Green Paper, p. 13.
[1409] 2001 Proposal, *op. cit.*, p. 11.
[1410] Commission of the European Communities (2002). Amended proposal for a Directive establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, 27 November, COM(2002) 680 final, Amendments 78, 79 and 91.
[1411] ETS Directive, Article 26.

> 'Where emissions of a greenhouse gas from an installation are specified in Annex I to Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (*) in relation to an activity carried out in that installation, the permit shall not include an emission limit value for direct emissions of that gas unless it is necessary to ensure that no significant local pollution is caused.
>
> For activities listed in Annex I to Directive 2003/87/EC, Member States may choose not to impose requirements relating to energy efficiency in respect of combustion units or other units emitting carbon dioxide on the site.'[1412]

This change prevented installations and gases covered by the EU-ETS from being subject to an emission limit under the IPPC Directive. By contrast, this exclusion did not concern energy efficiency requirements, which confirms the separation between energy and climate.[1413] This choice of the legislature highlights the willingness to respond to climate change according to the 'economic efficiency' frame and not – even partially – to the 'technology' frame.

2.3.2. *Other frameworks*

The distribution method set out by the Effort Sharing Decision 2002/358/EC also had an influence on the EU-ETS. As the explanatory memorandum specified, the choice not to harmonise the quantities of allowances reflected 'the fact that the Burden Sharing Agreement redistributes effort by Member States to reflect Community solidarity'.[1414] Annex III of the Directive, its first criterion, further stipulated that the total quantity of allowances had to be allocated by each Member State so as to be 'consistent with the Member State's obligation to limit its emissions pursuant to Decision 2002/358/EC and the Kyoto Protocol'. These statements reveal that the *consistency hypothesis* is involved. As a result, national caps had to be determined by Member States pursuant to the 'developmental – fairness' frame. In turn, the choice to leave discretion to Member States to set the cap, as opposed to determining this distribution directly at EU level indicates that the 'autonomy' frame was employed.

The ETS Directive also addressed the interaction with energy law to a certain extent. The explanatory memorandum underlined that it was 'essential that this instrument is compatible with the liberalisation of energy markets'.[1415] The word 'compatible' points at the *consistency hypothesis*. It

[1412] 2001 Proposal, *op. cit.*, p. 9.
[1413] As noted in Chapter 7, 3.1.
[1414] 2001 Proposal, *op. cit.*, p. 5. 'The quantities of allowances issued would not be harmonised. This reflects the fact that the Burden Sharing Agreement redistributes effort by Member States to reflect Community solidarity.'
[1415] 2001 Proposal, *op. cit.*, p. 6

was submitted that an ETS had 'important advantages over traditional regulation', including that it could provide a uniform carbon price:[1416]

> 'in the context of the internal market – whether for electricity or any other competing product – an EC-wide emissions trading scheme will provide at any moment in time a *uniform price* for an allowance across the whole trading scheme. From the moment that trading starts, all installations covered by the scheme will be faced with the same price of emitting an extra tonne of carbon dioxide equivalent, from one side of the Community to the other.'

What this stipulation suggests is that an ETS would level the field up, by establishing a single carbon market and hence subject emissions from ETS installations to a common carbon price.[1417] This responds to the 'free market & fair competition' frame. The dichotomy between traditional regulation and emission trading, on the other hand, indicates that the relationship between the EU-ETS and energy was understood in instrumental terms.

Unlike the 2011 Proposal, the ETS Directive was disconnected from the ETD. This state of affair was in spite of the acknowledgement that both frameworks 'should be designed in such a way that they act as complementary instruments for covering the totality of emissions'.[1418] In the Commission's view, this meant that the revision of the ETD could permit pricing GHG emissions uncovered by the EU-ETS, i.e. 'smaller or mobile sources whose emissions are more difficult or expensive to monitor'.[1419] These interactions were further discussed by the Commission in the proposal preceding the ETS Directive although it did not lead to a concrete legal provision.[1420] Quite vaguely, the recitals of the ETS Directive stated that 'The instrument of taxation can be a national policy to limit emissions from installations temporarily excluded'.[1421]

1416 *Ibid.* My emphasis.
1417 *Ibid.*
1418 'The Commission recalls its proposal of 1997 for an energy products tax and continues to believe that the Community needs a general framework for the taxation of energy products. However, within this general framework, where activities are covered by the Community [GHG] emissions trading scheme, it would be appropriate to take into account the level of taxation that pursues the same objectives, without prejudice to the application of Articles 87 and 88 of the Treaty.' 2001 Proposal, *op. cit.*, Explanatory Memorandum, p. 7.
1419 2000 Green Paper, *op. cit.*, p. 23.
1420 2001 Proposal, *op. cit.*, Explanatory Memorandum, p. 7.
1421 ETS Directive, recitals § 24. Article 30, § 2 also charged the Commission to 'draw up a report on the application of the ETS Directive considering (…) the relationship of emissions trading with other policies and measures implemented at Member State and Community level, including taxation, that pursue the same objectives'. This sentence replaced the more prescriptive version of the proposal. The recitals stipulated that 'Emission allowance trading should form part of a comprehensive and coherent package of policies and measures implemented at Member State and Community level. Without prejudice to the application of Articles 87 and 88 of the Treaty, where activities are covered by the Community greenhouse gas emission allowance trading scheme, it would be appropriate to take into account the level of taxation that pursues the same objectives. The review of the Directive should consider the extent to which these have been attained.' 2001 Proposal

Whereas this situation has not changed as of mid-2022, a proposal to revise the ETD has been made in the context of the Fit for 55 Package.[1422]

2.4. **The Aviation and Revised ETS Directives**

The situation of the Aviation and the Revised ETS Directives contrasts with that of the ETS Directive. These directives and their explanatory memoranda do not explicitly refer to existing legislations. The changes in the legal environment of the EU-ETS did not affect its design. The profound transformations that direct and indirect climate legislation experienced, especially following the 2030 Package, did not lead to the revision of the EU-ETS. In the same vein, the adoption of the IED did not lead to the redefinition of the EU-ETS either. This may seem puzzling given that the Commission Staff Working Document pointed out the 'interaction with existing policies and regulation' as a relevant criterion to decide whether to include a new sector or gas in the EU-ETS, albeit not the only one.[1423] When the EU-ETS was revised in 2009, the inclusion of new sectors or gases was systematically scrutinised.

Accordingly, the inclusion of waste incineration was considered not suitable for inclusion *inter alia* on the grounds that 'This sector is already covered by both the Waste Incineration Directive and IPPC as there is a need for careful control of other pollutants from waste incineration'.[1424] The inclusion of PFCs from semi-conductors was excluded as since was considered that this would lead to a double burden. It was noted that 'The F-Gas Regulation (842/2006) already tightly covers the use of PFCs in the semiconductor industry, and it is also subject to a worldwide voluntary agreement. Hence inclusion under ETS would impose a double burden.'[1425] By contrast, the fact that petrochemical installations were already extensively monitored by the IPPC and Large Combustion Plants Directive weighed in favour of their inclusion.[1426]

The staff working document reached a similar conclusion with respect to the sector of road transport. It was noted that:

[1422] See Infra, Section 4.
[1423] Commission staff working document - Accompanying document to the Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the EU greenhouse gas emission allowance trading system - Summary of the impact assessment {COM(2008) 16 final} {SEC(2008) 52}.
[1424] *Ibid.*
[1425] *Ibid.*
[1426] *Ibid* 'Since petrochemical installations tend to be large and are already extensively monitored (IPPC and LCP Directive), the overall administrative burden accruing from inclusion in the EU ETS should not be disproportionate. Consistent coverage of the sector may even remove some regulatory complication.'

> 'A number of other instruments are already in place, or are proposed, in the transport sector. There are also questions relating to multiple instruments, which need to be addressed when considering bringing road transport into the EU ETS - in particular in view of the existing fuel excise duty system, which already constitutes an instrument to address demand for road transport fuels.'[1427]

This means that interaction between the EU-ETS and the ETD, the fuel quality directive and CO_2 performance obligations for new vehicles was considered. It was concluded that the interplay between these schemes, if properly designed, would not necessarily lead to a double burden but it would require determining the best cost-benefit ratio. This highlights that the 'economic efficiency' frame played a role in this assessment.

Conversely, the revision of the ETS Directive kept this relationship largely unchanged. There was one important exception to this. The adoption of the Revised ETS Directive led to the removal of ETS sectors from the Effort Sharing Decision 406/2009/EC.[1428] The EU thus avoided overlap between two different approaches: distribution of emission reduction contributions pursuant to the 'developmental & fairness' frame in the case of the Effort Sharing Decision and the 'economic efficiency' and 'free market & fair competition' frames in the case of the EU-ETS. In the EU-ETS, the legislature instead addressed fairness and solidarity through revenue recycling and transitional periods.[1429] The consequence of removing ETS sectors from the Effort Sharing Decision is that there is now a clear line of demarcation between ETS sectors and effort sharing sectors. These are regulated through separate frameworks and according to distinct frames.

All of this argues that the mutual constitutive interactions between the EU-ETS and its legal environment has evolved over time. The tight relationship between this scheme and its legal environment in its original definition was followed by a relative disconnection in a subsequent step.

2.5. **Interim conclusions**

The legislature generally organised the relationship between the initiatives under scrutiny and their legal environment, even though these were not systematically addressed. These are overviewed in Table 22 below. The 1992 Proposal was built on the general arrangement for excise duties but was disconnected from the Mineral Oils Directives. By contrast, the main interactions of the 2011 Proposal with its legal environment was with the ETD (*integration*

[1427] *Ibid.*
[1428] Decision 406/2009/EC, *op. cit.*, Article 2, § 1.
[1429] Revised ETS Directive, Article 10.

hypothesis) and the EU-ETS (*consistency hypothesis*). The choice to integrate the CO_2/energy tax proposal into the ETD helps explain some key differences in the design of the CO_2/energy tax under the 1992 and 2011 Proposals. These include the differentiation of the energy component according to uses and most derogations contained in the 2011 Proposal that did not exist previously. In the same vein, the interaction with the EU-ETS has had a visible influence on the design of the CO_2/energy tax proposed, including on the scope and rates.

The story of the EU-ETS was different. The IPPC Directive was central in the conceptualisation of the EU-ETS, as an application of the *building blocks hypothesis*. The ETS Directive both shaped and was shaped by the IPPC Directive. This relationship had an influence primarily on the scope of the EU-ETS, which encompassed most industrial installations covered by this Directive. At the same time, it implied addressing climate change in a different, and no longer integrated, manner compared to other environmental problems regulated by the IPPC Directive. The EU-ETS was also largely influenced by the burden sharing decision, pursuant to the 'developmental – fairness' and 'autonomy' frames. With the adoption of the Revised ETS Directive, the EU-ETS entered into a new phase. Even though it continued interacting with the IPPC Directive, it was no longer shaped by the Effort Sharing decision. ETS and effort sharing sectors became two separate frameworks, in line with the *disconnection hypothesis*.

On the contrary, on several occasions the three initiatives above were disconnected from the legislations composing their legal environment. The interplay between the 1992 Proposal and the Mineral Oils Directives supports this point. By the same token, the 2011 Proposal was disconnected from the Fuel Quality Directive and from Regulation 443/2009 on the CO_2 emission performance of new passenger cars. The EU-ETS has been disconnected from the ETD. Since the adoption of the Revised ETS Directive, it no longer interacts with the Effort Sharing Decision. Furthermore, none of these schemes organised the interaction with the VAT Directive, and this even though VAT is also levied in relation to energy consumption. Such a disconnection may seem puzzling given the strong intersections between these frameworks, either because they share a common objective (climate change mitigation) or regulate directly or indirectly the same objects (*e.g.* energy).

The different interactions between the three initiatives under study and their legal environment offer an alternative reading to the respective success and failure of these schemes. The finding that they did not interact with the same frameworks could help explain why the EU managed to adopt the EU-ETS and not the CO_2/energy tax proposals. Revising how pollution from large industrial installations is regulated is simply not the same thing as revising how energy products

are taxed. The prevailing objectives differed, the frames differed and the regulatory objects differed. It is true that it is difficult to demonstrate that these diverging interactions rendered it impossible to adopt the CO_2/energy tax proposals but not the EU-ETS. Nevertheless, they at least testify that the differences between both schemes were not only a matter of instruments or voting requirements. There were more substantive differences between these schemes.

In all, the analyses above illustrate the existence of explicit interactions between the three initiatives in question and prevailing legislations. This shows that the legal response to climate change both shapes and is shaped by its legal environment; that is, they play mutually constitutive roles. In turn, this confirms the role of the legal context in conceptualising the legal response to climate change. These analyses also further validate the four hypotheses of interactions between frameworks set out in Chapter 3. On the contrary, they do not indicate a one to one relationship; a change in the legal environment does not necessarily affect how the law responds to climate change or vice versa. In addition, there is not one single prism through which these relationships are conceived, as evidenced by the different ways the 1992 and the 2011 Proposals have interacted with energy taxation. Instead, there is scope for the legislature to decide how to imagine these interactions. As a final point, I do not catch a glimpse of a common mindset behind the choice of one type of interaction over another. Therefore, the way these relationships are conceived is hardly foreseeable.

