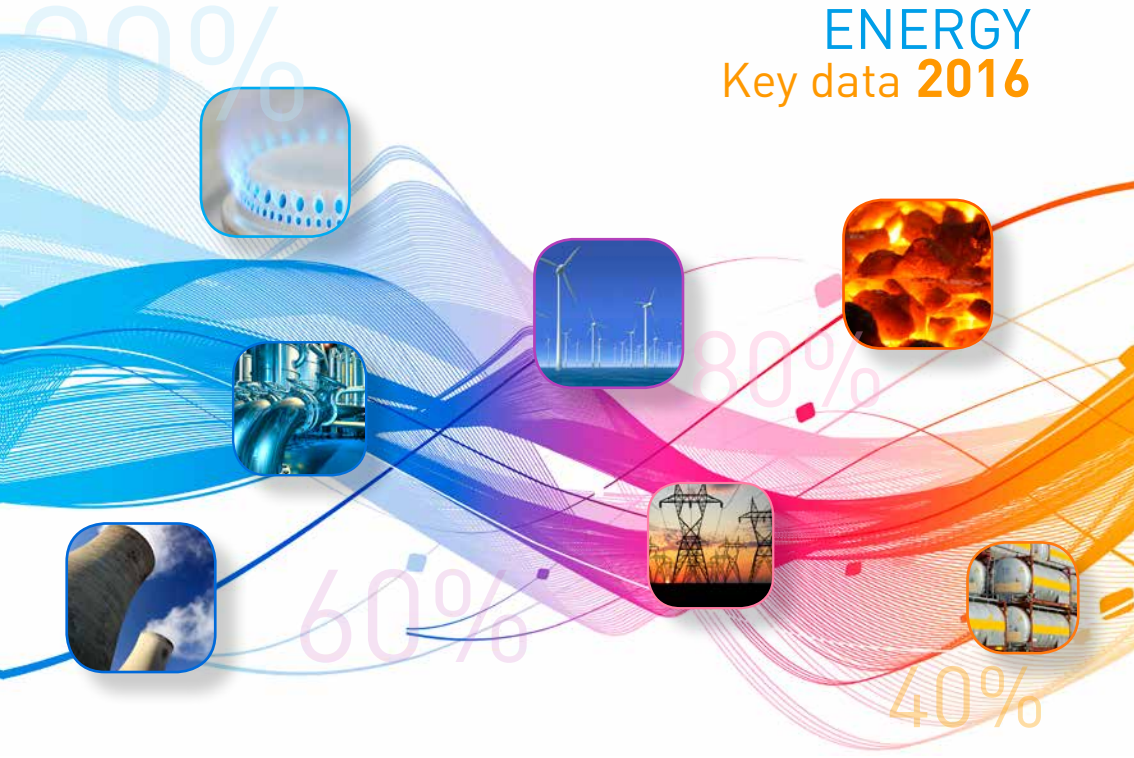
ENERGY
Key data **2016**



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This brochure aims to disseminate objective information on prices, energy, innovation and new technologies by an efficient and targeted use of the statistical data, market data, the database and the analysis and planning instruments, and by modern and pro-active communication.

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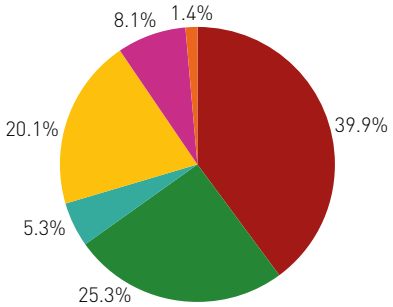
Content

1. Demand

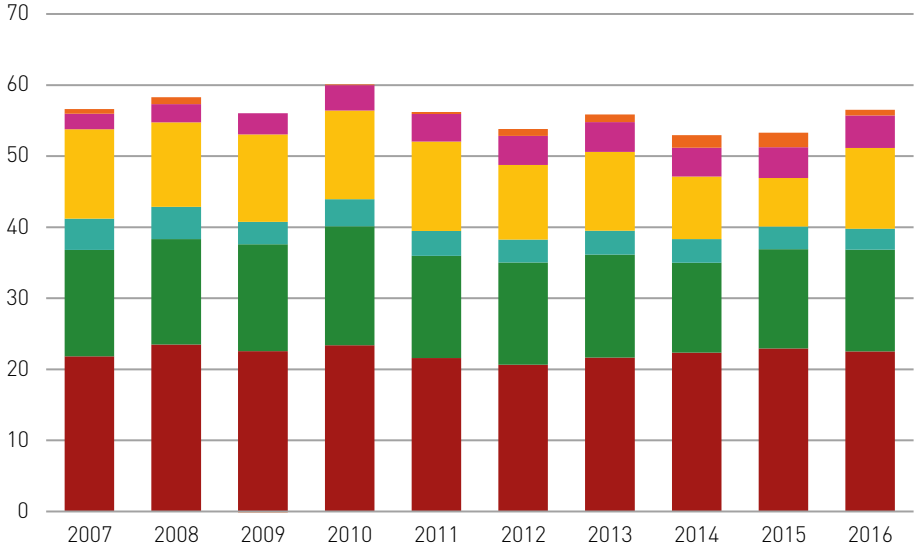
1.1. Primary energy consumption in Belgium in 2016

