Residential energy supplier
## Residential energy supplier

**Belgian primary and final energy consumption 2019**

<table>
<thead>
<tr>
<th>Source d'énergie</th>
<th>Mtep</th>
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<tbody>
<tr>
<td>Pétrole et produits pétroliers</td>
<td>21,9</td>
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<tr>
<td>Gaz naturel</td>
<td>15,1</td>
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<tr>
<td>Combustibles fossiles solides</td>
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<td>Énergie nucléaire</td>
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<td>Énergies renouvelables et déchets</td>
<td>5,0</td>
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<tr>
<td>Autres*</td>
<td>-0,2</td>
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<tr>
<td>Total</td>
<td>56,4</td>
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<table>
<thead>
<tr>
<th>Source d'énergie</th>
<th>Mtep</th>
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<tbody>
<tr>
<td>Produits pétroliers</td>
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<td>Gaz naturel</td>
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<td>Combustibles fossiles solides</td>
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<td>Chaleur</td>
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<td>Énergies renouvelables et déchets</td>
<td>2,1</td>
</tr>
<tr>
<td>Total</td>
<td>39,8</td>
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</tbody>
</table>

**Primary -> Final:**

Transport loss and transformation efficiency

- Electricity -> **17.8 %** of the final energy consumption
- Gas -> **26 %** of the final energy consumption

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Belgian final energy consumption 2019 -> residential

Final energy consumption per sector

<table>
<thead>
<tr>
<th>Secteur</th>
<th>Mtep</th>
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</thead>
<tbody>
<tr>
<td>Industrie</td>
<td>10,3</td>
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<tr>
<td>Transport</td>
<td>8,8</td>
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<tr>
<td>Résidentiel</td>
<td>8,0</td>
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<tr>
<td>Services et équivalent</td>
<td>5,4</td>
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<tr>
<td>Usages non énergétiques</td>
<td>7,3</td>
</tr>
<tr>
<td>Total</td>
<td>39,8</td>
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Residential: electricity + heat -> **20%**

Heat **2/3** of the energy consumption !!

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Belgian electricity production mix from 2012 to 2019

Source: https://www.creg.be/fr/consommateurs/le-marche-de-lenergie/chiffres-cles-du-marche-de-lenergie
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Belgian household energy consumption

Average **electricity** consumption: 3 000 to 5 000 KWh

Average **gas** (heat) consumption: 10 000 to 20 000 KWh

1 kWh = energy to carry **100 kg** from sea level (0m) to **3 600 m**!!
1 kWh = 13 km by foot, 2 km by car, 1 kg of TNT, …
1 L of oil = 10 kWh

Robert vs Iron Man (toaster)

1 Robert to toast a slice of bread
180 Robert to power a car
43 000 Robert to power an airplane

Toaster challenge: https://www.youtube.com/watch?v=S4O5voOCqAQ&feature=emb_title&ab_channel=TheToasterChallenge
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Context: What are the energy market players?

Energy producers → TSO / DSO → Residential Customers (small)

Energy supplier/retailer

Residential Customers (small) → Industrial/ Customers (large)

Regulator CREG
Commission for Electricity and Gas Regulation

Politie Police

Market operator: EEX, EPEXSPOT
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Goals

What **does** an energy supplier ?

How does an **energy supplier build** a **residential electricity/gas offer** ?

What is a **green** energy offer ?

How to **compare** energy suppliers ?
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Summary

1. Energy supplier perimeter
2. Building an energy offer
3. A « green » energy offer
4. Comparing energy suppliers
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Energy supplier perimeter

Trusted third party

**Middleman** between the customers & Distribution System Operator (DSO)

**Customer** care

**Balancing** responsible party

**Buy/sell** energy

Additional services: insurance, PV installation, etc

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Summary

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Building a residential energy offer

Producers — Transmission — Energy Markets — Distribution

Energy suppliers

Consumers (large) — Consumers (small)
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The energy components of the electricity bill

Wallonia

- BTW / TVA 17%
- Energie 20%
- Heffingen / Surcharges 29%
- Netkosten / Coûts de réseau 34%

Brussels

- BTW / TVA 17%
- Energie 23%
- Heffingen / Surcharges 26%
- Netkosten / Coûts de réseau 34%

Source: https://www.creg.be/fr/consommateurs/prix-et-tarifs/comment-est-compose-le-prix-de-lenergie
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The energy components of the gas bill

Wallonia

- BTW / TVA 17%
- Energie 29%
- Heffingen / Surcharges 19%
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Brussels

- BTW / TVA 17%
- Energie 36%
- Heffingen / Surcharges 13%
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Source: https://www.creg.be/fr/consommateurs/prix-et-tarifs/comment-est-compose-le-prix-de-lenergie
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Summary

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« Green » energy ? -> Guarantees of Origin (GO)

A Guarantee of Origin (GO or GoO) is a tracking instrument defined in article 15 of the European Directive 2009/28/EC

Source: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0028
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Non-« green » to « green » market offer
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Mix «green» to «green» market offer

Producers → Transmission → Energy Markets → Distribution → Energy supplier

Residential Consumer
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« Green » market offer

Transmission

Energy Markets

Distribution

Energy supplier

Residential Consumer
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Direct « green » offer
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Small recap

How an energy supplier builds a residential electricity offer?

- **direct** to the producer -> money into the pockets of the producer
- **market** based offer -> money to a lot of market players
- **mix direct - market** based offer

What is a « green » energy offer?

- **Guarantees of Origin (GO)**

« green » does not mean low carbon footprint !!!
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Summary

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Comparing energy suppliers

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Source: [https://www.cwape.be/?dir=2.1.03](https://www.cwape.be/?dir=2.1.03)
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Energy share per supplier

Electricity 2018
Total pour la Belgique : 67,58 TWh

Gas 2018
Total pour la Belgique : 187,0 TWh

Source: https://www.cwape.be/?dir=4&news=1032
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Walloon 2019 GO distribution per country

30% GO from Belgium

Source: https://www.cwape.be/?dir=4.12.1
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Conclusion

It is impossible to compare energy suppliers on GOs …

Some possible criteria:

- energy mix
- **carbon footprint** of the energy mix
- financial **transparency**
- **Belgian GO** vs GO from other countries, etc
- direct, market-based offer ?
- Etc

« green » does not mean low carbon footprint !!!
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Annex