These interactions are summarised in Table 22 below.

Legal environment	**1992 Proposal**	**2011 Proposal**	**ETS Directive**	**Revised ETS/aviation Directives**
Effort sharing	Consistency (e.g. effort sharing decision)	Building blocks (measurement) Consistency (e.g. ETS Directive, transitional periods)	Consistency (decentralised – free allocation)	**Disconnection**
IPPC Directive	Disconnection	Disconnection	**Building block**	
Other climate legislations	Disconnection			
Renewable energy/energy efficiency	Irrelevant	Building blocks (measurement) Consistency (biofuels)	Consistency	Disconnection
Energy law (liberalisation)	Irrelevant	Consistency (common rates)	Consistency (uniform CO_2 price)	
Tax law ***General arrangements***	Building blocks	Building blocks	**Disconnection**	
Energy/Mineral oils Taxation Directive	Disconnection	**Integration**	Disconnection	
Infrastructure charging Directive	Disconnection			

Table 22 Interactions between carbon pricing schemes and their legal environment

3. IMPLICIT INTERACTIONS

The previous Section shed light on the explicit interactions between the initiatives scrutinised and their legal environment. It underlined that these interactions have varied over time and across the initiatives studied. Some of them can already help explain certain differences in the design of the initiatives analysed. The diverging ways in which the CO_2/energy tax proposals have interacted with their legal environment could also tell an alternative, yet complementary, story as to why the EU-ETS was enacted while the CO_2/energy tax proposals failed to be adopted. However, focusing on explicit interactions is likely to be only one side of the story. One can expect that the legislature does not always explicitly justify its choices nor that these choices are always conscious. Therefore, it is relevant to study another type of interaction, that is implicit interactions.

To unearth these interactions, I proceed through comparisons. In particular, I systematically compare the three initiatives under study and their legal environment based on the findings made in the previous Chapters with respect to the relevant frames and objectives of the legislations studied. With these comparisons, my purpose is to determine the elements of convergence and of

divergence between these acts. I study these interactions by starting with the 1992 Proposal (3.1). Then I turn to the 2011 Proposal (3.2). In Sub-Section 3.3, I continue with the ETS Directive and I finish with the Aviation and Revised ETS Directive (3.4). Ultimately, in Sub-Section 3.5, I summarise these findings.

3.1. **1992 Proposal**

The legal environment of the 1992 Proposal was composed of only a few acts intersecting with climate change. As regards direct climate legislation, the Burden Sharing Decision 93/389/EC had not yet been adopted and there was no meaningful piece of law that regulated GHG emissions. There were no harmonised frameworks in relation to renewable energy and energy efficiency; EU action in this area took the form of mere planning obligations.[1430] By the same token, the IPPC Directive was only enacted several years after the 1992 Proposal was made. Therefore, the objective pursued the proposal, i.e. climate change, already differentiated from its legal environment. It also differed from existing legislation in terms of the frames used. In the Burden Sharing decision, which was enacted one year later, the 'developmental – fairness' frame was predominant unlike in the 1992 Proposal where it played a more minor role. This changed with the 1995 Amended Proposal. The adoption of the 1992 Proposal would have resulted in the coexistence of two overlapping frameworks distributing emission reduction burden in different ways.

There was also a gap between the 1992 Proposal and indirect climate legislation. This framework was sparse; in particular, the liberalisation of the energy market through positive harmonisation had not yet started. These limited pieces of law diverged from the 1992 Proposal as to the way they framed problems and determined the comparability of situations. The Mineral Oils Directives were conceived through a stepwise approach, pursuant to the 'autonomy' frame. The use of minimum rates was also a common element between these frameworks. In the same vein, the scope of the Infrastructure Charging Directive (93/89/EC replaced by Directive 99/69/EC), which was adopted one year after the proposal was made, was restricted to certain categories of heavy-duty vehicles. The comprehensive approach of the 1992 Proposal diverged from such a step-by-step approach. On the contrary, the central role of the 'free market & fair competition' frame in the Mineral Oils Directives and the Infrastructure Charging Directive converged with

[1430] *Infra*, Chapter 7, 2.1.

the 1992 Proposal. In this regard, the focus of the proposal energy products used for heating and transport purposes corresponded to the scope of the Mineral Oils Directives.

All these elements suggest a stark contrast between the 1992 Proposal and its legal environment. These differences were either due to the objective addressed or the frames employed (or both). These elements are found in Table 23 below.

	Main problems addressed			**Frames (decreasing order of importance)**		
	Legal response	Legal environment	Convergence / divergence?	Legal response	Legal environment	Convergence / divergence?
Burden sharing 93/389/EC	Climate change	Climate change	Convergence	Scope: Economic efficiency Free market & fair competition Functioning: Autonomy Free market & fair competition Economic efficiency Developmental – fairness	Developmental – fairness Autonomy	Partial divergence/ convergence
Vehicle performance (voluntary - 1995)					Autonomy Technology	Partial divergence/ convergence
Renewable energy		Various objectives including climate change	Partial convergence		Autonomy	Partial divergence/ convergence
Energy efficiency						
Energy taxation		Revenue collection/ other policies	Divergence		Autonomy Free market & fair competition	Partial divergence/ convergence
Infrastructure charging Directive 93/89/EC - 99/69/EC		Fair financing/other policies	Divergence		Autonomy Free market & fair competition Economic efficiency	Large convergence
Energy law		Various objectives including climate change	Partial convergence		Autonomy	Partial divergence/ convergence

Table 23 Comparison between the 1992 Proposal and their legal environment as to the problem addressed and relevant frames

3.2. **2011 Proposal**

The legal environment of the 2011 Proposal differed from that of the 1992 Proposal. In the course of the two decades separating the two proposals, the EU legal order had changed dramatically. The distribution of emission reduction efforts among Member States was organised

and the EU-ETS had been enacted. The Proposal followed the aforementioned 2009 Climate and Energy Package for 2020 which led to the revision of the EU-ETS and to the adoption of various acts including the Renewable Energy Directive 2009/28/EC, the Fuel Quality Directive 2009/30, Regulation 443/2009 on the CO_2 performance of new cars and the Energy Performance of Building Directive.[1431] This legislative context was more concerned with the problem of climate change than at the time of the 1992 Proposal. This suggests that the legal environment of the 2011 proposal was more favourable to the adoption of a new mitigation measure than that of the 1992 proposal. However, this did not keep the proposal from being rejected.

One explanation may be that the 2011 Proposal diverged in a number of regards from the legislative acts composing its legal environment. To begin with, the objectives attributed to energy taxation by the 2011 Proposal were much broader than climate change mitigation; they included revenue collection and the pursuit of other policies (*e.g.* transport). This differentiated the 2011 Proposal from most other direct climate legislations (save in the area of energy) which were almost entirely focused on climate change. In terms of coverage, the comprehensive approach of the Proposal pursuant to the 'economic efficiency' frame demarcated it from existing legislations. These later generally embraced a stepwise approach and therefore lead to fragmented frameworks (*e.g.* CO_2 emissions from vehicles). The contrast between the comprehensive approach of the proposal and stepwise approach constitutes an important element that could help explain the role of the law in the proposal's failure.

The frames embraced by the 2011 Proposal largely diverged from the Effort Sharing Decision 406/2009 in which the 'developmental – fairness' frame prevailed. The same point can be made in relation to renewable energy and energy efficiency. In the sector of road transport, the predominant role of the 'technology' frame in the IED and more importantly in Regulation 443/2009 was another element of difference between the proposal and its legal environment. The consequence is that the adoption of the CO_2/energy tax would have involved not only a change of instrument, shifting from traditional to economic regulation. It would have also implied a change in the way the legal response to climate change is framed, towards a greater role for 'economic efficiency'. The fact that almost ten years after the adoption of the ETS Directive the 'economic efficiency' frame did not (and still does not) play a key role outside the framework of the EU-ETS supports the argument that such a change is not so straightforward.

[1431] Regulation 443/2009, *op. cit.*; Directive 2010/31/EU, *op. cit.*

An inter-related point is that the 2011 Proposal covered emissions sources that were regulated through disparate frameworks. The stepwise approach followed by the legislature in the field of climate change mitigation had resulted in an extraordinarily fragmented legal framework on climate change. Direct climate legislations differed in terms of framing but not only in that aspect. Emissions from certain sources were not regulated; this was (is still today) in case of shipping and for certain types of heavy-duty vehicles. One reason is that the emission from certain sources were not yet monitored.[1432] In the same vein, the CAP in the agricultural sector was largely disconnected from climate mitigation.[1433] To put it another way, these emission sources were not only varied in reality, their variety was also grasped by the law. Putting them all in the same box by subjecting them to a uniform carbon price was arguably a much different operation than addressing the emission of some installations that were regulated by an existing framework (the IPPC Directive) through an ETS.

That is not to say, however, that the 2011 Proposal would have initiated a radical change compared to its legal environment. The fact that the CO_2/energy tax was designed according to several frames to a large extent corresponds to the approach followed by the legislature in other direct climate legislations. While these acts differed as to which frame was predominant, they had in common that all of them were influenced by a plurality of frames. As a result, the multiple frames employed in the 2011 Proposal also shaped its legal environment. For instance, similar to the 2011 Proposal, the 'free market & fair competition' frame played a key role in the design of the EU-ETS and Regulation 443/2009.

Turning to indirect climate legislation, other elements can be highlighted. Adoption of the ETD marked a key change compared to the legislative context of the 1992 Proposal. On the one hand, this Directive showed that it was possible to adopt a comprehensive framework covering the main types of fossil fuels. However, it can be argued that reviewing this framework according to the 'economic efficiency' frame would have been challenging. This is supported by the tremendous difficulties surrounding the adoption of the ETD and the considerable role of the 'autonomy' frame in the definition of its framework. Consequently, it is not surprising that the 'autonomy' frame continued to play a key role in the 2011 Proposal. This point is further supported by the broader challenge in enacting harmonised legislation, which slowly took place in stages, as well as by the difficult integration of climate change objectives in energy law. Finally,

[1432] Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC, OJ L 123, 19 May 2015, p. 55–76.
[1433] Infra, Chapter 7, 2.3.1.

the failure of the 2005 Proposals and the limited role of 'economic efficiency' in the road transport sector Directive 2022/362, further illustrates the difficulties in addressing climate change pursuant to the 'economic efficiency' frame.

These findings are summarised in Table 24 below.

	Main problems addressed			Frames (decreasing order of importance)		
	Legal response	Legal environment	Convergence / divergence?	Legal response	Legal environment	Convergence / divergence?
Effort sharing decision 406/2009	Climate change, other policies & revenues	Climate change	Partial convergence	Scope: economic efficiency Free market & fair competition Functioning: Autonomy Free market & fair competition Economic efficiency Developmental – fairness	Developmental – fairness Autonomy Economic efficiency	Partial convergence/ divergence
EU-ETS					Economic efficiency – free market & fair competition Autonomy Developmental – fairness	Large convergence
IED					Technology Autonomy Economic efficiency	Partial convergence/ divergence
CO_2 performance of light duty vehicles					Technology Free market & fair competition Economic efficiency	Partial convergence/ divergence
Renewable energy		Various objectives including climate change	Partial convergence		Developmental – fairness Autonomy	Large divergence
Energy efficiency					Autonomy Developmental – fairness Economic efficiency	Partial convergence/ divergence
Energy taxation		Revenue collection/other policies	Partial convergence		Free market & fair competition Autonomy	Relatively large convergence
Infrastructure charging Directive		Fair financing/other policies	Partial convergence		Autonomy Free market & fair competition Economic efficiency	Large convergence
Energy law		Various objectives including climate change	Partial convergence		Autonomy Free market & fair competition Fairness – developmental	Relatively large convergence

Table 24 Comparison between the 2011 Proposal and their legal environment as to the problem addressed and relevant frames

3.3. **ETS Directive**

After casting light on the implicit interactions between the CO_2/energy tax proposals of 1992 and 2011 and their legal environment, let us focus now on the EU-ETS. I start with the implicit interactions between the ETS Directive and its legal environment, as summarised in Table 25. When the EU-ETS was introduced, direct legislation in the field of climate change mitigation was still narrow. Outside Decision 2002/358/EC that distributed emission reduction efforts among Member States, few legislative acts explicitly addressed the problem climate change (*e.g.* the renewable electricity directive). The IPPC Directive was a key act in this area, even though it responded to environmental problems broadly and was largely influenced by the 'autonomy' frame. Therefore, the primary objective the ETS Directive to mitigate climate change contrasted with its legal environment.