1.1.1. Per energy source

Energy source	Mtoe	TJ
Oil and oil products	22.5	943,344
Natural gas	14.3	598,540
Solid fossil fuels	3.0	124,382
Nuclear energy	11.3	474,880
Renewable energy and waste	4.6	192,467
Other	0.8	32,812
Total	**56.5**	**2,366,426**



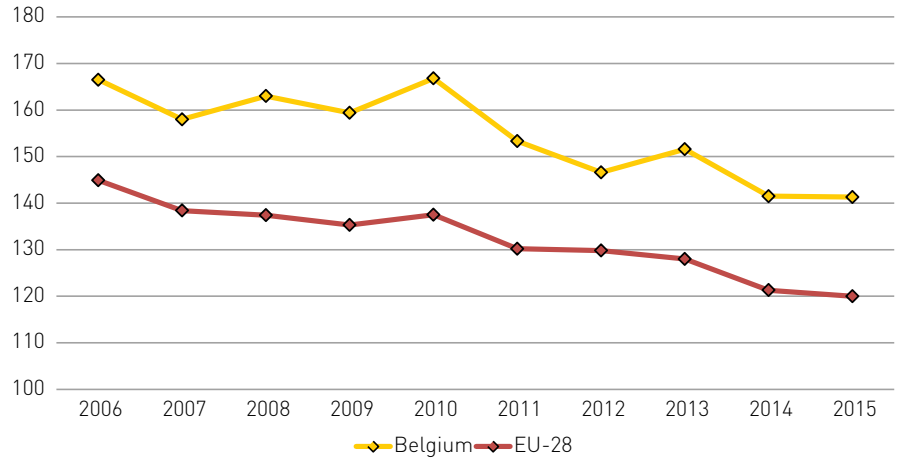
Evolution in Mtoe



The total primary energy consumption in 2016 amounted to 56.52 Mtoe. This is an increase of 6 % compared to 2015. The nuclear plants are again fully operational after 4 years of technical problems. The consumption of nuclear energy rises to its former levels (+ 67 % compared to 2015). As a consequence, net import of electricity dropped firmly (- 71 %). Consumption of fossil fuels is rather stable. The share of renewable energy and waste in the primary energy consumption amounted to 8.1 % in 2016.

1.1.2. Primary energy intensity

Evolution in kgoe/1,000 euros



Source: Eurostat.

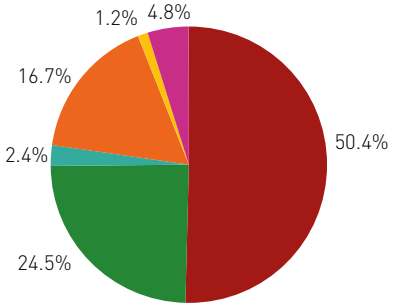
The primary energy intensity is an index used to evaluate the energy efficiency of an economy. The Belgian primary energy intensity is continuously higher than the European average. This can be explained by the presence of energy intensive industries (oil refineries, cokes plants, concrete mixing plants). The Belgian and European primary energy intensity follow a parallel downward trend.

