Sustainable ICT

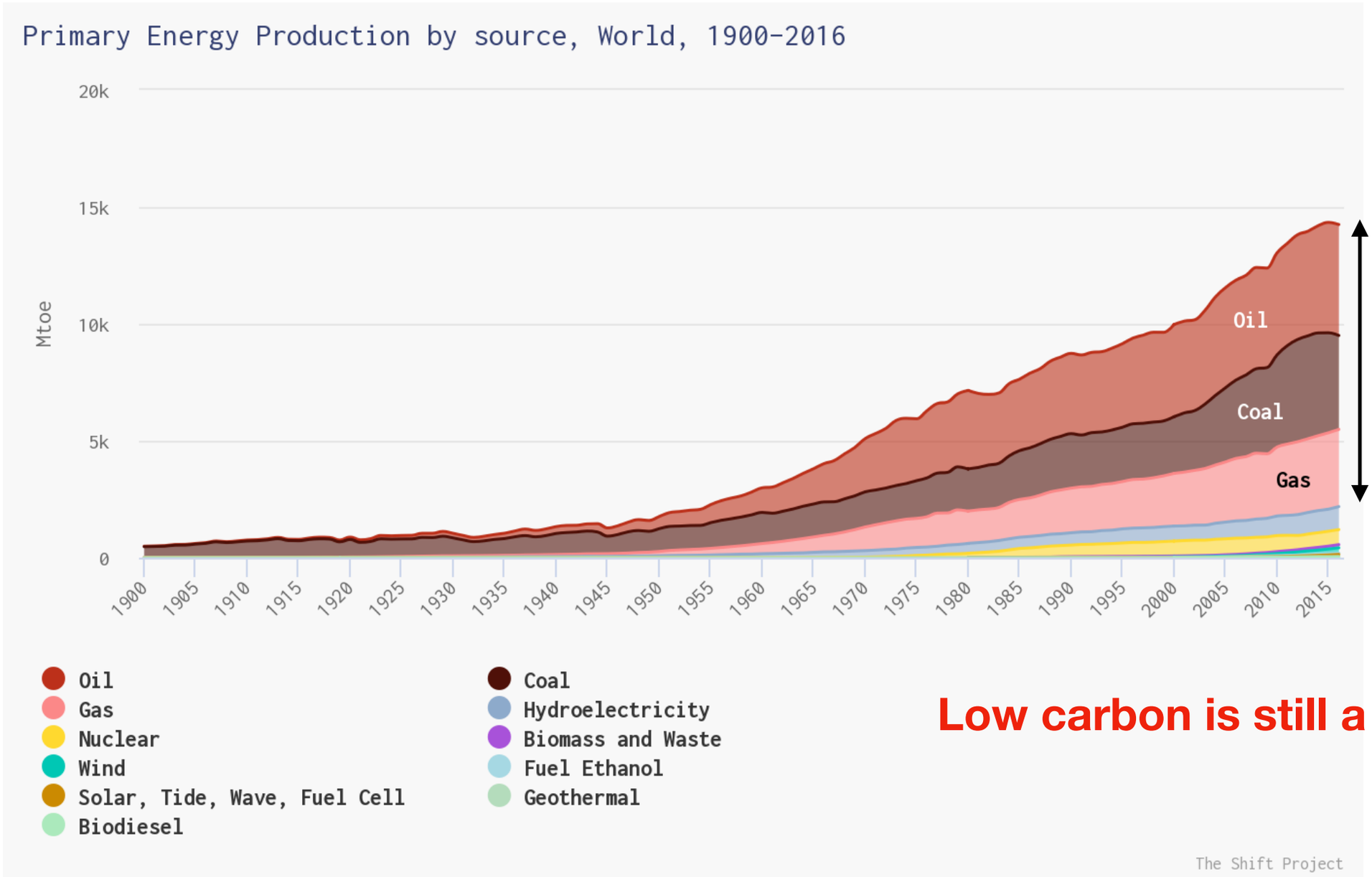
Source: https://theshiftproject.org/article/deployer-la-sobriete-numerique-rapport-shift/