In addition, the 'economic efficiency' frame was not frequently employed in EU law when the EU-ETS was adopted. One notable exception was the Infrastructure Charging Directive. Therefore, the ETS Directive also diverged from its legal environment from that perspective. This said, the other frames employed by the legislature in the design of the EU-ETS to a large extent matched with those prevailing in the EU legal order. The stepwise approach pursuant to the 'autonomy' frame corresponded to the approach followed in most frameworks, including the IPPC Directive on which the EU-ETS built, and in the field of energy taxation. The roles of the 'autonomy' frame in the decentralised approach of the EU-ETS and the 'fairness – developmental' frame in determination of NAPs converged with the frames employed in the Effort Sharing Decision 2002/358/EC and in the field of energy. Therefore, the ETS Directive only implied incremental, as opposed to radical, changes to existing categories.

	Main problems addressed			Frames (decreasing order of importance)		
	Legal response	Legal environment	Convergence / divergence?	Legal response	Legal environment	Convergence / divergence?
Burden sharing	Climate change		Convergence	Autonomy Developmental – fairness Economic efficiency/free market & fair competition	Developmental – fairness Autonomy	Large convergence
IPPC Directive		Environment at large	Partial convergence/ divergence		Technology Autonomy Economic efficiency	Partial convergence/ divergence
Vehicle performance		Climate change	Convergence		Technology Autonomy	Partial convergence/ divergence
Fuel Quality Directive		Various objectives including climate change	Partial convergence/ divergence		Technology Free market & fair competition	Large divergence
RED 2009/28		Various objectives including climate change	Partial convergence/ divergence		Autonomy Developmental – fairness	Large convergence
Energy efficiency						
Energy taxation		Revenue collection/ other policies	Divergence		Free market & fair competition Autonomy	Partial convergence/ divergence
Energy law		Various objectives (but not yet climate change	Divergence		Autonomy Free market & fair competition	Partial convergence/ divergence
Infrastructure charging Directive		Fair financing/other policies	Partial convergence		Autonomy Free market & fair competition Economic efficiency	Large convergence

Table 25 Comparison between the ETS Directives and their legal environment as to the problem addressed and relevant frames

3.4. **Aviation/Revised ETS Directive**

The final part of these analyses deals with the implicit interactions between the Aviation and the revised ETS Directives and their legal environment (Table 26). As explained before, the revision of the EU-ETS did not affect the scope of this scheme but its functioning. It implied gradually moving towards a centralised system based on auctioning, pursuant to the 'economic efficiency' and the 'free market & fair competition' frames. These changes led to deep differences between this EU-ETS and its legal environment, as to the problem(s) they addressed and the way they framed problems, and therefore to the way they determined the comparability of emission

sources. As noted before, the revision of the EU-ETS was part of a broader set of measures under the 2020 Climate Energy Package.[1434] These measures shared a common objective to mitigate climate change and hence to revise existing categories according to this objective.

However, the measures composing this package did not address exactly the same problem(s); some of them also sought to remedy challenges other than climate change (*e.g.* security of energy supply). The frames employed to define these measures also differed. For instance, Regulation 443/2009 and the Fuel Quality Directive primarily responded to the 'technology' and 'free market & fair competition' frame while the distribution of emission reductions efforts in the Effort Sharing Decision, as well as in the renewable energy and in the energy efficiency directives corresponded to the 'developmental – fairness' frame as well as to the 'autonomy' frame. Hence, they have not categorised situations in the same way. These distinctions were reinforced by the non-revision of some existing frameworks, such as the ETD, which did not respond to climate change and/or employed the 'economic efficiency' frame. The result has been clear dividing lines between the different legislations.

The first line of demarcation is between direct climate legislation and indirect climate legislation, including the IED and the ETD. These frameworks not only addressed different problems than climate change, they also framed these problems in different ways. Next, within direct climate legislation, energy and climate have remained separated, even though the intention was to integrate them. As explained above, the EU-ETS has been part of climate mitigation measures, not energy ones. The energy dimension of climate change mitigation has responded to a broader range of objectives than climate change alone. In addition, these measures have not been shaped primarily by the 'economic efficiency' frame. Subsequently, ETS sectors and other sectors have been clearly separated. In these sectors, the 'economic efficiency' frame has been supplanted by other frames. Finally, within non-ETS sectors, distinct frames have been employed to portray climate change, such as the 'technology' frame in CO_2 regulation of vehicles and in the IED.

In some cases, these well-separated boxes have regulated different regulatory objects than the EU-ETS. One example is the Infrastructure Charging Directive; road transport in effect is not covered by the EU-ETS. This is also the case of the Effort Sharing Decision, which has excluded ETS sectors from its scope; the same can be said for the IED. This calls for two remarks. Firstly, insofar as these pieces of law directly intersect with climate change, one may question the justification behind these different approaches for emitters who, according to the *Arcelor de*

[1434] *Infra*, Chapter 7, 2.2.

Lorraine case, are in a comparable situation. The legislature does not always explicitly justify these choices, which is contrary to the principle of equality. In any case, the influence of these different frames signals that the inclusion of new emission sources in the EU-ETS would imply more than a change of instrument. The existence of distinct boxes is even more questionable when the different laws apply to emission sources that are also covered by the EU-ETS.

This brings me to my second point. Certain indirect climate legislations overlap with the EU-ETS. The reason is that they regulate, either directly or indirectly, installations that are covered by this scheme, but for another purpose than climate change mitigation. One notable example is the ETD, which the EU has not been able to revise in spite of its attempt in 2011. This interplay, as underscored by the Commission, has undermined the effectiveness and economic efficiency of the EU-ETS.[1435] Another example is the IED. By prohibiting the imposition of emission limits under the IPPC Directive/IED, so as to prevent double regulation, the EU has consecrated two substantially different responses, depending on the coverage of the ETS. The result is that not all installations are subject to the same rules, in function of the type of GHG released and of the sector/activity concerned.

[1435] *Infra*, Chapter 5, 4.2.1.

	Main problems addressed			Frames (decreasing order of importance)		
	EU-ETS	Legal environment	Convergence/ divergence?	EU-ETS	Legal environment	Convergence/divergence?
Burden sharing	Climate change	Convergence		Fairness – developmental Autonomy	Large divergence	
IPPC Directive	Environment at large	Partial convergence	*Functioning*: Economic efficiency Free market & fair competition Developmental – fairness *Scope*: autonomy	Technology Autonomy Economic efficiency	Large divergence	
Vehicle performance	Climate change	Convergence		Technology Free market & fair competition Economic efficiency	Partial convergence/ divergence	
Fuel Quality Directive	Various objectives including climate change	Partial convergence / divergence		Technology Free market & fair competition	Large divergence	
Renewable energy	Various objectives including climate change	Partial convergence		Fairness – developmental Autonomy	Large divergence	
Energy efficiency				Autonomy Developmental – fairness Economic efficiency	Large divergence	
Energy taxation	Revenue collection/ other policies	Divergence		Free market & fair competition Autonomy	Partial divergence/ convergence	
Energy law	Various objectives including climate change	Partial convergence		Free market & fair competition Autonomy Developmental – fairness	Partial divergence/ convergence	
Infrastructure charging Directive	Fair financing/ other policies	Partial convergence		Autonomy Free market & fair competition Economic efficiency	Large convergence	

Table 26 Comparison between the Revised ETS/Aviation Directives and their legal environment as to the problem addressed and relevant frames

3.5. **Interim conclusions**

The descriptions above can be summarized as follows. Firstly, we can observe that the 1992 proposal took place in a relatively embryonic legal environment, from the point of view of both

the direct and indirect climate legislations. Not only was climate change largely unaddressed but emission sources were also often not regulated for purposes other than reducing GHG emissions. This observation attests that the proposal largely diverged from its legal environment; it also underlines its ambition. The frames employed also differed in part from that used in energy taxation. In particular, the 'autonomy' frame was predominant in determining the scope of existing legislation, which diverged from the comprehensive coverage of the proposal. Over time, this step-by-step approach became the de facto rule and the comprehensive approach the exception. The role of the 'free market & fair competition' frame was common to the 1992 Proposal and in the Mineral Oils Directives, even though the role of this frame differed across these frameworks. This may explain some similarities between them, such as the focus on transport and heating use.

The 2011 proposal diverged in several respects from its legal environment. Although its scope was less broad (as it excluded the ETS sectors), the proposal's comprehensive approach differed from the stepwise approach prevalent in European law, in terms of the definition of scope. In addition, it aimed to impose a uniform carbon price on a range of activities whose emissions were subject to disparate regimes (*e.g.* road transport) that did not frame climate change in the same way or were not regulated at the European level (*e.g.* shipping and agriculture). The single response offered by the 2011 proposal thus diverged from the fragmented approach that prevailed outside of ETS sectors, which were themselves initially largely covered by the IPPC Directive. On the other hand, in other respects, the 2011 proposal was closer to existing law (in particular with regard to the influence of the 'autonomy' frame and the 'free market and fair competition' frame).

Finally, we can see that the ETS was conceived in two distinct phases. In the first phase, the ETS directive mimicked the existing law, giving only a limited place to the 'economic efficiency' frame. What was already observed in the explicit interactions is thus confirmed in the implicit interactions. In a second phase, corresponding to the adoption of the Aviation and Revised ETS Directives, the ETS experienced a phase of emancipation, like a passage from childhood to adolescence. During this phase, it emancipated itself from its parents to follow its own path, at least partly. This process of emancipation concerned its functioning; its scope however remained generally unchanged, except for the extension to the aviation sector. Since then, the EU-ETS has undergone few changes in terms of its operation and its scope has not been extended. Like a rambunctious teenager, much of the legislative effort has been focused on making the EU-ETS

work properly. The next Section will explore whether the new legislative developments in Fit for 55 herald a coming of age.

4. THE COMPLEX PUZZLE OF THE 'FIT FOR 55' PACKAGE

The Fit for 55 Package was released in the aftermath of the Commission's Communication of 2019 'The European Green Deal'.[1436] The EU Green Deal was defined by the Commission as 'a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there will be no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use'.[1437] The focus on sustainability, fairness and justice suggests that the 'developmental – fairness' frame has been employed.[1438] The 2019 communication made only limited references to terms such as cost-effectiveness or economic efficiency, suggesting that the role of the 'economic efficiency' frame was limited.[1439] The EU Green Deal sought to initiate the adoption of new legislation as well as transform existing ones.[1440] Carbon pricing was hailed as a key strategy towards this end; this includes the revision of the ETD, of the EU-ETS, the adoption of CBAMs. In the transport sector, the 2017 Proposal was under consideration, but the Commission has also announced that is ready to withdraw it and propose other measures.[1441]

The Fit for 55 Package is only one of several legislative sites that have been streamlined following the EU Green Deal, in addition to the Circular Economy Action Plan, the Biodiversity Strategy for 2030, as well as the 'Farm to Fork' strategy.[1442] The reform envisioned is vast and appears unprecedented. It consists of nine legislative proposals released on 14 July 2021, aiming to redefine EU legal landscape in the field of climate mitigation and energy. With these changes, the goal is to achieve the 2030 target of a net GHG emission reduction of 55 percent and attain climate neutrality by 2050, pursuant to the European Climate Law.[1443] This Section provides some snapshots of this new package by distinguishing on two key points: the role of the 'economic efficiency' frame (4.1) and the interaction between legislative frameworks (4.2).

[1436] European Commission, 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, 14 July 2021, COM(2021)550 final; European Commission, The European Green Deal, *op. cit.* About the Green Deal see *Infra*, Chapter 7, 2.3.2.
[1437] European Commission, The European Green Deal, *op. cit.*, p. 2.
[1438] *Ibid*, pp. 2-3.
[1439] *Ibid*, *e.g.* p. 6 'decarbonisation at the lowest possible cost', p. 15 (note 28), p 18, p. 19
[1440] *Ibid*, p. 4.
[1441] *Ibid*, p. 10. About that proposal and Directive 2022/362, see Infra, Chapter 7, Section 3.
[1442] The state of advancement of these proposals is displayed at https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-european-green-deal (Last consulted 2 June 2022).
[1443] *Infra*, Chapter 7, 2.3.2.

Overall, these analyses show that the 'economic efficiency' frame is gaining weight in climate direct legislations, through three proposals: the revision of the ETS, of the EU-ETS and the adoption of a carbon border adjustment mechanism (CBAM).[1444] As regards the revision of the ETD, it is interesting to note that in the Green Deal the Commission expressed its intention 'to use the provisions in the Treaties that allow the European Parliament and the Council to adopt proposals in this area through the ordinary legislative procedure by qualified majority voting rather than by unanimity'.[1445] Unanimity, as noted before, has been recognised on several occasions as a hindrance, via a law, to the adoption of EU acts in the field of taxation. However, the Commission ultimately did not follow that option. These analyses also reveal that the interactions are conceived in a different way than in the previous frameworks. In particular, there tends to be a greater overlap between the frameworks, which are 'stacked up'.