** 2016 data not yet available.*

1.2. Final energy consumption in Belgium in 2016

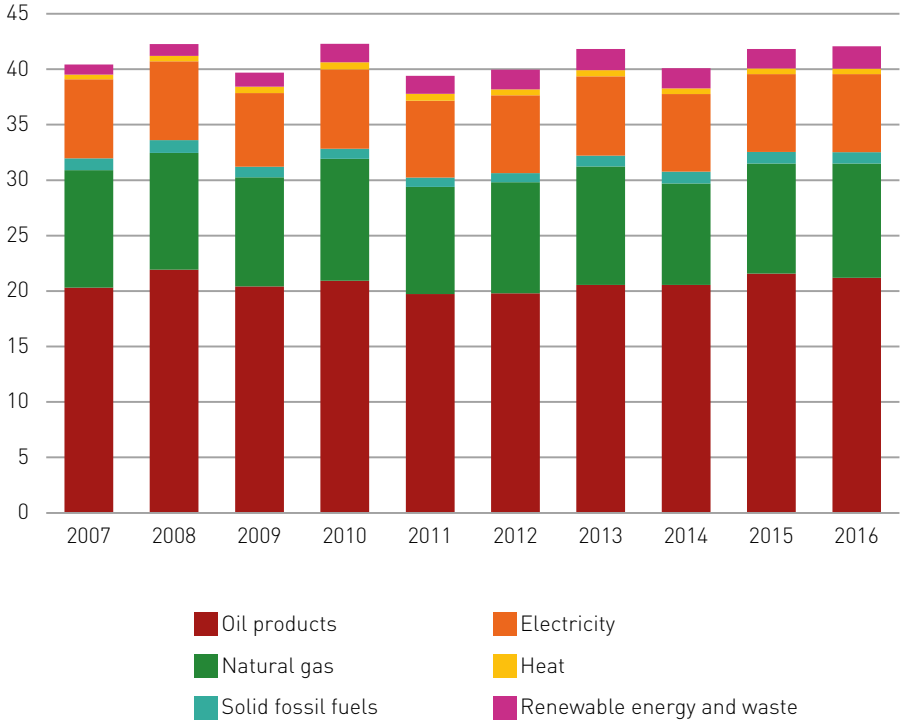
1.2.1. Per energy source

Energy source	Mtoe	TJ
Oil products	21.2	887,754
Natural gas	10.3	430,893
Solid fossil fuels	1.0	42,686
Electricity	7.0	294,706
Heat	0.5	20,831
Renewable energy and waste	2.0	84,790
Total	**42.1**	**1,761,660**



DEMAND

Evolution in Mtoe



Between 2007 and 2016, the final energy consumption varies between 39.6 and 42.3 Mtoe. There is a strong dependance on weather conditions; years with a harsh winter show a higher final consumption of fuels. This impact is mainly visible in the consumption of natural gas.

These last years, the shares of the different energy sources in the final energy consumption remain rather stable: the decennial average share of petroleum products amounts to 51 %, for natural gas 25 %, for electricity 17 %, for renewable energy and waste 4 %, for solid fuels 2 % and for heat 1 %.

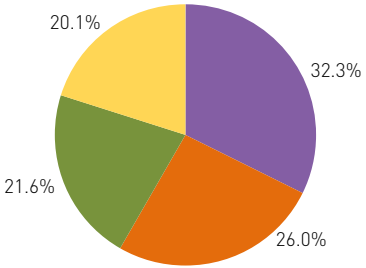
Since 2007, the share of renewable energy and waste in the final energy consumption has increased from 2.25 % to 4.81 %.

The share of the consumption of petroleum products in the total final energy consumption is very dominant (50.4 % in 2016). This consumption can be split in energy consumption (65.4 %) and non-energy consumption (34.6 %). The transport sector represents 61.0 % of the energy consumption of petroleum products in 2016.

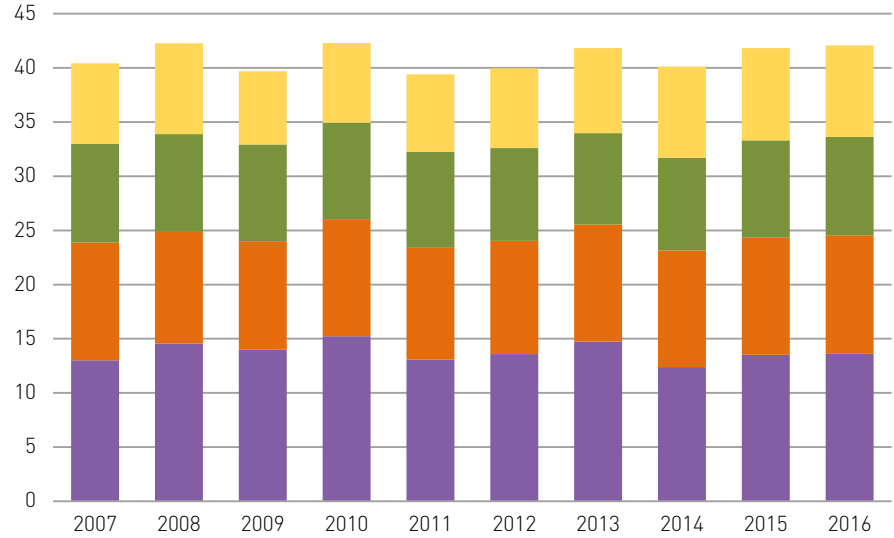
Natural gas covers 24.5 % of the final energy consumption in 2016. 91.3 % of this consumption of natural gas is used for energy purposes, of which 36.5 % is consumed in the domestic sector.

1.2.2. Final consumption per sector

Sector	Mtoe	TJ
Residential and equivalent	13.6	569,759
Industry	10.9	457,793
Transport	9.1	380,008
Non-energy use	8.5	354,099
Total	**42.1**	**1,761,660**



Evolution in Mtoe



The sectorial distribution of the final energy consumption is rather stable over the years.