Sustainable ICT

Summary

Sustainable ICT

Primary energy production

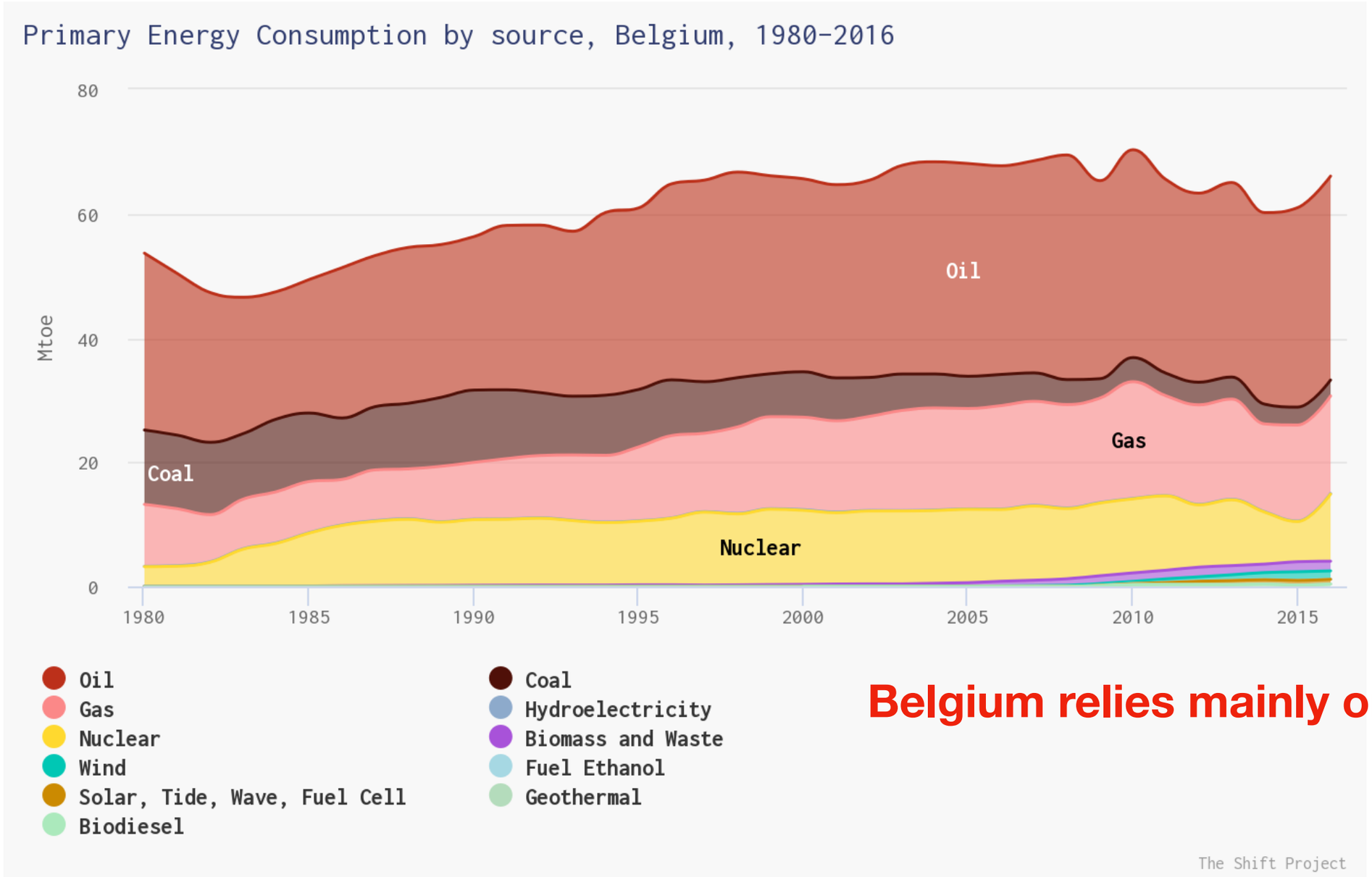


Low carbon is still a long way ！