4.1. The increased role of the 'economic efficiency' frame in a pluralistic legal order

With the Fit for 55 Package, the 'economic efficiency' frame has been assigned a greater role, even though, in line with the previous reforms, this frame is not the only one involved. The Communication "Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality' starts by ascertaining that 'We are at a pivotal moment in the world's response to the climate and biodiversity emergencies and we are the last generation that can still act in time'.[1446] The focus on time and urgency corresponds to an emerging frame mentioned in the literature that is referred to as the 'emergency' frame.[1447] The Fit for 55 Package, the Commission then specifies, 'lays the regulatory foundation to reach our targets in a fair, cost-efficient and competitive way', which refers to the 'developmental – fairness', 'economic efficiency' and 'free

[1444] Proposal for a Directive restructuring the Union framework for the taxation of energy products and electricity (recast), 14 July 2021, COM(2021)563 final; Proposal for a Directive amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union, Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and Regulation (EU) 2015/757, 14 July 2021, COM(2021)551 final; Proposal for a Regulation establishing a carbon border adjustment mechanism, 14 July 2021, COM(2021)564 final.

[1445] European Commission, The European Green Deal, op. cit., p. 5 . See also Inception Impact Assessment available at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12227-Pacte-vert-pour-lEurope-Proposition-de-revision-de-la-directive-sur-la-taxation-de-lenergie_fr.

[1446] European Commission, 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, *op. cit.*, p. 1.

[1447] L.H. MCHUGH, M.C. LEMOS et T.H. MORRISON, 'Risk? Crisis? Emergency? Implications of the new climate emergency framing for governance and policy', *WIREs Climate Change*, November 2021, vol. 12, n° 6, available at https://onlinelibrary.wiley.com/doi/10.1002/wcc.736 (Last consulted 2 Jun 2022), pp. 23-25; L. FELDMAN et P.S. HART, 'Upping the ante?', *op. cit.*

market & fair competition' frames.[1448] The question is which role will be attached to each of these frames.

The greater role of 'economic efficiency' is evidenced by the following. Although the Commission underlines that the EU has been built in a spirit of solidarity, it noted:

> 'The Fit for 55 package is designed in this spirit: efforts are shared between Member States in the most *cost effective* way, acknowledging our differences, and support is given to those most in need, to ensure that the transition reaches everybody in a beneficial way.'[1449]

This stipulation suggests that cost-effectiveness comes first, and thus that the 'economic efficiency' frame prevails over the 'developmental – fairness' frame. Fairness and solidarity, on the other side, are addressed by recycling the additional revenues of the EU-ETS, which is also in line with the 'economic efficiency' frame.[1450] This seems to attest a change in the respective roles of these frames compared to the EU Green Deal.

The Fit for 55 Package attaches a strong attention to the use of carbon pricing instruments, while emphasising their limits when they are used alone. Therefore, it proposes a policy mix:

> 'The analysis shows that an over-reliance on strengthened regulatory policies would lead to unnecessarily *high economic burdens*, while carbon pricing alone would not overcome persistent market failures and non-market barriers. The chosen policy mix is therefore a careful balance between pricing, targets, standards and support measures.'[1451]

We see from this statement that the Commission's discourse is influenced by economic thoughts ('market failure', 'market barriers'). The focus on 'economic burdens' indicates that the 'economic efficiency' frame is employed. On the other side, the policy mix considered is concerned with different types of instruments (pricing, standards, etc), which reflects an instrumental perspective.

Accordingly, the Commission makes the following proposals: to revise the ETD (4.1.1), in order to 'both preserve the internal market and support the green transition by setting the right incentives'[1452], to revise the EU-ETS (4.1.2), so as to expand its scope to maritime and road

[1448] European Commission, 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, *op. cit.*, p. 2.
[1449] *Ibid*, p. 13 my emphasis; see also p. 6 'based on GDP per capita, with adjustments made to take national circumstances and cost efficiency into account'.
[1450] *Ibid*, p. 2.
[1451] *Ibid.*, p. 3.
[1452] *Ibid*, p. 9.

transport and to buildings and to revise the rules applicable to aviation, and to adopt a CBAM (4.1.3), to address the problem of carbon leakage in the EU-ETS.

4.1.1. *The revision of the ETD*

The first proposal is revision of the ETD.[1453] This revision pursues a twofold purpose: firstly, to move towards a tax based on the heat content and environmental performance of energy and secondly, to remove fossil fuel subsidies and provide for an appropriate tax treatment for renewable energies. The Commission starts from the same observation as in the 2011 Proposal; the ETD is no longer aligned with the climate and energy framework and no longer ensures the proper functioning of the internal market.[1454] The proposal aims to address both problems and therefore, is based on both Article 113 and 192, § 2. As regards climate and energy, the Commission contends that 'Taxation plays a direct role in supporting the green transition by sending the right price signals and providing the right incentives for sustainable consumption and production'.[1455] The explanatory memorandum further specifies that the ETD can help ensure that 'the taxation of motor and heating fuels *reflects better the impact* they have on the environment and on health'.'[1456] These statements indicate that the 'economic efficiency' frame is employed.

The differentiation of energy taxes on the basis of products' environmental performance raises some issues. The precise content and contours of this remain elusive; it is merely noted that ' "environmental performance" has been defined in relation to other EU policies under the European Green Deal and in particular to the rest of the proposals in the "Fit for 55" package'. While this statement points to the *consistency hypothesis*, the criteria used to establish a product's environmental performance are not defined. This concept results in the following categories: fossil fuels; 'less harmful' fossil fuels that still have 'some potential to contribute to decarbonisation in the short and medium term'; sustainable but not advanced biofuels and; renewable energy (imposed at the lowest rate).[1457] This hierarchy largely seems match with a CO_2 content-based ranking; other environmental criteria seem to have played a role only in the case of biofuels. As such, this new proposal is similar to the 2011 Proposal. These categories then serve as a basis to set the tax rates.

[1453] Proposal for a Council Directive restructuring the Union framework for the taxation of energy products and electricity (recast), *op. cit.*
[1454] *Ibid*, p. 1.
[1455] *Ibid*, p. 2.
[1456] *Ibid.*
[1457] *Ibid,* p. 3.

The latest Proposal maintains the prevailing distinction between motor fuels, heating fuels and electricity. It also continues to differentiate between transport fuels used for the purposes set out by Article 8(2) of the ETD (*e.g.* agriculture).[1458] This indicates that the 'free market and fair competition frame' continues to shape the design of the tax. On the contrary, it removes the distinction between commercial and non-commercial gasoil and business and non-business use of heating fuels and electricity.[1459] Most facultative derogations are abolished, which attests to a reduced role of the 'autonomy' frame. Such a removal concerns among other things: the possibility to apply a level of taxation down to zero for energy products used for agricultural, horticultural or piscicultural works, and in forestry, to differentiate rates of energy products used by local public passenger transport (including taxis).[1460]

A remarkable change is the proposed extension of the tax arrangements to commercial aviation and shipping, which so far were exempted from energy taxes.[1461] This extension concerns both intra- and extra-EU navigation, but is accompanied by derogations and by a gradual phase in.[1462] Member States may decide to maintain the exemption with respect to extra-EU navigation (both air and maritime). As regards aviation, the provisions apply 'without prejudice of international agreements'.[1463] This considerably limits the impact of the provision since agreements such as the Chicago convention are deemed to prohibit taxes levied on aviation fuel.[1464] The Proposal also exempts cargo-only flights.[1465] By contrast, addressing the social impacts of the reform is largely left to Member States, pursuant to the 'autonomy' frame. The facultative derogation in favour of charitable households is maintained.[1466] The explanatory memorandum also specifies that 'It is up to Member States to decide on the use of tax revenues and they can further ensure fairness by using those revenues to mitigate the social impact'.[1467]

The short descriptions above thus illustrate a redefinition of the roles of the 'economic efficiency', 'free market & fair competition' and 'autonomy' frames. The latter is attributed a less important role than under the current ETD. The balance between the 'economic efficiency' frame and the 'free market & fair competition' results in a design that is far from the model design set out in Chapter 3. The fact that it is no longer question of a CO_2/energy tax, but a

1458 *Ibid*, Annex I table B.
1459 *Ibid*, p. 14
1460 *Ibid*, Modification of Article 2, § 4 and Articles 5, 14, 15 and 17-18 of the Energy Taxation Directive.
1461 *Ibid*, New Article 14.
1462 *Ibid*.
1463 *Ibid*, new Article 14 and explanatory memorandum p. 15.
1464 *Infra*, Chapter 4, Section 5.2.
1465 *Ibid*, new Article 14, § 2 and explanatory memorandum p. 15.
1466 *Ibid*, new Article 17.
1467 *Ibid*, p. 4.

broader tax base, tends to suggest a difference in the way the proposal is presented rather than a profound change compared to the 2011 Proposal. Ultimately, the vague definition of the concept of environmental performance is questionable in light of the principle of equal treatment.

4.1.2. *The revision of the EU-ETS*

A second key proposal under the EU 'Fit for 55' Package concerns revision of the EU ETS.[1468] The aim is to increase its effectiveness but also to align it with the EU's new climate ambitions.[1469] To this end, the emission cap of the EU ETS is decreased and the scope of this scheme is extended to buildings and to modes of transport other than aviation. In particular, it is proposed to include maritime transport in the EU-ETS from 2023 and the road transport and building sectors from 2026.[1470] The extension of the EU-ETS scope is in line with the 'economic efficiency' frame. As far as buildings and transport are concerned, a separate but adjacent system is established.[1471] This means that the cap will be separate and that allowances, which will be fully auctioned, will be sold on a different market. The purpose is to 'avoid any disturbance of the well-functioning emissions trading system for stationary installations and aviation.[1472] The focus on the proper functioning of the scheme suggests that the 'economic efficiency' frame is employed.

As the sectors of building and road transport involve diffuse sources of emissions, an upstream system is established, in which fuel suppliers are designated as regulated entities.[1473] This approach makes the EU-ETS similar to the previous CO_2/energy tax proposals, which involved an upstream system. The regime established for maritime transport differs from the system proposed in the building and road transport sectors. The idea is to bring shipping into the same emissions trading market as aviation and stationary installations, while temporarily regulating them with different rules. The proposal differentiates among different categories of trips – only two types of trips are fully covered.[1474] The approach followed responds to the objective of fulfilling EU's international obligations deriving from the principle of 'Common but

[1468] European Commission, Proposal for a Directive amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union, Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and Regulation (EU) 2015/757, *op. cit.*
[1469] *Ibid*, Article 9. The linear reduction factor is changed to 4,2 %.
[1470] *Ibid*, Chapter IVa.
[1471] *Ibid*. See also explanatory memorandum p. 19-21.
[1472] *Ibid*, p. 3. This is explained by the fact 'the different reduction potentials in those sectors and different factors that influence the demand'.
[1473] *Ibid*, new Article 3, (x), explanatory memorandum, p. 19, recitals § 46.
[1474] *Ibid*, Article 3, Articles 3g to 3ge, and Article 16.

Differentiated Responsibilities and Capabilities', under the UNFCCC.[1475] This matches with the 'developmental – fairness' frame. There is also a transition period during which shipping companies must submit permits for an increasing share of emissions.[1476]

The distributive effects of the EU-ETS is a central issue of the package, for reasons of equity and solidarity. The proposal aims to address these effects through three key measures. Firstly, it aims to increase the percentage of auctioning revenue to be allocated to the Modernisation Fund, while modifying its application to support Member States with a lower GDP than the EU average. Secondly, the Commission has introduced a separate proposal to create a Social Climate Fund.[1477] It is envisaged that 25% of the revenues of the revised ETS will be transferred to this fund. Lastly, the proposal to revise the EU-ETS encourages the use of auction revenues for social support measures. The focus on revenue recycling to address the possible distributional impacts arising from revision of the EU-ETS, as opposed to differentiating obligations on the basis of respective capabilities, is in line with the 'economic efficiency' frame.

All of the above suggests that the proposed revision of the EU-ETS corresponds largely to the 'economic efficiency' frame. This is in continuity with the adoption of the Revised ETS Directive of 2009, which increased the role of this frame in the EU-ETS. To the difference of that Directive, however, the intention is now to expand the role of this frame to a wide range of sectors and activities.

4.1.3. *The introduction of the EU-CBAM*

The Fit for 55 Package contains a third – final – carbon pricing measure: the EU-CBAM.[1478] The EU-CBAM is presented as 'an essential element of the EU toolbox to meet the objective of a climate-neutral EU by 2050', which displays an instrumental approach. The proposal is based on EU environmental competence; therefore, the relevant criterion to compare situations is the emission level. This scheme is introduced via a Regulation, which means that Member States' role will be more limited than if a Directive were used. This indicates a limited role of the 'autonomy' frame. In the absence of a global carbon price, the aim of this mechanism is to address the risk of carbon leakage and strengthen the ETS.[1479] This objective corresponds both to the 'economic

[1475] *Ibid*, Recitals § 17.
[1476] *Ibid*, Article 3ga.
[1477] Proposal for a Regulation establishing a Social Climate Fund, 14 July 2021, COM(2021)568 final.
[1478] European Commission, Proposal for a Regulation establishing a carbon border adjustment mechanism, 14 July 2021 COM(2021) 564 final. On this proposal, see A. PIRLOT, 'Carbon Border Adjustment Measures', *op. cit.*
[1479] *Ibid*, p. 3.

efficiency' frame (strengthening the ETS) and to the 'free market and fair competition' frame (addressing the risk of carbon leakage).