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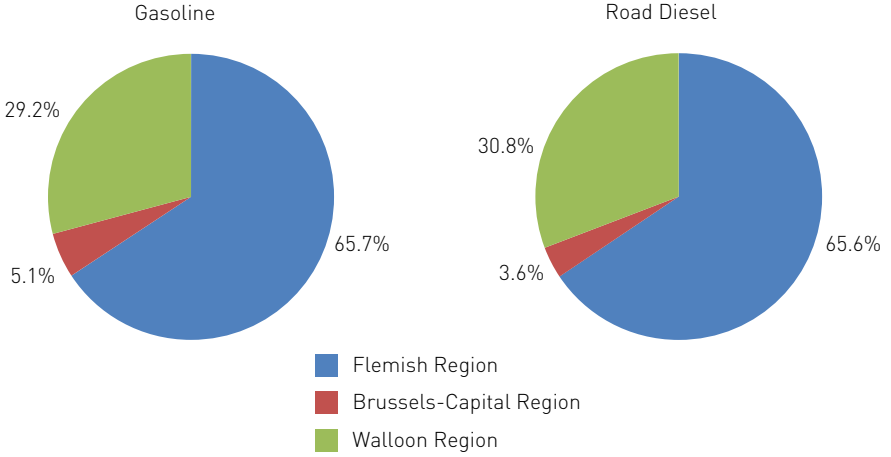
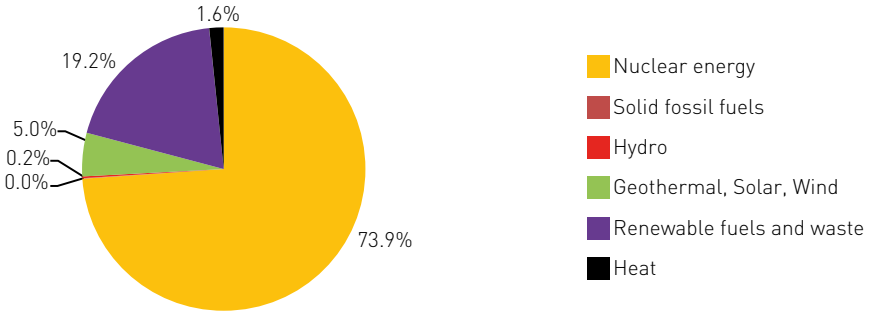
In 2016, the consumption in industry has been mainly covered by natural gas (34.9 %), electricity (29.8 %) and petroleum products (17.1 %). These are also the main energy sources in the domestic and equivalent sector (respectively 40.7 %, 26.7 % and 26.0 %). The consumption in the transport sector is – as expected – dominated by petroleum products (93.2 %). The remaining share is provided by biofuels (bioethanol and biodiesel), electricity (railway transport) and a very limited amount of natural gas. The non-energy consumption is also dominated by petroleum products (86.8 %), completed by natural gas (10.6 %) and solid fossil fuels (2.5 %).

1.2.3. Regional distribution of sales of motor fuels in 2016



2. Offer

2.1. Energy production in Belgium in 2016



Belgium's total primary energy production is 15.3 Mtoe or 642,440 TJ (representing approximately 27 % of our total primary energy consumption).
This graphic shows that 73.9 % of this production consists of nuclear energy. Nevertheless, there is a statistical agreement to add the production of nuclear heat to domestic production although it is produced from uranium that is fully imported.

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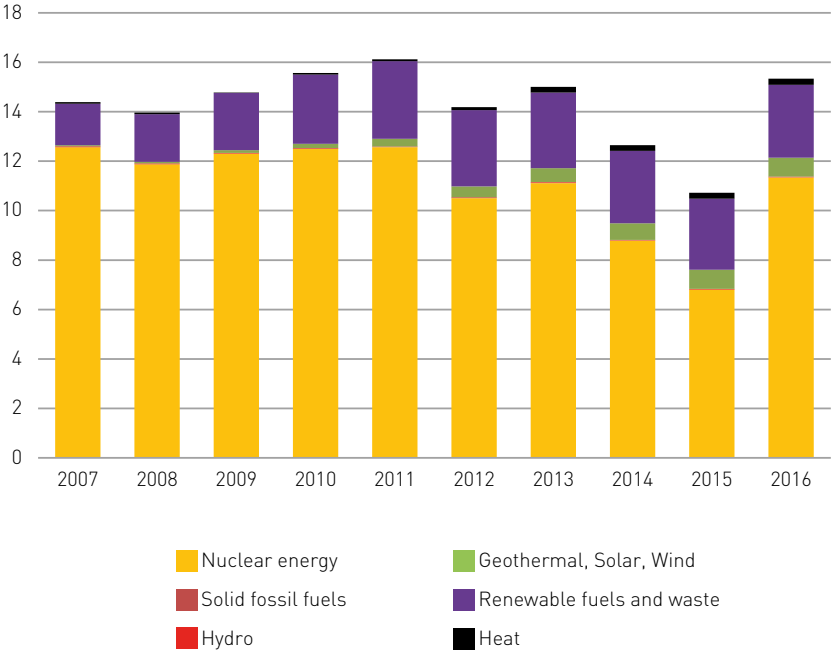
Evolution in Mtoe



The primary energy production on the basis of wind and sun has seen the biggest improvement since 2010 (+ 332.7 %). The production of other renewable fuels and waste (solid and liquid biomass, biogas, industrial waste, municipal waste) has increased with 2.7 % between 2015 and 2016. Nuclear energy production has increased by 67 % compared to 2015.