Source: https://www.theshiftdataportal.org/

Sustainable ICT

Primary energy consumption Belgium

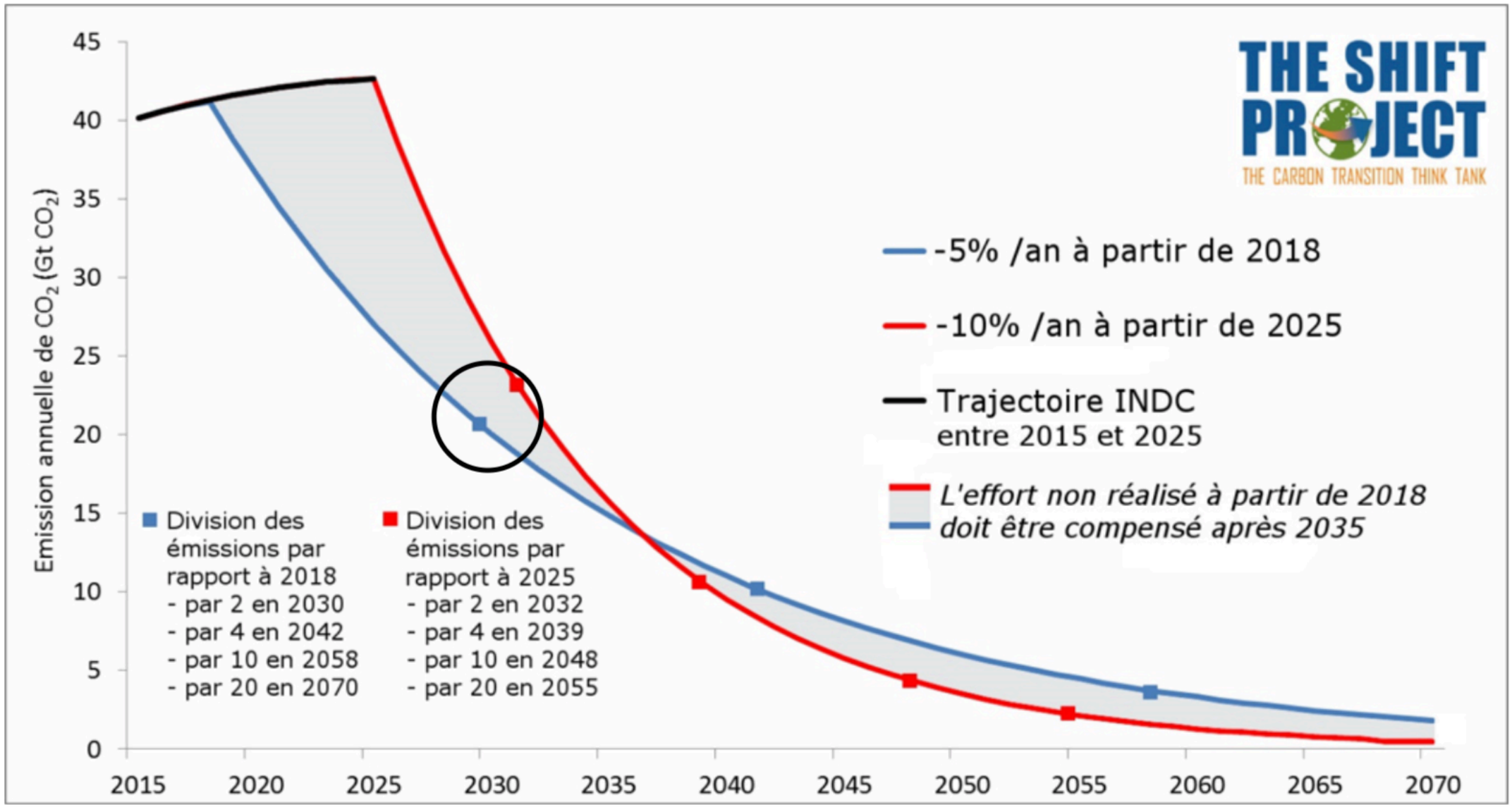


Belgium relies mainly on fossil.