To be more specific, the EU-CBAM is intended to replace the need for free allowances granted to installations at risk of carbon leakage in the EU-ETS. However, the scope of the EU-CBAM does not fully cover this list; it covers a limited list of products, including cement, electricity, fertilisers, iron and steel, and aluminium.[1480] The scope of the EU-CBAM responds to a prudent stepwise approach, which is similar to the approach endorsed in the design of the EU-ETS and is in line with the 'autonomy' frame. The recitals noted that 'Whilst the ultimate objective of the CBAM is a broad product coverage, it would be *prudent* to start with a selected number of sectors with relatively homogeneous products where there is a risk of carbon leakage.'[1481] The products were selected on the basis of their GHG emissions levels, the risk of carbon leakage in the EU ETS sectors and on the objective to limit complexity and administrative burden. These criteria correspond to both the 'economic efficiency' frame and to the 'free market and fair competition' frames.

Finally, the proposal mentions the principle of 'common but differentiated responsibilities'; it also underlines that the EU 'should support less developed countries with the necessary technical assistance'.[1482] However, this issue is not addressed in the current state of the proposal. This means that the 'economic efficiency' frame and the 'free market and fair competition' frame take precedence over the 'developmental – fairness' frame. Therefore, compliance of this mechanism with the UNFCCC is questionable. As Alice Pirlot notes, 'The systematic and indiscriminate use of CBAMs to mitigate carbon leakage risks', as in the case of the EU-CBAM, 'is not "in line" with the principle of common but differentiated responsibility that underlies the Paris Agreement'.[1483]

4.2. **The malleable interactions between climate legislations**

After the role of the economic efficiency frame in the Fit for 55 Package, I now wish to deal with the interactions between climate legislations. Many but not all of these interactions are organised.

Under the Fit for 55 Package, the overlap between EU-ETS and the ETD is maintained. This contrasts with the 2011 Proposal which sought to avoid overlap between both frameworks.[1484]

[1480] *Ibid*, Annex I.
[1481] *Ibid*, Recitals, § 28.
[1482] *Ibid*, recitals, § 55
[1483] A. PIRLOT, 'Carbon Border Adjustment Measures', *op. cit.*, p. 9.
[1484] *Infra*, Chapter 5, 4.1.2.

The rationale behind this change of approach is unclear. While the revision of the ETD is viewed as a 'complement to carbon pricing through emissions trading', the interplay between both frameworks is inconsistent with the 'economic efficiency' frame.[1485] Even though the Proposal does not seek to implement a CO_2 tax but has a larger focus on the 'environmental performance' of energy products, the overlap between both frameworks is obvious. This is is particularly the case given the extension of the EU-ETS to key sectors covered by the ETD, including road transport, maritime transport and buildings. There is thus a double regulation, once considered a problem in terms of economic efficiency.[1486] The fact that the ETS now builds on the excise duties framework with respect to fuel suppliers further attests to the interrelationship between both frameworks.

Another area of interaction is between the EU-ETS and the Effort Sharing Regulation. Given that the EU plans to extend the EU-ETS to sectors previously covered by Regulation 2018/842 on the sharing of mitigation effort between Member States, a choice had to be made on how to organise the interaction with this framework. Removing the sectors covered by the ETS from the regulation, as had been done in the past, would have been tantamount to emptying the regulation of almost all content. The Commission decided to maintain the sectors newly covered by the EU-ETS in the framework of Climate Effort Sharing Regulation, thus stacking the two sets of rules. The reason is that the carbon price alone would not be effective in bringing about the necessary transformation in the sectors concerned.[1487] This approach may leave us perplex, given that the frames employed in both frameworks are dramatically different; the 'economic efficiency' and 'free market & fair competition' frames have prevailed in the former while the 'developmental – fairness' and 'autonomy' frames have predominated in the later.

In the sector of road transport, the EU-ETS will apply in complement to other EU measures, including vehicle emission performance standards.[1488] The combination of different measures aims to achieve 'a balanced and cost-effective approach to reducing emissions from road transport, overcoming market barriers and failures, and providing guarantees for investors to

[1485] European Commission, Proposal for a Regulation establishing a carbon border adjustment mechanism, *op. cit.*, p. 2

[1486] *Infra*, Chapter 5, 4.1.2.

[1487] European Commission, Proposal for a Regulation amending Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement, 14 July 2021, COM(2021) 555 final, p. 8: 'At the same time, a carbon price on its own would not deliver the required transformation in the sectors concerned in an efficient manner'.

[1488] See the latest European Commission, Proposal for a Regulation amending Regulation (EU) 2019/631 as regards strengthening the CO_2 emission performance standards for new passenger cars and new light commercial vehicles in line with the Union's increased climate ambition, 14 July 2021, COM(2021)556 final.

invest in zero-emission technologies'.[1489] The reference to 'cost-effectiveness' and to 'market barriers and failures' suggests that the 'economic efficiency' frame is employed. As part of the Fit for 55 Package, it is proposed to revise prevailing vehicle performance obligations.[1490] The objective is notably to set an EU-wide target for 2035.[1491] As revised, the method of distribution between manufacturers will continue to differ from that of the EU-ETS. Efforts will remain differentiated according to vehicle type (cars, trucks and light commercial vehicles) and among manufacturers according to the 'technology' and 'free market & fair competition' frames.

In line with its previous approach, the EU continues to combine measures/targets in the field of energy and climate. In particular, the Commission proposes a new indicative target with respect to the share of renewables in the building sector and in the industrial sector.[1492] As regards industries, this target is justified by the limited penetration of renewables in this sector, in spite of its (partial) coverage by the EU-ETS.[1493] In the transport sector, the requirement imposed on fuel suppliers to reduce the GHG intensity of fuels is maintained and its level is increased.[1494] These obligations complement the EU-ETS and the proposed amendment to the ETD, which would apply to the same sectors. There is also an explicit interaction between the EU-ETS and Decision 2015/757 on the measurement of shipping emissions, under the *building blocks hypothesis*. The EU-ETS relies on these rules and the latest Directive amends them.[1495] As this decision exempts small ships, their emissions will not be covered by the ETS. Ultimately, the EU-ETS and the EU-CBAM have a mirror relationship; the CBAM is applied, the free allowance is removed.[1496]

By contrast, the EU has no present plans to revise the current prohibition to set emission limits within the IED for installations and gases covered by the ETS.[1497] This prohibition, which

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[1489] *Ibid*, p. 4.
[1490] *Ibid.*
[1491] *Ibid*, Article 1, § 1
[1492] European Commission, Proposal for a Directive amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652, COM(2021)557 final, New articles 15a and 22a.
[1493] Staff Working Document. Impact assessment report accompanying the Proposal, SWD(2021) 621 final, Part 1/2, p. 19, noting that 'As there are no specific requirements on industry to increase the level of renewable energy use under REDII, it is to be expected that the uptake of renewable energy will continue to stagnate as it has done over the past decade, and GHG emissions from industry will not decrease.'
[1494] European Commission, Proposal for a Directive amending Directive (EU) 2018/2001…, *op. cit*., New article 25
[1495] European Commission, Proposal for a Directive amending Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union, Decision (EU) 2015/1814 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and Regulation (EU) 2015/757, *op. cit.,* Article 3gb.
[1496] *Ibid*, recitals § 30 and New Article 10a, (b); European Commission, Proposal for a Regulation establishing a carbon border adjustment mechanism, op. cit., Article 1.
[1497] European Commission, Proposal for a Directive amending Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) and Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, 5 April 2022, COM(2022)156 final/3.

prevents the overlap between both frameworks, has been questioned for being inconsistent with the Green Deal.[1498] The consequence of this lack of revision is that climate change will keep on being addressed separately from other environmental problems, pursuant to the climate exceptionalism approach.

All of the above illustrates that the Fit for 55 Package significantly increases the degree of overlap between climate legislations. One could conclude at an emerging piling up approach, in which the EU prefers to pile up distinct yet overlapping regulatory strategies rather than prevent overlap. What is remarkable is that these overlapping legislations follow different frames. This is symptomatic of the EU's tendency, mentioned previously, to put things into well-separated boxes. As a final point, it is observed that these interactions are not imagined in the same way as previously. This finding further supports the arguments that the legislature has a broad margin to conceive these interactions, or to put it differently, that these interactions are malleable.

5. CONCLUSION

The purpose of this Chapter was to determine whether the three initiatives under scrutiny interacted with their legal environment and if so how. It demonstrated the existence of these interactions and untangled explicit interactions (Section 2) from implicit ones (Section 3). Classifying explicit interactions into different hypotheses (*integration, building blocks, consistency and disconnection*) has systematically mapped these interactions, bringing clarity on their nature. These analyses are significant because they show that in the EU legal order, the legal response to climate change and its legal environment have played mutually constitutive roles. That is, the legal response to climate change has been shaped by its legal environment and conversely this response has shaped its legal environment, through the revision of prevailing legal categories. This relationship helps explain why the legal response to climate change is not fully defined according to the 'economic efficiency' frame and hence does not totally correspond to the model design established in Chapter 3.

By comparing initiatives taking place at different moments, I have emphasised the role of the changing legal context, within one single legal order. Some of the differences in the design of these initiatives can be attributed to a change in their legal environment (*e.g.* influence of the EU-ETS and of the ETD on the 2011 Proposal). Others are rather explained by the fact that the legislature does not always organize these interactions in the same way. The example of the

[1498] *Ibid*, stakeholders consultation. See inter alia, Revision of the Industrial Emissions Directive – ClientEarth's response to the Targeted Stakeholder Survey, 18 June 2021.

interaction with energy taxation illustrates this point. It was thought of differently in the case of the 1992 proposal, the ETS and the 2011 proposal. My analyses do not, however, show a common thread that would systematically influence the way these interactions are thought through. In some cases, they respond (at least partially) to the 'economic efficiency' frame, but that is not always the case. Moreover, it is clear from the descriptions below that these interactions are far from being constantly organized, which I define by the disconnection hypothesis.

This brings me to another key point of this conclusion: that is, the EU's tendency to conceive legal frameworks in silos or separate boxes, despite their intersections. This concerns both the intersections within direct climate legislation (in particular between different activities/products contributing to climate change) and between direct and indirect climate legislation. This siloed thinking can be questioned in several regards. Firstly, differences in treatment between emitters are not always explicitly justified, which is questionable in light of the principle of equal treatment. Secondly, it is questionable in the light of other objectives that the legislature is pursuing, such as consistency between rules or their effectiveness in reducing GHG emissions. In many cases, the objectives pursued or the frames employed do not lead to fully reconcilable responses. In this respect, the transformative power of the European Climate Law to rethink this system in the light of the climate neutrality objective has been highlighted, as well as its limitations in bringing a more common and consistent approach across legislations.

The comparison between the CO_2/energy tax proposals on the one hand and the EU-ETS on the other gave me the opportunity me to show that these initiatives not only differ in terms of instruments used: they also diverge as to their interaction with the existing system. These differences suggest that legal elements other than diverging procedural requirement (unanimity vs. qualified majority) may have played a role in the opposite fates of these initiatives. This finding is important because it offers a critical take to the dominant perspective that emphasizes the instrumental differences between these regulatory strategies and that presents the law as a mere constraint. The analyses above thus evidence the worth of not only looking at the envelope but also at its content. To put it another way, they show the value of a substantive approach to thinking about these comparisons. They also validate the applicability of my analytical framework and thus its value for use in other research. Finally, they also invite us to critically think about the effects of a possible revision of the unanimity rule in the EU; such a change is likely to be insufficient to enact a carbon tax that matches with the model design of Chapter 3.

Ultimately the brief description of the 'Fit for 55' Package underlines several points. Firstly, it argues that the interactions between frameworks is both a both timely and central issue in climate change mitigation. Secondly, they point at the increased relevance of the 'economic efficiency' frame. While solidarity and fairness are considered important, they are addressed primarily through revenue recycling. A third key point is that there is a larger overlap between frameworks under the Fit for 55 Package than in the past (*e.g.* between the EU-ETS and ETD and burden sharing). This may indicate an emerging 'piling up approach'. This change raises many questions, given that these frameworks pursue not fully reconcilable objectives and employ diverging frames. The overlap between the EU-ETS and the revised ETD in particular implies the following issues: Should a national carbon tax be maintained in addition to the ETS; what should be done with partial or full exemptions for installations covered by the ETS: should they be expanded to other installations; should national carbon taxes be transformed into a carbon floor. These questions are particularly important because, as noted before, many Member States are considering to implement a carbon tax or have already done so.[1499]

[1499] *Infra*, Chapter 1, Section 3.