2.1.1. Gross electricity production

Electricity	TWh	Mtoe	TJ	%
Nuclear	43.5	3.74	156,683	50.9
Oil products	0.2	0.02	684	0.2
Natural gas	22.1	1.90	79,596	25.9
Solid fossil fuels and manufactured gases	2.6	0.23	9,500	3.1
Other sources*	2.9	0.25	10,404	3.4
Renewable energy	14.2	1.22	51,005	16.6
Renewable fuels	5.3	0.45	18,994	6.2
Wind	5.4	0.47	19,570	6.4
Solar	3.1	0.27	11,110	3.6
Natural hydro	0.4	0.03	1,332	0.4
Total	**85.5**	**7.35**	**307,872**	**100**

** Other sources include pumped hydro, steam recovery, non-renewable waste and other.*

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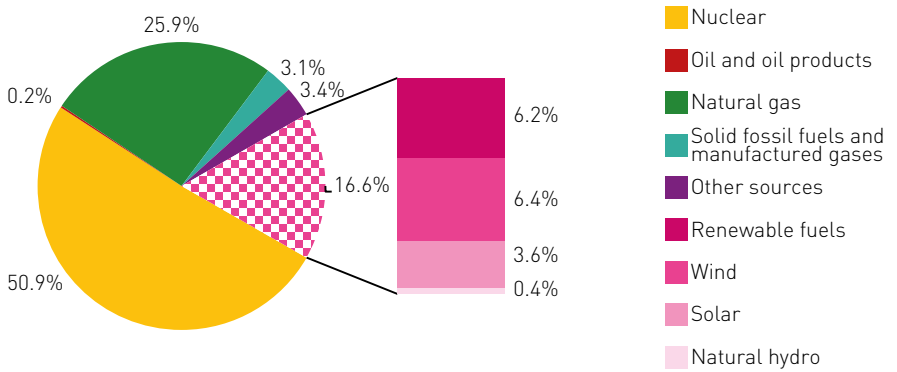
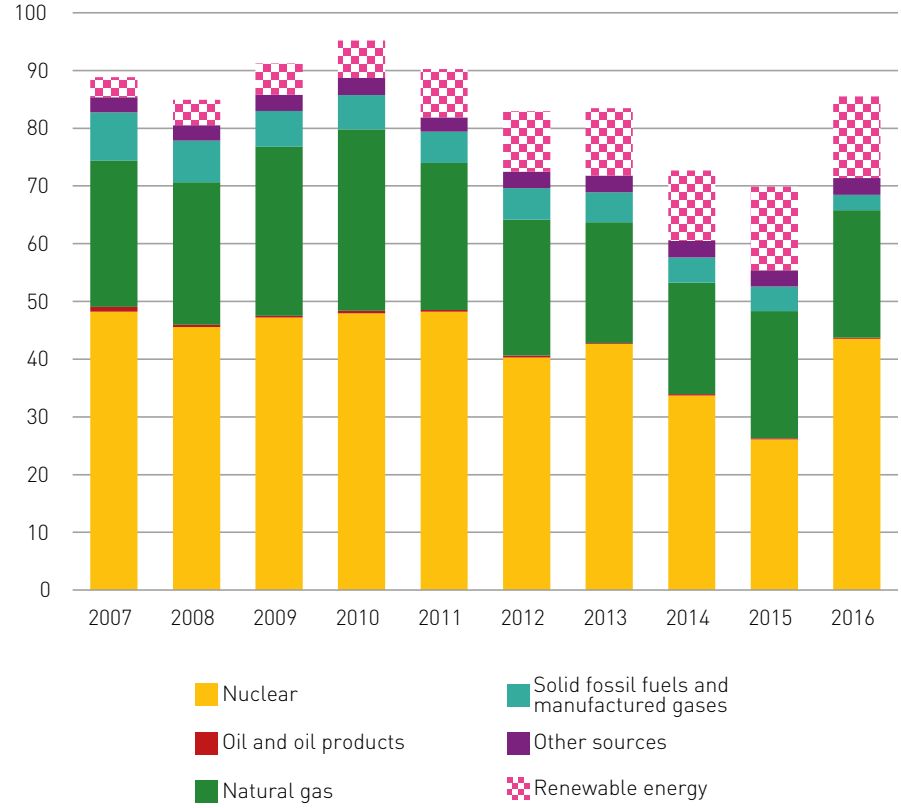


The share of nuclear plants in the gross electricity production amounts to 50.9 %, this represents 43.5 TWh. The share of natural gas amounts to 25.9 %, or 22.1 TWh. The remaining production comes from renewable energy (16.6 % or 14.2 TWh), solid fuels and gasses from steelmaking processes (3.1 % or 2.6 TWh) and other sources (3.4 % or 2.9 TWh).

Evolution in TWh



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The electricity production in 2016 was 22 % higher than in 2015. This sharp increase in production is caused by the reentering on the market of several nuclear plants that experienced technical problems since 2012.