Source: https://www.theshiftdataportal.org/

Sustainable ICT

Whats is needed to stay below 2°C



Cut by half the CO2 emissions by 2030 !

Source: The Shift Project Hugues Ferreboeuf Doctoral School UCL presentation

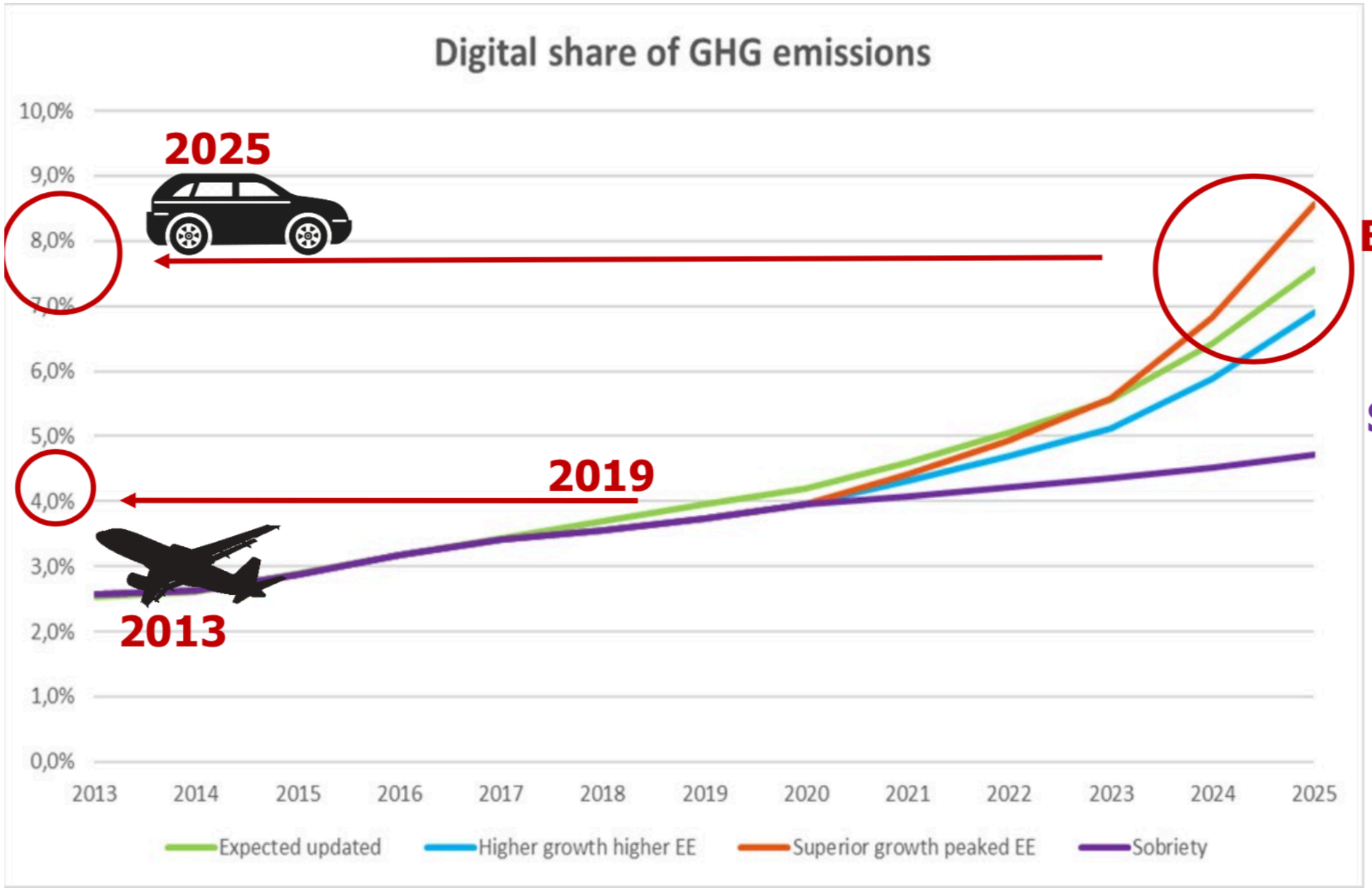
Sustainable ICT

Summary

1. Context: global warming
2. Digital energy consumption dynamics
3. A system design issue
4. A systemic approach