Annex to Chapter 9

Derogation ETD	Provision	Withdrawal by the 2011 Proposal			
		Yes	No	CO_2	energy
Mandatory derogations & scope					
Output taxation of heat and taxation of products falling within CN-codes 4401 and 4402;			X		
Energy used for purposes other than transport and heating fuel	Article 2		X		
Dual use of energy			X		
Electricity when it accounts for more than 50% of the cost of a product		X			
Mineralogical processes			X		
Energy products and electricity used to produce electricity	Article 14 a			X	
Commercial aviation and maritime navigation fuel	Article 14, b & c		X		
Facultative derogations					
Differentiated rates directly linked to product quality;	Article 5			X	Taxis
Differentiated rates dependant on quantitative consumption levels for electricity and energy products used for heating purposes;					
Differentiated rates for the following uses: local public passenger transport (including taxis), waste collection, armed forces and public administration, disabled people, ambulances;					
Differentiated rates between business and non-business use, for energy products and electricity referred to in Articles 9 and 10.					
Differentiation between commercial and non-commercial use of gas oil used as propellant	Article 7, § 2	X			
Reduced rate on gas oil used by heavy-duty vehicles when road pricing system is adopted	Article 7, § 4		X		
Tax reduction/exemption for taxable products for certain project of environmentally friendly technologies	Article 15			X	
Tax reduction/exemption for renewable electricity and from combined heat and electricity generation				X	
Tax reduction/exemption for energy products and electricity used for combined heat and power generation				X	
Tax reduction/exemption for energy products and electricity used for the carriage of goods and passengers by rail, metro, tram and trolley bus;				X	
Tax reduction/exemption for energy products uses related to navigation			X		
Electricity, natural gas, coal and solid fuels used by households and/or by organisations recognised as charitable			X		
Natural gas and LPG used as propellants;		X			
Products falling within CN code 2705 used for heating purposes		X			

Level of taxation down to zero for energy products and electricity used for agricultural, horticultural or piscicultural works, and in forestry.		X			
Exemption/ reduced tax rate for products produced from biomass, and certain other categories of products	Article 16	X			
Tax reductions in favour of energy-intensive businesses	Article 17 § 1, a)			X	
Where agreements are concluded with undertakings or associations of undertakings, or where tradable permit schemes or equivalent arrangements are implemented, as far as they lead to the achievement of environmental protection objectives or to improvements in energy efficiency.	Article 17, § 1, b	X			
The Commission, may authorise any Member State to introduce further exemptions or reductions for specific policy considerations	Article 19		X		

Chapter 10
Looking backward, looking forward: the illusive simplicity and straightforwardness of a carbon tax and its implications

1. INTRODUCTION

This research has shed light on the relationship between carbon taxes, as a regulatory strategy to mitigate climate change, and the law. At the outset of this research, I questioned the widespread assumptions that a carbon tax is a simple and straightforward instrument to mitigate climate change. I made the point that a simple and straightforward carbon tax was actually more wishful thinking than an accurate description of the reality. In this sense Chapter 1 showed how in practice, carbon taxes take a variety of shapes, differing *e.g.* in terms of scope, rate and derogations allowed. It also highlighted the tremendous difficulties surrounding the adoption of a carbon tax. This apparent contradiction between theory and practice led me to challenge the assumptions above. This brought me to the question of the role of law in this matter, in particular the definition of a carbon tax and the reason why some regulatory strategies fail while others succeed.

The remainder of this concluding Chapter is structured as follows. Section 2 recapitulates the reasoning and summarises the main findings. Next, in Section 3, I discuss the possible implications of these findings. Ultimately, Section 4 offers some thoughts on how to appraise climate change and the law in legal scholarship and in law schools.

2. SUMMARY OF THE ANALYSES

The first step of my reasoning was to interrogate how legal scholars thought about the role of law in the contradiction described above (Chapter 2). A central question in this respect is how legal scholars have defined the relationship between carbon taxes and the law or, to put it another way, how they understand the concept of role. These analyses have underlined the following points. The first is that legal scholarship has mainly analysed the relationship between carbon taxes and the law from an instrumental angle (Section 2). Carbon taxes and the law have been depicted as a tool to mitigate climate change, as part of the regulators' toolbox. This perspective has been associated with a tendency to promote their use (promotional approach) and to do so in

comparison with other regulatory strategies (dichotomous approach). In these discussions, the focus has been on the instruments' categories and the instruments have been classified according to their theoretical features.

Nevertheless, and this constitutes my second point, I found that there is not one uniform prism through which carbon taxes have been projected as an instrument to mitigate climate change. Their promotion has instead been based on several arguments, some of them being of a legal nature (*e.g.* the polluter pays principle) but most have roots in economics (such as external cost internalisation). This brings me to my third point. The review of legal scholarship surrounding carbon taxes has revealed the remarkable influence of economic thought on legal reasoning. Legal scholars have not only borrowed economic concepts but in some instances have also followed an economic reasoning, arguably at the expense of a legal one. We can find several examples where legal scholars have relayed economic arguments or solution advanced by economists (*e.g.* revenue recycling) without even discussing them from a legal standpoint. With this approach, economic theory has sometimes appeared as an almost divine word, propagated without critical reflection on its content or the assumptions on which it is based.

This point is inter-related to a final one. Legal scholarship has generally not questioned the assumption that a carbon tax is a simple and straightforward strategy to mitigate climate change. And in fact, it has often spread this assumption. While authors usually recognise that in practice carbon taxes take a variety of shapes and are difficult to adopt, they have attributed a limited role to the law in this state of affairs. In my view, this gap can be attributed to the instrumental view that pervades these contributions. The vision of the law as an instrument to remedy climate change has been associated with a triple tendency in the legal response to climate change: focusing on non-legal arguments, presenting the law as a mere constraint or limit, and neglecting the role of the legal context. Based on these findings, I have concluded that this instrumental approach, albeit valuable in other regards, has led to a dead end when it comes to explaining the role of the law in the above contradiction.

In a second step (Section 4), Chapter 2 turned to an alternative approach that exists in legal scholarship. This approach has portrayed the relationship between climate change and the law in more substantive terms. It focuses on what is being regulated rather than on the type of instrument used. It also attributes a definitional role to the law, as opposed to regarding it as a mere constraint. Moreover, this scholarship tends to stress the importance of the legal context in the way in which the response to climate change is defined. Like an instrumental approach, a substantive approach to climate change and the law is anchored in a pluri-/interdisciplinary

dialogue. However, the disciplines referred to differ; in the latter, economic theory plays a less significant role compared to disciplines such as sociology or geography. To the best of my knowledge, no in-depth contribution on carbon taxes has embraced such a substantive approach. I have identified several arguments why this approach would be useful in illuminating the role of the law in the contradiction above. Nevertheless, I have also pinpointed a number of challenges in following this approach.

In light of these analyses, my conclusion is that the relationship between carbon taxes and the law was worth studying from a substantive perspective (Section 5). However, this requires setting out a dedicated analytical framework, which was the purpose of Chapter 3. This analytical framework was developed as follows. I started from economic theory surrounding carbon taxes, to identify the most prevalent feature of this strategy from a substantive viewpoint in the definition of the response to climate change (Section 2). My conclusion was that imposing a uniform carbon price across emission sources, that is to price all additional tonnes of CO_{2eq} at the same level, was at the very heart of this strategy. I have systematised this response in a 'model design', with a view to using it to compare the ideal response brought by economic theory to the problem of climate change and the practical implementation of this response in the cross-case analyses (Chapter 5-8).

Then, in Section 3, I questioned the straightforwardness and simplicity of this strategy based on several inter-related strands in the literature. These arguments are based on the characterisation of climate change as a 'wicked problem' (3.1.), the multiple frames of climate change (3.2.), the appraisal of carbon pricing in light of valuation studies (3.3.) and GHG mitigation in light of transitions studies (3.4.). I have drawn on this literature as well as on legal scholarship embracing a substantive approach to imagine an alternative way than the predominant instrumental approach to appraise the relationship between carbon taxes and the law (Section 4). I argue that the law is better viewed as a rich ecosystem rather than a mere matter of constraint. Based on the STS concept of co-production, I propose to analyse the mutually constitutive roles in the legal response to climate change and its legal environment. This approach has thus assigned a definitional role to the law in responding to climate change.

Such a definitional role is not only of a different nature than regarding the law as a constraint; it also intends to assign it a greater role. Presenting the law as an ecosystem places greater attention on the role of contextual specificities in the definition of the legal response to climate change. By contextual specificities, I mean the influence of temporal or territorial changes. Unveiling the existence of mutually constitutive interactions, however, requires establishing a well-suited and robust methodology. I have set out this methodology in two steps. The first step was to map the

frames employed to portray a given problem and the *legal categories* corresponding to this frame at two levels: firstly, in the legal response to climate change and secondly in its legal environment. The legal responses scrutinised were the EU CO_2/energy tax proposals of 1992 and of 2011 and the EU-ETS. The second step was to unearth the interactions through comparisons and to unpack them based on a typology of explicit interaction, which this research has built up.

The legal categories mapped touch on the comparability of situations. I have established equal treatment as a structuring principle to map categories and frames, as opposed to using it to assess the lawfulness of categorisations. The focus on equal treatment can be explained by the economic conclusion mentioned previously that the response to climate change should involve imposing a uniform carbon price. Pricing all additional tonnes of CO_{2eq} at the same level implies in effect treating them the same say. I have linked this conclusion to the legal principle of equal treatment, which is generally seen to imply that comparable situations should be treated in the same way unless the difference in treatment is based on an objective and reasonable criterion. The economic response above is based on the objectives of ensuring economic efficiency, by internalising the external costs of climate change. Based on framing literature, I have referred to this frame of climate change as 'economic efficiency'.

In Chapter 4, I identified the most prevalent frames in EU primary law and defined the comparability criterion corresponding to these frames. These frames are the 'economic efficiency' frame (emission level), the 'development – fairness' frame (capability), 'free market & competition' frame (competition), 'autonomy' frame (determined by Member States). They depict problems and determine the comparability of situations in distinct, yet partially overlapping, ways. The analysis of the Court' caselaw has been particularly useful in exploring possible interactions between these frames. In light of this, I have underlined the relative convergence between the 'economic efficiency' frame and the 'free market & fair competition' frame, as well as the tensions between these two frames and the 'autonomy' frame. I have also made the point that the plurality of frames in EU law indicates that the EU is a pluralistic legal order, which makes it unlikely that climate change will be portrayed through a single frame.

Another key finding of Chapter 4, is that in EU law the 'economic efficiency' frame does not fully match with economic theory. In particular, I have noted that EU primary law neither requires nor refers to attainment of climate change mitigation in a cost effective and economically efficient way. The polluter pays principle is the legal principle that is the closest to the economic conclusion that external costs should be internalised. However, EU law has attributed other functions to this principle, including a preventive and a curative function. The consequence is

that other frames, especially in the field of the environment, receive a greater consecration in EU primary law. On these grounds, I have sustained an interpretation of the polluter pays principle that is better matched with the Treaty and would consider the principles of sustainable development, solidarity and human rights. With this interpretation, the response to climate change would not be a uniform carbon price; instead, it would be differentiated according to respective capabilities and/or historical responsibilities and be defined in a way that protects future generations.

Afterwards, I turned to the study of the CO_2/energy tax Proposals of 1992 and 2011 and the EU-ETS, saying that the story of these strategies could easily be depicted in instrumental terms. In this story, the EU opted for an ETS because the 1992 proposal for a CO_2/energy tax could not be enacted. Consequently, it shifted from one carbon pricing or market-based instrument to another. According to this story, the reason, as underlined by many legal scholars, was that EU law imposes unanimity to enact measures of a fiscal nature. Because the EU-ETS was not a fiscal measure, it could avoid this more stringent voting requirement. The Commission contributed to propagating this story when it claimed that 'Community decision-making rules should not have an influential role to play in this context. Nevertheless, the unanimity requirement in the tax area means that the possibility of using taxation as an instrument differs from other instruments in some respects'.[1500] When Commission attempted in 2011 to pass another CO_2/energy tax proposal, it faced the same hurdle.

There is of course much truth to this. It is seemingly harder to enact a measure based on unanimity than on qualified majority. However, this line of reasoning is entirely focused on the difference in the instrument used and ignores the possible divergence in terms of substance between these strategies and the possible implications that these substantive divergences may have on the relationship with the law. The analyses conducted in Chapter 5-6 have revealed an alternative story to the instrumental one that prevails in legal scholarship. This story finds are deep divergences in the way the CO_2/energy tax proposals and the EU-ETS have framed the problem of climate change and compared emitters. I have found that while all of these initiatives have been shaped by several frames simultaneously, they differ as to which frames have predominated. In terms of scope, the comprehensive approach in the CO_2/energy tax proposals was consistent with the 'economic efficiency' frame. It contrasted with the stepwise approach of the EU-ETS, which was rather in line with the 'autonomy' frame.