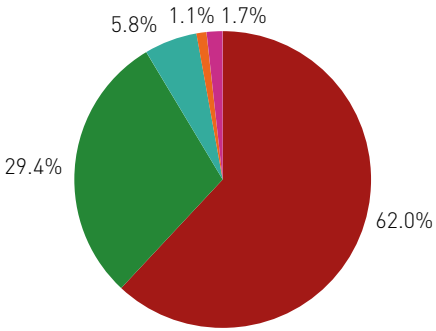
From the graph, we can moreover deduct that the use of petroleum products and solid fossil fuels has decreased strongly in favor of renewable energy and waste.

The installed capacity of the nuclear power plants (5.9 GW) represents 27.4 % of the total installed capacity in Belgium at the end of 2015 (21,554 MW). There are 8.5 GW of classic thermal plants, which corresponds to 39.6 % of the total installed capacity.

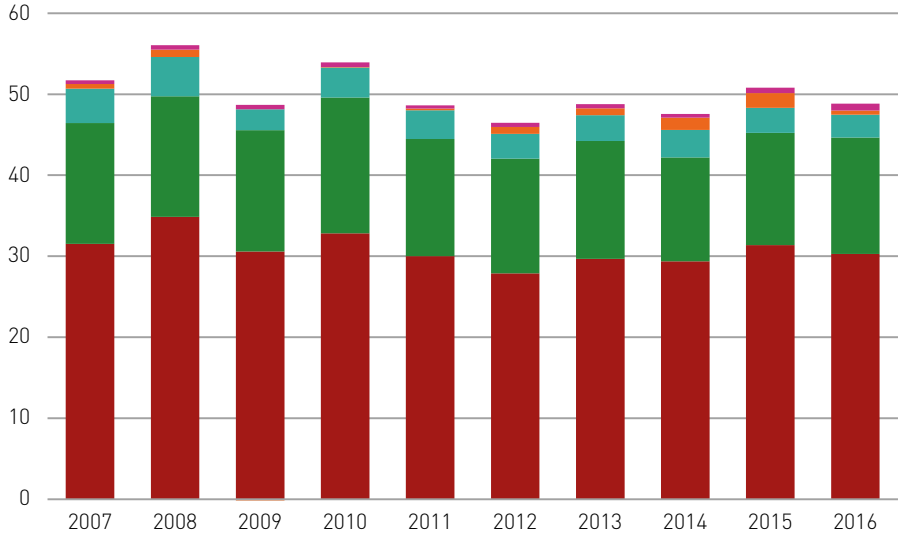
2.2. Energy imports in Belgium in 2016

Net imports of energy per energy source

Net import	Mtoe	TJ
Oil and oil products	30.27	1,267,469
Natural gas	14.38	601,869
Solid fossil fuels	2.81	117,792
Electricity	0.53	22,263
Renewable fuels and waste	0.85	35,776
Total	**48.85**	**2,045,169**



Evolution in Mtoe



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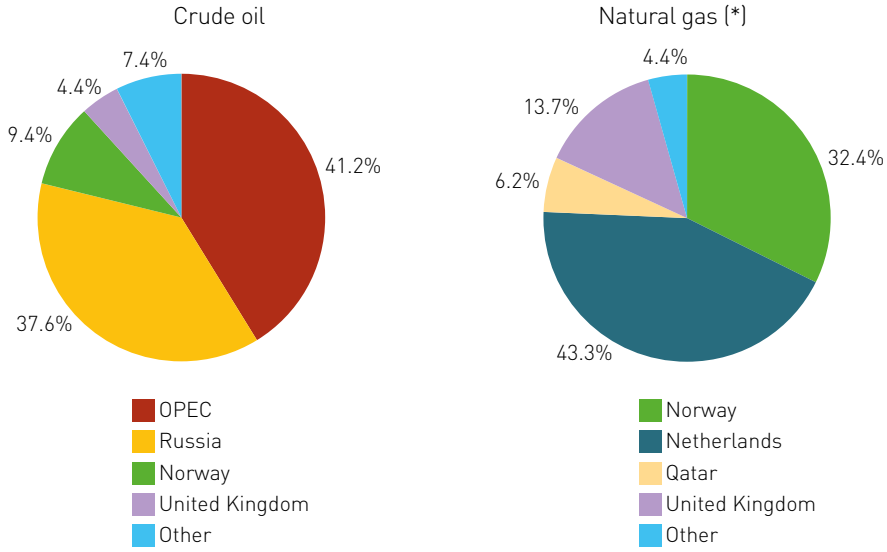
The exploitation of the natural sources of fossil fuels, which can be found in Belgium, is insufficiently profitable. The last coal mine was closed in 1992. Only a small quantity of coal is still recovered from a slag heap. The dependency on fossil fuel imports to meet domestic demand is subsequently very high. In 2016, the ratio between net imports and primary energy consumption was 86 %. Diversification of the imports by country of origin and strategic stocks are the most important means to guarantee security of supply.