Sustainable ICT

Digital GHG emissions

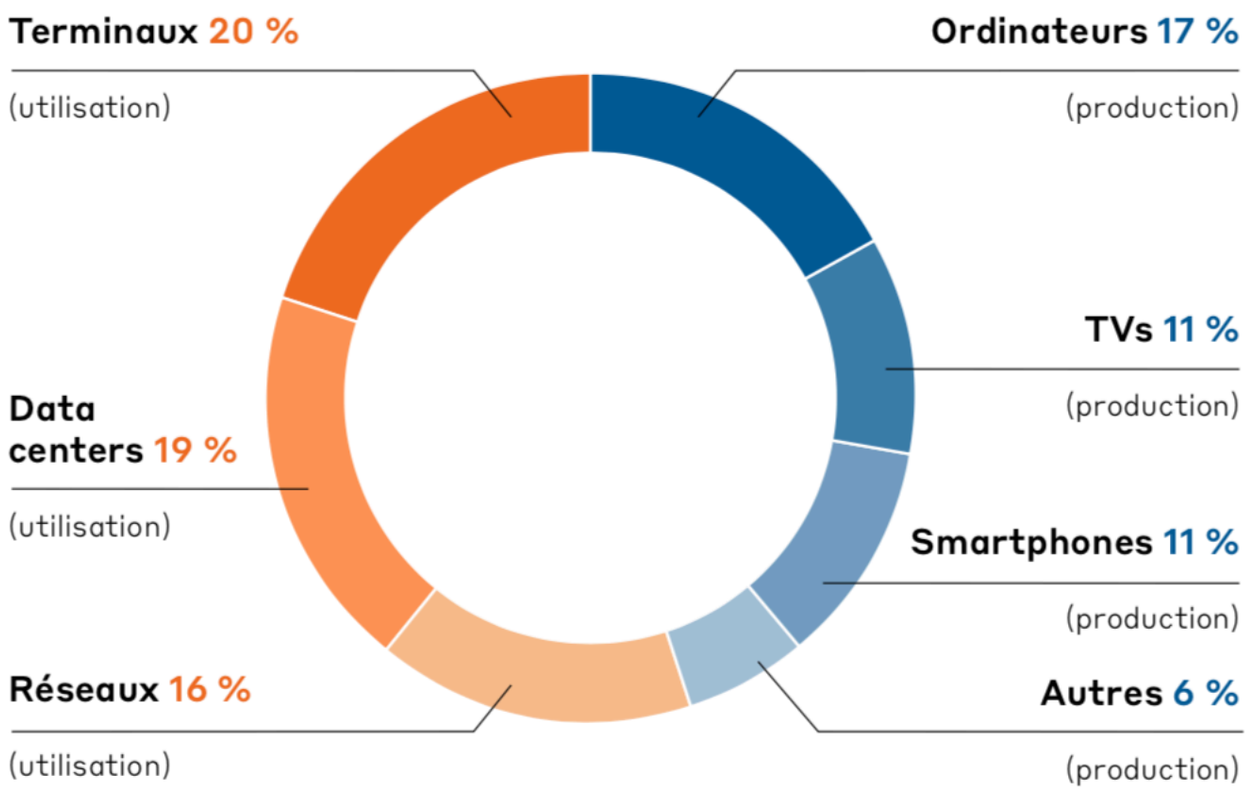


Lean ICT report, The Shift Project 2019

Source: https://theshiftproject.org/article/pour-une-sobriete-numerique-rapport-shift/

Sustainable ICT

Digital energy consumption



Distribution de la consommation d'énergie finale du numérique par poste pour la production (45 %) et l'utilisation (55 %) en 2017