[1500] 2007 Green paper, p. 4.

As regards the distribution of efforts among emitters and across Member States, none of the CO_2/energy tax proposals was consistent with the model design defined in Chapter 3. These proposals were rather influenced by the 'free market & fair competition' frame (*e.g.* derogations in favour of firms at risk of carbon leakage) and by the 'autonomy' frame (minimum rates, facultative derogations). On the contrary, the 'developmental – fairness' frame played a more minor role in both proposals. It was also observed that the 'free market & fair competition' and 'autonomy' frames were more prevalent in the 2011 than in 1992 Proposal. The situation of the EU-ETS was different. The initial design of the EU-ETS under the ETS Directive was dominated by the 'developmental – fairness' frame and by the 'autonomy' frame. This changed with the adoption of the Aviation and Revised ETS Directives. With these directives, the EU-ETS became centralised and gradually shifted towards auctioning. Consequently, the 'economic efficiency' and 'free market & fair competition' frames superseded other frames.

I underline that prevalence of frames other than 'economic efficiency' in the design of these initiatives was notable because it contrasted with the discourse of the Commission. In many Communications, the Commission has indeed employed the 'economic efficiency' frame to promote the use of market-based instruments. Nevertheless, the multiplicity of frames shaping these strategies was in line with the situation under EU primary law (depicted in Chapter 4). I also make the point that the divergences between both CO_2/energy tax proposals would suggest that a change in the legal environment can affect the response to climate change. On the other side, the divergences between the CO_2/energy tax and the EU-ETS as to the main frames employed demonstrate that these strategies not only differed in terms of instrument category but also from a more substantive viewpoint. The remaining question was whether the divergences among the three initiatives could be attributed to interactions with their legal environment.

To respond to this question, I scrutinised the legal environment of these initiatives. I mapped the prevailing frames and categories, distinguishing direct (Chapter 7) from indirect legislation (Chapter 8). These analyses attest that EU climate legislation has undergone extraordinary evolutions over time. This brought me to the conclusion that the legal environment of the initiatives has largely varied. From a 'minor' law in the 1990s, climate change law has become a 'major' law. A plethora of rules have been established in the aim to address climate change and, in the future, few areas may escape these changes. There is no turning back. The European Climate Law has initiated a process of even deeper but also quicker transformations of the legal framework in place. However, as Chapter 8 has shown, important areas of law, particularly in the fields of taxation and energy law, as well as road transport pricing, have not yet been (or have

insufficiently) reshaped to respond to climate change. In the field of energy, the distribution of competences between the EU and its Member States explains this state of affairs. Achieving the objective of carbon neutrality in 2050 will undoubtedly require a redefinition of these roles.

Despite these changes, and this constitutes the second central finding of Chapters 7 & 8, 'economic efficiency' has never been the dominant frame in any of these frameworks. Outside the EU-ETS, EU climate law has rather been characterised by the 'developmental – fairness' and 'autonomy' frames. It is true that several areas mention the objectives of economic efficiency and cost-effectiveness. This includes the distribution of renewable energy targets among Members States. These objectives, on several occasions, have also led to the introduction of flexibility mechanisms (*e.g.* between the different pillars). Attaining a cost-effective transition is also an objective of the European Climate Law. However, in none of these cases, the framing of climate change has been primarily 'economic efficiency'. In the case of the European Climate Law, cost-effectiveness is placed on an equal footing with solidarity and fairness. This act has also made clear that a plurality of other frames (*e.g.* 'scientific', 'technology') and challenges (*e.g.* security of energy supply) need to be considered in future climate legislations.

The third point is that in many areas, the EU has followed a stepwise approach, pursuant to the 'autonomy' frame. This approach has led to a deep fragmentation of climate legislation, with obligations being distributed in different ways across the frameworks. The allocation of emission reduction efforts among Member States has primarily responded to the 'developmental – fairness' and 'autonomy' frames, while in the distribution among firms (*e.g.* IED), the role of the 'technology' frame and of the 'free market & fair competition' frame has been greater. In indirect climate legislations, the 'free market and fair competition' frame has played a key role, but these acts have also been largely shaped by the 'autonomy' frame. In other words, EU legislation has often oscillated between these two contradictory frames. In the area of road transport pricing, the 'economic efficiency' frame played a greater role. However, in the case of CO_2 emissions, the 'technology' and the 'autonomy' frames prevailed.

All of the above reveals that 'economic efficiency' is far from being the most prevalent frame in EU law, and this for both direct (outside the framework of the EU-ETS) or indirect climate legislation. There has thus been a gap between the insistent discourse of the Commission in favour of economic efficiency and cost-effectiveness and the place of these objectives in law. Again, this is not surprising in the light of their limited recognition in the Treaties. This finding is significant because it highlights that the adoption of a carbon tax in the EU according to the model design of Chapter 3 requires not only a change in instrument, but also a more substantive

change as to the way EU law responds to climate change. Chapters 7-8 discussed a series of interactions between the different frameworks. However, and this is my final point, the distinct frames used in these separate, yet sometimes overlapping, frameworks illustrate a 'box thinking' of the EU.

Ultimately, Chapter 9 dealt with the interactions between the three initiatives under study and their legal environment. This corresponds to the second step of two-step methodology followed in this research. These interactions have been unearthed according to different methodologies, depending on whether explicit (Section 2) or implicit interactions (Section 3) were concerned. Explicit interactions, those that the legislature knowingly organises, have been categorised into the four hypotheses established in Chapter 3, i.e. the integration, consistency, building blocks and disconnection hypotheses. The interactions varied among the three initiatives under study. The 1992 Proposal had little interaction with its legal environment. This can be explained in part by the embryonic state of direct and indirect climate legislation in the 1990s. In addition, the legislature chose to design the scheme in a way that was disconnected from the Mineral Oils Directives. With the 1995 Proposal, interactions increased, *e.g.* with the burden sharing decision.

The 2011 Proposal entertained mutually constitutive interactions with the ETD (*integration hypothesis*); it both shaped and was shaped by that Directive. The design of the CO_2/energy tax proposal was also influenced by other pieces of law, especially the EU-ETS. The CO_2/energy tax and the EU-ETS were meant to be complementary strategies, under the *consistency hypothesis*. The interactions between the 2011 Proposal and its legal environment explain several of the key differences between the 1992 and the 2011 Proposals in terms scope (*e.g.* exclusion of ETS installation), rates (*e.g.* differentiation of energy component based on uses) and derogations (*e.g.* charitable households). Once again, the story of the EU-ETS was different than the CO_2/energy tax proposals; it had reciprocal interactions primarily with the IPCC Directive (*building blocks hypothesis*) but also with the burden sharing decision (*consistency hypothesis*). By contrast, it was disconnected from the ETD. During a second phase, the EU-ETS was disconnected from the burden sharing decision; these frameworks became like two distinct boxes.

The analyses of Chapter 9, Section 2 have made clear that a wealth of explicit interactions took place between the three initiatives under study and their legal environment. It has thus demonstrated that carbon taxes and their legal environment play mutually constitutive roles. As a result, one can conclude that a carbon tax can well be defined as *a categorising structure of GHG emission activities (e.g. cement production) and/or products (e.g. energy), the design of which is determined by the frame employed to depict climate change as well as by mutual interactions it entertains with its legal context*, as

argued in Chapter 3. These analyses have also made clear that these interactions are not systematically organised; the nature of these interactions has varied among the initiatives scrutinised and over time. In this regard, I do not perceive a red line in the legislature's apprehension of these interactions. The finding that these interactions are not systematically organised can pose problems in terms of both consistency and effectiveness.

The different interactions between the EU-ETS and the CO_2/energy tax proposals underline that substantive differences exist between these initiatives as to their relationship with their legal environment. These substantive differences indicate that these initiatives did not differ solely from an instrumental viewpoint. This point is confirmed by the analyses of implicit interactions in Section 3. As noted previously, the existence of implicit interactions is methodologically more challenging to demonstrate. Nevertheless, by comparing the initiatives under study and their legal environment as to how they frame problems, it is possible to show that some elements of convergence exist. Convergence tends to indicate that the legal environment of the schemes has shaped their design. By contrast, strong divergence could explain the impossibility of passing the CO_2/energy tax proposals. This could be explained by a form of path dependency, through which the legal environment locks in the legal response to climate change.

Analyses of the implicit interactions have clearly shown that the comprehensive approach of the CO_2/energy tax proposals, pursuant to the 'economic efficiency' frame, has diverged from the EU's stepwise approach in most of their legislative forms, including in the EU-ETS. The limited role of the 'economic efficiency' frame outside the framework of the EU-ETS illustrates the difficulty of responding to climate change according to that frame except when industrial installations are concerned. In particular, the distinct approaches used to frame climate change in non-ETS sectors, as well as the diverging pace at which the response to climate change has taken place in different sectors or activities, suggest that putting them all in the same box is not straightforward. Finally, the plurality of frames employed in the three initiatives under study corresponds to the wealth of frames shaping direct and indirect climate legislations. These elements further contribute to elucidating the substantive role played by law in the diverging fates of the CO_2/energy tax proposals and of the EU-ETS.

3. THE IMPLICATIONS OF THE MUTUALLY CONSTITUTIVE ROLES OF THE RESPONSE TO CLIMATE CHANGE AND ITS LEGAL ENVIRONMENT

Demonstrating that the legal response to climate change both shapes and is shaped by its legal environment invites us to reconceptualise the relationship between climate change and the law.

This entails the following dimensions. The first is that we are encouraged to pay more attention to the substance of climate law than to its form. That is, the focus is placed on what is being regulated and not which instrument is used. This means interrogating the nature of the problem addressed: how are the problem and its remedies conceptualised, to which categories does this conceptualisation result in law. This approach contrasts with questions about which instrument best responds to the problem at stake. This research has shown that a substantive and an instrumental approach provide distinct lenses to understand a situation. The consequence is that the two approaches do not tell the story in the same terms. It is not a matter of truth or accuracy but rather an emphasis on different elements. Therefore, I contend is that these approaches should be viewed as complementary and not antagonistic.

In the current context of the need for drastic emissions reductions within the coming years, a central question is the place of carbon taxes in the (future) response to climate change. Following a substantive approach, I rephrase this question as follows: what is the place of the 'economic efficiency' frame in the (future) response to climate change. The analyses above have shown that this frame, despite its important penetration in the Commission's discourse, has only a limited recognition in law. Therefore, conceptualising the response to climate change according to this frame calls for rethinking existing categories. This is not to say that the existing categories are fixed, most of them seem rather malleable; however, this points to the conclusion that responding to climate change in this way is neither simple nor straightforward, no matter which instrument is used. This invites us to temper our enthusiasm about the capability of such a response to deliver the necessary changes in the short run to avoid the dangerous impacts of climate change.

This brings me to another question: is 'economic efficiency' the best frame to respond to climate change? In the EU legal order, we find arguments to consider that the answer is no. In effect, I have shown that in relation to the environment, the 'fairness – developmental' frame has received a greater recognition than the 'economic efficiency' frame, given that the cost-effectiveness and economic efficiency objectives are not consecrated by the treaties. On the basis of these analyses, I contend that they can be prioritised as follows: 'autonomy' frame (strict binding rules); 'developmental – fairness' frame (recognised in EU environmental law but broader margin of interpretation and legal force is debated); free market & fair competition (expressed in the treaties but not necessarily relevant in environmental law); other frames, including the 'economic efficiency', 'technology' and 'scientific' frames (not directly expressed in the treaties). This hierarchy is currently lacking in the determination of intermediate targets in the European

Climate Law and is inconsistent with the Treaty in the case of the 2050 climate neutrality objective.

Following this hierarchy, it is arguable that a carbon tax that distributes emission reduction efforts according to respective capabilities and/or historical responsibilities and designed in a way that protects future generations would better fit in EU primary law than one that was designed according to a strict 'economic efficiency' frame. It is also useful to point out that even though the legislature has benefited from a large discretion to decide on how to frame issues, EU primary law entails notable limits as regard the EU's competence to harmonise certain matters. In this respect, it is questionable whether the objective of attaining climate neutrality in 2050 can be achieved without redefining the respective roles of the EU and the Member States in the field energy. The recent war in Ukraine reminds us of the need for a common response to move away from dependence on fossil fuels. It is also questionable whether the EU can truly address climate change with limited competences (*e.g.* in the field of direct taxation) for acting upstream on substantive inequalities.

A related issue concerns the interaction between the climate change response and other (direct and indirect) climate legislation. In my view, fragmentation is inevitable for several reasons. The first reason relates to the nature of climate change; the multiplicity of emission sources means that there are multiple intersections possible between legislations. The second reason is that climate change is a relatively recent problem, compared to other challenges such as security of energy supply. As a result, a body of legislation that indirectly intersects with climate change pre-exists any legal response to this problem. Another related reason is that climate change is not the only issue addressed by law; other issues, both environmental and non-environmental, are also important. The last reason is the step-by-step approach that characterises the European process but which can also be taken up by the legal orders of other countries (*e.g.* for practical reasons). Consequently, emissions regulation has not advanced at the same speed in all sectors. The implication of these features is that addressing all these intersections in one single framework seems almost impossible. This holds for the EU but also for other legal orders.