Origin of the imports per energy source (in %)



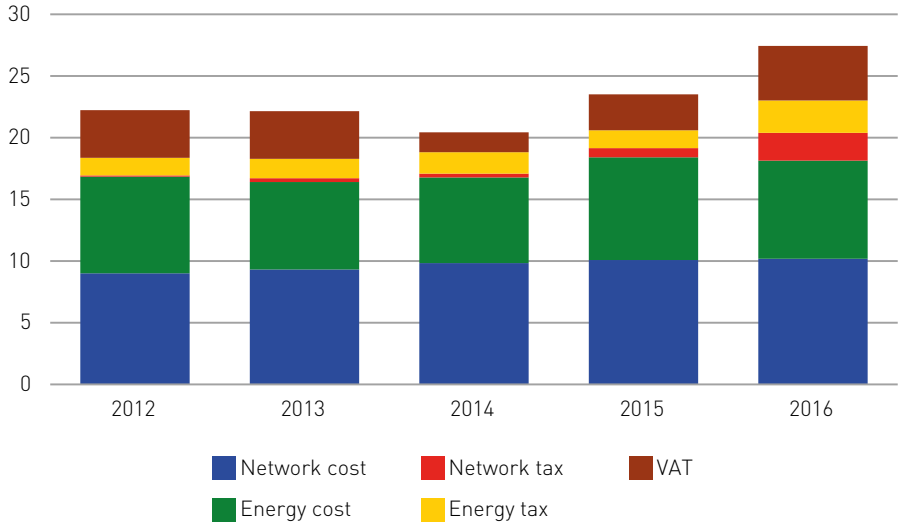
* *40 % of the natural gas imported from the Netherlands only transits this country and therefore originates from other countries.*

3. Balance: prices

3.1. Electricity market in Belgium in 2016

Electricity price evolution in eurocent/kWh

Consumption band DC (2,500 – 5,000 kWh/year)



An average Belgian household paid 27.44 eurocent/kWh for its electricity in 2016.

The energy share represented a bit less than one third of the total electricity bill in 2015. The network rates have risen annually since 2007 (mainly caused by the support mechanisms for photovoltaic installations), constituting 37.1 %. The share of taxes has risen to 33.9 % of the total bill. This can be explained by the increase of the VAT rate for residential consumers from 6 % to 21 % on 1 September 2015 and by the introduction of a prosumer tax.

3.2. Natural gas market in Belgium in 2016

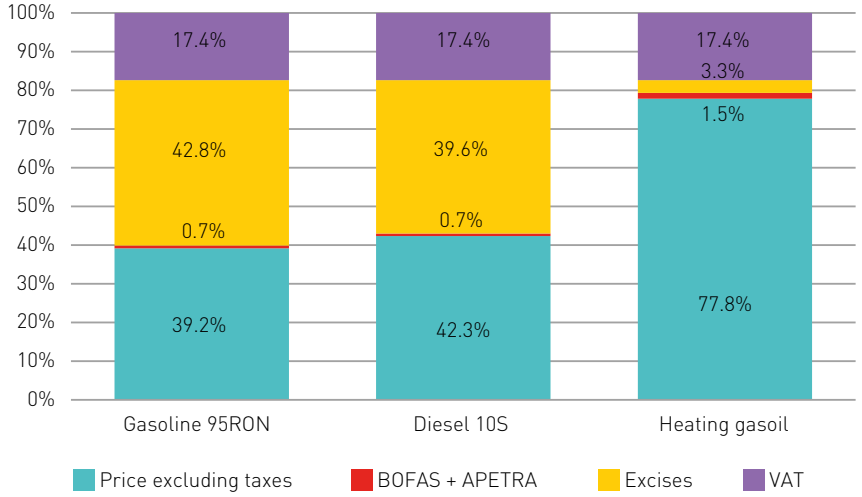
Natural gas price evolution (in eurocent/kWh)

Consumption band D2 (20 – 200 GJ/year)

An average Belgian household paid 5.40 eurocent/kWh for its natural gas in 2016.

3.3. Oil market: prices of oil products in Belgium in 2017

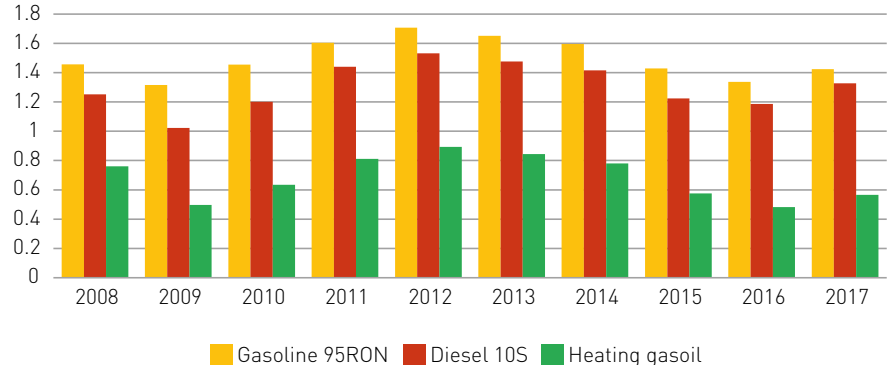
Composition of the maximum prices of the main oil products (Gasoline 95, diesel 10S, heating gasoil 50 ppm)



** For heating gasoil no BOFAS contribution is paid, but a contribution to the Social Heating Fund.*

Evolution of the maximum price of Gasoline 95, diesel 10S and heating gasoil 50 ppm

(in euro/liter)

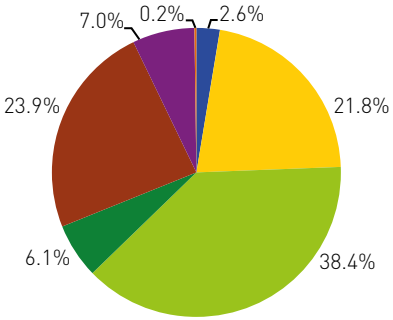


After 4 years of decreasing average annual maximum prices, prices of oil products rose back up slightly during 2017. This is the result of the increase of the oil price on the international markets.