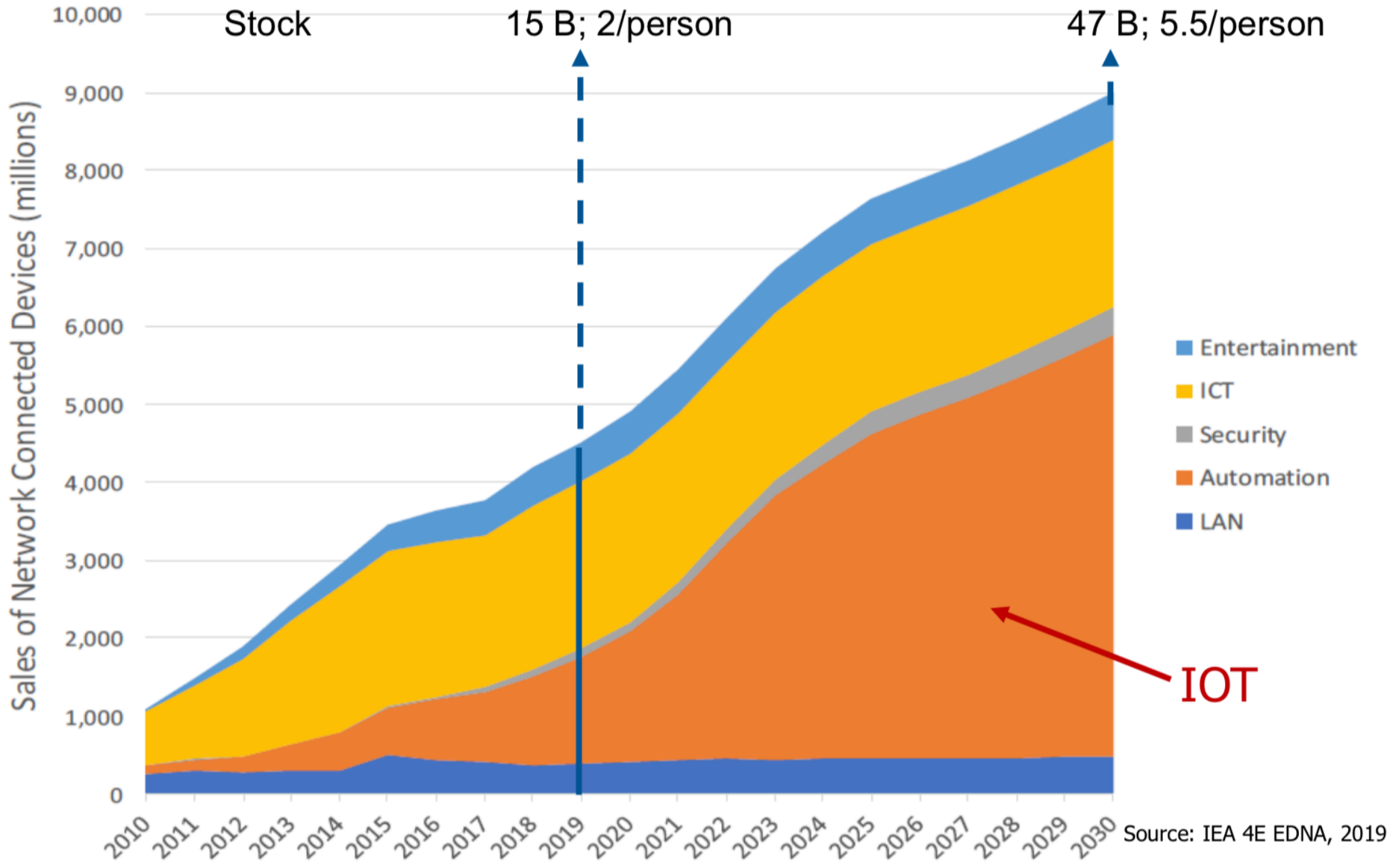
Source : Lean ICT, The Shift Project 2018

Almost half of energy is used to build the equipments

Source: https://theshiftproject.org/article/deployer-la-sobriete-numerique-rapport-shift/

Sustainable ICT

20 billions devices produced since 2010, 70 billions more by 2030 (?)