Based on this backdrop, it seems useful to place more emphasis on the search for internal coherence than on the adoption of a single framework. This implies that the distinct frameworks should not be seen as separate boxes, conceived in siloes, but that intersections between them should be more systematically organised, both for reasons of internal coherence and for effectiveness. Despite the package approach of EU climate mitigation, internal coherence does not currently characterise EU law. In my view, this is one of the biggest challenges for EU

climate legislation. This conclusion invites us to put into perspective proposals such as Traversa and Timmermans' Damage and Value Added Tax (DAVAT) model.[1501] Building on the success of VAT, the authors suggest 'to add a component to the current VAT system that would not depend on the price of the products but on the [Life Cycle Approach] scores associated with them'.[1502] Whilst this proposal could help avoid difficulties surrounding the revision of the ETD, the interaction with the ETD will continue to pose problems in terms of effectiveness and consistency. What could be viewed as the strength of this proposal thus also appears as a weakness.

The substantive approach embraced in this research allows critical thinking about other legislative or academic proposals that aim to facilitate the adoption of a carbon tax. I have mentioned the proposal to abolish the EU unanimity requirement in fiscal matters. An instrumental perspective would conclude on the worth of this proposal because unanimity makes it harder to adopt a fiscal measure than a non-fiscal one, such as an ETS. Following a substantive perspective, the conclusion would rather be that such a proposal appears more like a legislative fix that is insufficient to overcome the difficulties involved in enacting a carbon tax. The reason is that introducing carbon tax in a way that corresponds to economic prescriptions may require more substantive changes as to how problems are framed, that a change in voting requirements may not address. A similar conclusion can be drawn with respect to proposals to recycle revenues to overcome opposition to a carbon tax. These proposals are thus unlikely to be sufficient in the light of the complex interactions above.

This point is related to another. Showing that the legal environment of the response to climate change can have an influence on the definition of this response may have the following implications. Firstly, it points to the importance of studying climate mitigation strategies in their own legal setting. In turn, this supports the argument that carbon taxes – or other regulatory strategies – can hardly be defined in the abstract. It also underscores the relevance of conducting comparative law analyses to determine how contextual specificities influence the legal response to climate change, to shed light on possible elements of convergence or divergence. Finally, the role of the legal environment in the response to climate change is central to critical appraisal of whether proposals for a global carbon tax or CBAMs should be seen as *the* solution to climate

[1501] E. TRAVERSA et B. TIMMERMANS, 'Value-Added Tax (VAT) and Sustainability in the European Union: A Radical Proposal Design Issues, Legal Aspects, and Policy Alternatives', *op. cit.*; European Commission, A more efficient and democratic decision making in **EU** energy and climate policy, 9 April 2019, COM (2019) 177 final.
[1502] *Ibid*, p. 879.

change or rather as wishful thinking. It also questions, more fundamentally, the desirability of these solutions.

In the light of the analyses above, my response is the following. With regard to the adoption of a global carbon tax, the most plausible outcome in my view is the adoption of a minimum harmonisation as conceived in the EU (*e.g.* through a minimum carbon price). If the reception of the 'economic efficiency' frame is already limited in EU law (as opposed to political discourse), it seems doubtful that this will receive better reception in the legal orders of other countries less permeated by neoliberal ideas, such as India. Hence, it seems implausible that that a globally designed carbon tax would match with the 'economic efficiency' frame. This argument is reinforced by the prevalence of the 'developmental – fairness' frame in the distribution of GHG reduction efforts at the international level. It is of course possible that this issue could be addressed through financial transfers between states, as promoted by economic theory. Finally, the fact that the introduction of a global tax is currently in discussion under the aegis of the OECD, drawing on the experience of the BEPS process in tax matters, suggests the prevalence of an instrumental perspective.

My answer with respect to CBAMs is different because these consist of unilateral measures. In my opinion, CBAMs are criticisable for several reasons. The first reason is that the focus on comparable carbon price abroad does not tell us much about the ambition of third countries' climate mitigation policies nor about the interaction with other acts that (directly or indirectly) intersect with climate change (*e.g.* energy taxation). It only indicates that these countries do not respond to climate change through an explicit carbon price, which in itself is not reprehensible or objectionable. A CBAM thus offers only a narrow lens for the legal response to climate change. Secondly, this lens is even narrower if one considers that a CBAM is a mirror of the pricing schemes in place in the country implementing it. Taking the example of the EU, conceiving the CBAM as a mirror of the EU-ETS is highly questionable knowing its intrinsic connection to its legal environment (in particular to the scope of the IPPC Directive). This raises questions about the legitimacy of its scope. Thirdly, as noted before, international climate law distributes GHG reduction efforts according to the 'developmental – fairness' frame. Therefore, a CBAM, depending on how it is designed could be contrary to the UNFCCC, besides posing other problems with respect to WTO law.

Another key implication of this research regards the role of the law compared to other disciplines. Although there is no doubt as to the importance of multi/interdisciplinarity appraising climate change mitigation, this research has shown that the role of the law has not

been fully appreciated in these discussions. Demonstrating that the law plays a constitutive role in the definition of the response to climate change, as opposed to a mere instrumental role, attributes a greater role to the law than presenting it as a mere constraint. In turn, this helps reconceptualise the role of the law compared to other factors, *e.g.* lobbying. That way, my hope is that this research can help pave the way for a renewed dialogue between law and other disciplines, in which legal scholars will dare to affirm their legal identity more strongly but also to think more critically about the conclusions made by others. I believe that the analytical framework set out in this research can provide a tool to help them in this enterprise. The case studies have confirmed its validity and strength. However, it is clearly not the only approach possible and I invite other scholars to let their creativity blossom and imagine other frameworks of analysis.

My final point deals with the (limited) role played by the principle of equal treatment in shaping the EU legal response to climate change. This role has been limited for two main reasons. The first one is that the control of the Court is limited when legislature choices pertain to complex policy issues such as the environment. This in turn is explained by the need for a balance between the different branches of power. The second reason is that a violation of the principle of equal treatment by an EU act does not necessarily lead to the annulment of this act. It must be judged by the Court. As a result, the compliance of certain acts with equal treatment is doubtful. In some cases, the difference of treatment between emitters has not been explicitly justified. The specific regime in favour of aviation activities under the EU-ETS illustrates this point. In others, such as the regulation on emission performance of vehicles, one can doubt that the measure would even pass the proportionality test. Ultimately, the scope of the ETS shows the limits of this principle when it is known that a difference in treatment has been admitted for 15 years due to the 'novelty and complexity of the scheme'.

4. RESEARCHING AND TEACHING LAW IN A CHANGING CLIMATE

This research has made it clear that the legal response to climate change is the result of a complex set of interactions with its legal environment. I have made the point that redefining the role of the law in shaping the response to climate change can have implications on the roles of actors studying or applying the law, especially legal scholars as well as teachers and students. The significance of this role is reinforced by the multiple crises we face and will face in the future. I am not talking solely about climate change or even biodiversity loss (the so-called 'Sixth mass extinction'), I am also referring to COVID-19, the Ukraine war and the multiple consequences

arising from these events, including an energy and food crisis. In such tumultuous times, two elements seem important. The first is to remain critical. One should refrain from being tempted by the promises of a quick and easy answer to a complex problem. This not only requires a critical mind but also knowledge.

The second is to build an epistemic community, through which knowledge is exchanged. This is particularly important in times of a lockdown as we have experienced over the past three years. As Liz Fisher ascertained in the context of COVID-19:

> 'As legal scholars, we do need to "think collectively" in light of COVID-19 and environmental problems. Thinking collectively is not thinking uniformly. It is not thinking without rigour. It is thinking as a scholarly community committed to illuminating the law and the problems it applies to.'[1503]

In both areas, legal scholars and teachers have an important role to play, by making rigorous descriptions of the law and the environmental problems it regulates and then communicating them.

This research has shown, however, that studying the relationship between climate change and the law is challenging *inter alia* because of the nature of this problem. Climate change, through its scope and the diversity of its emissions and effects, challenges established categories. First of all, it transcends disciplines, which leads to a necessary dialogue among disciplines. It also defies the separations between fields of law. Climate law tends to colonise other areas of law; it erases boundaries between public and private law, corporate law and administrative law or other fields of law. The recent European Climate Law and the EU 'Fit for 55' resulting from it illustrates this point. The global nature of this problem also requires stepping outside one's own legal order, while the need for a multi-level approach leads to an extensive field of study. The entanglement of climate change with other issues, environmental or other, reinforces this. There are two consequences from this: firstly, it is no longer possible, in a changing climate, to think in boxes; instead, we need to think out of the box; secondly, teamwork is required (which brings me back to the epistemic communities).

In law schools, the increasing importance of climate change in law calls for a shift from a relatively minor place in the cursus of most law students towards a more prominent place. This means that in addition to dedicated courses in this area, all other courses should integrate this

[1503] L. FISHER, 'Thinking Collectively: Law and Scholarship in Precarious Times', *Journal of Environmental Law*, December 2020, vol. 32, n° 3, p. 343.

issue (which is reminiscent of the principle of integration at EU level). This leads to a necessary revision of the university curriculum, but also calls for training professors in its issues. It would also be useful to redesign the curriculum to include other disciplines more systematically. Without this, there is a risk of a deepening gap between the cursus provided and the expectations and needs of students to face the tomorrow's world. The recent AgroParisTech students' speech calling for 'bifurcation' and the students' 'Fridays for Future' marches are telling illustrations of this. Some universities such as Wagendingen, Pau and Darington College in the UK have already understood this and could serve as a source of inspiration for others. How to implement such a change is also an interesting field for future research.

As regards legal scholarship, I will point to four areas for future research which I find particularly relevant. The first area for future research concerns the prospects and limits of adopting a global carbon pricing scheme to remedy climate change. The recent revival of interest in this solution makes it a timely topic. Adoption of a global carbon pricing scheme raises several questions including: what would be the role of the expected plurality of frames of climate change at national and international levels? Relatedly, how much room is there for contextual specificities? How would the interaction with other (direct and indirect) climate legislations be organised? Another issue touches on the implications of discussing this matter not under the UNFCCC (which is intrinsically tied to sustainable development as a Rio Convention) but under the OECD. Is the increased role of the OECD part of a broader trend?

The second area for future research is specific to the EU. I contend that it would be worth studying the potential role of the EU Taxonomy outside the financial sector. The reason is twofold: first, this scheme establishes categories for a wide range of products and activities and second, it follows a rather integrated approach that takes into account the different types of environmental problems. The perspective followed is thus broader than focusing merely on GHG emissions. In particular, it would be relevant to address the following research questions: how does the Taxonomy Regulation balance conflicting goals and interactions between frameworks? Are there any limits resulting from the key role of the Commission in assessing these conflicts and if so what are they? What are (possible) interactions between this piece of law and others? What would a tax scheme reproducing the categories of the EU taxonomy look like? Is there some scope for a common approach outside the EU legal order?

Beyond the topic of carbon taxes, it would be useful to map (direct and indirect) climate legislations, by unpacking the interactions between legislations and unveiling the frames underpinning these legislations. There are several reasons for this. Firstly, it would enable

knowledge to be acquired in this area by systematically studying existing legislations. Given the width of climate legislations, the rapid pace at which they are changing and their frequent technicality, the worth of making clear descriptions of these rules should not be underestimated. A second reason why these analyses would be useful is to improve the consistency and effectiveness of climate law, by spotting possible inconsistencies, synergies and tensions. The final reason is to make comparisons between legal systems, to better emphasise the role of diverging legal environments in the legal response to climate change. On the other side, analyses at different levels within one single legal system, especially in federal countries such as Belgium, Germany or Switzerland, would help provide a real integrated approach, which is often lacking in existing climate plans.

Ultimately, I have shown that a multiplicity of frames exists in the EU legal order to problematise climate change and its response. I have also shown that each of these frames has a different place in EU primary law. I have also proposed a reordering of their respective roles in a way that better matches with EU primary law. In this context, a final relevant area of future research would be to determine what EU law would look like if that hierarchy were systematically followed to conceive climate legislation. This could help ensure the internal consistency of EU primary law and foster the effectiveness of the EU legal response to climate change.

Epilogue

Climate change is our past, our present and our future. Whether we like it or not, climate change will have an influence on many society dimensions, including the law. While we can decide to ignore this reality, a more constructive approach is to deal with it and try our utmost to do the right thing. We all have a dormant seed within us that is just waiting to be awakened. From all these dormant seeds, a forest can be born. A beautifully rich and varied forest, where each tree is unique. A forest of change that no one can cut down.

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