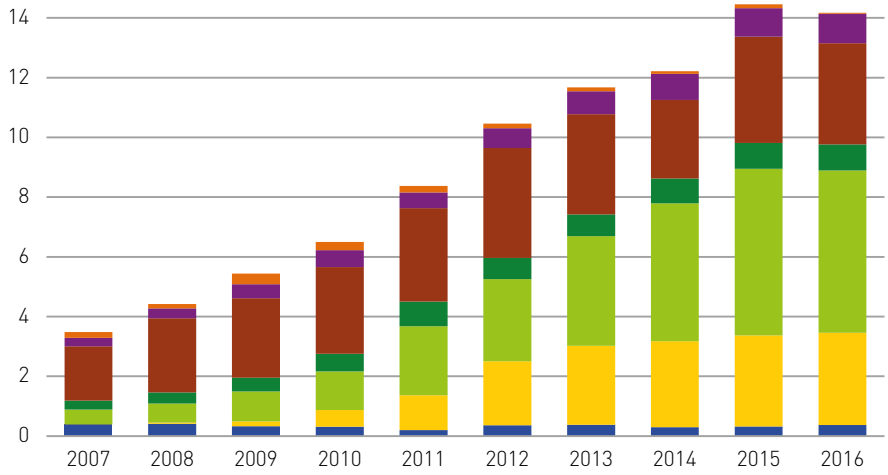
4. Renewable energy

4.1. Gross electricity production from renewable energy sources in 2016

Electricity	ktoe	TJ	TWh
Natural hydro	32	1,331	0.37
Solar	265	11,111	3.09
Wind	467	19,568	5.44
Renewable municipal waste	75	3,136	0.87
Solid biomass	291	12,202	3.39
Biogas	85	3,549	0.99
Liquid biofuels	3	110	0.03
Total	**1,218**	**51,007**	**14.17**



Evolution in TWh



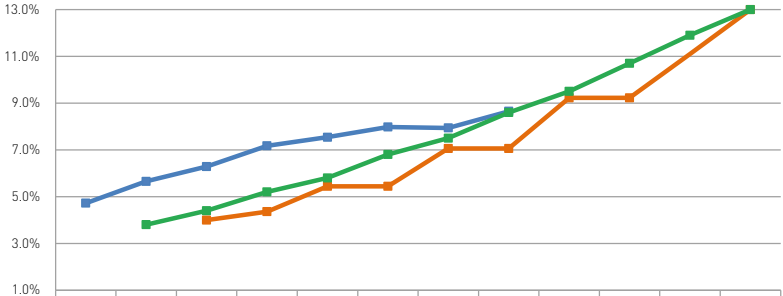
RENEWABLE ENERGY

The production of renewable electricity grew strongly in the last decade. In part because of the offshore wind farms, wind energy has become the main source of renewable electricity production. The offshore wind farms have produced 2,390 GWh of electricity in 2016 and have provided electricity to 682,875 households (considering that an average household annually consumes 3,500 kWh).

The solar energy production has stagnated over the last year (3,086 GWh in 2016 compared to 3,053 GWh in 2015), while production on the basis of solid biomass has recovered since its decrease in 2014.

The installed solar energy capacity (3,300 MW) represents a share of 47.8 % of total installed electricity production capacity on the basis of renewable energy sources. The capacity of the wind farms (2,370 MW) represents a share of 34.3 %.

4.2. Share of energy from renewable sources – comparison with European targets



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
RES [%]	4.7%	5.7%	6.3%	7.2%	7.5%	8.0%	7.9%	8.7%				
Directive 2009/28			4.0%	4.4%	5.4%	5.4%	7.1%	7.1%	9.2%	9.2%	11.1%	13.0%
NREAP		3.8%	4.4%	5.2%	5.8%	6.8%	7.5%	8.6%	9.5%	10.7%	11.9%	13.0%

** National renewable energy action plan.*

In 2016, the share of renewable energy amounted to 8.65 % of total final energy consumption. Belgium is on track to reach the objectives of the national renewable energy action plan (NREAP) and the European Directive 2009/28. The rising share of renewable energy in final energy consumption slowed down in the last years and should be monitored closely to ensure that the objectives are met. The slight decrease in 2015 is a consequence of the (temporary) change in the regulation applying on the blending of biofuels.

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