Source: The Shift Project Hugues Ferreboeuf Doctoral School UCL presentation

Sustainable ICT

Summary

1. Context: global warming
2. Digital energy consumption dynamics
3. A system design issue
4. A systemic approach

Sustainable ICT

Supply & demand

Too many digital appliances in developed countries:

- a 4 people OECD household: **10 devices** in 2012, **50 devices** in 2022
- most of the next **50 billions** are designed for **comfort**, not for the environment
- **short lifespans** because of software induced obsolescence
- vendors' business model = **product-centric** # service -centric

Digital volumes grow much faster than energy efficiency:

- **volume 30%** a year vs energy **efficiency 15%** a year
- **Screen time** has increased by 45% in 8 years
- Pervasive **usage of video** plus inflation of definition standards: SD, HD, UHD, 8K etc
- **Mobility and Streaming** vs Fixed and Broadcast
- GAFAM's business model = **audience monetization** = addicting designs

Sustainable ICT

The digital sobriety alternative

Energy efficiency will NOT continue to grow as fast in the next 10 years as it did in the past 10 years:

- Approaching the **limits** of current technologies
- **NO** major technological **breathrough** industrialized in the next 10 years

No solution for 2030 target will come from more technology or more precisely from the way we use it now …

Sustainable ICT

Summary

1. Context: global warming
2. Digital energy consumption dynamics
3. A system design issue
4. A systemic approach

Sustainable ICT

How

The current overconsumption is a **systemic issue**:

- Digital consumers **unaware of the impacts** (environment, health, behavior etc)
- Enterprises engaged in digital transitions **without** connecting them to increasingly stringent **environmental/energy constraints**
- Public authorities encouraging “digital transition” meant to yield economic growth **without having defined it**
- Dominant digital suppliers (GAFAM, BATX) relying on **audience maximization** (two-sided market business model) and using addictive design techniques
- Software-induced **obsolescence** boosting hardware production

Sustainable ICT

How

Making **change** happen calls for a **systemic approach**:

- **Inform** consumers: media, public policies
- **Inform** enterprises and enable « augmented digital transitions » with tools and governance framework
- Demonstrate to public authorities the negative impacts of digital **overconsumption** and the possibility/interest of a renovated, leaner digital ecosystem
- Use the european market power to **influence digital suppliers**

And build tools enabling ex-ante and ex-post **environmental analysis** of digital transition initiatives, including coverage of indirect and systemic **rebound effects**

Sustainable ICT

Conclusion

Technology is not a problem in itself. The questions are:

- What do **we want to** do with technology ?
- What **kind of society** do we want to build ?
- How to use **numeric/ICT/IoT** to help to **answer** these questions ?

Sustainable ICT

To dig deeper

Reading materials:

- “or noir” Matthieu Auzanneau
- “la guerre des métaux rares” Guillaume Pitron
- “l’âge des low techs” Philippe Bihouix
- “une autre fin du monde est possible” Pablo Servigne
- “le changement climatique expliqué à ma fille”, “dormez tranquille jusqu’en 2100”, “transition énergétique pour tous” Jancovici
- rapport synthèse FABI Belgium Energy Outlook 2050 lien

Web materials:

- **UCL sustainable ICT summer school 2020**: link
- Thinkerview *Le futur, entre 5G et Amish ? Nicolas Meilhan et Philippe Bihouix* link
- **Hugues Ferreboeuf** “5G” link
- The **Shift Project *lean ICT*** link
- Mines de Paris 2019 *lesson* link
- UCL « *Développement durable et transition* » link
- The Shift Project youtube (pétrole, ICT, etc) link
- *Effet reine rouge* de Gaël Giraud link
- Audition assemblée nationale de Gaël Giraud link
- Jancovici youtube link
- *Le capitalisme peut-il faire face aux défis environnementaux ?* - Heu?reka link
- FABI : *Belgium Energy Outlook 2050* link