

Luxembourg

Key issues

The share of renewable energy levels remains far from the target of 11%.

To improve security of supply, further investments are required in new interconnectors with neighbouring countries, and in additional generation capacity capable of providing flexibility to the electricity system.

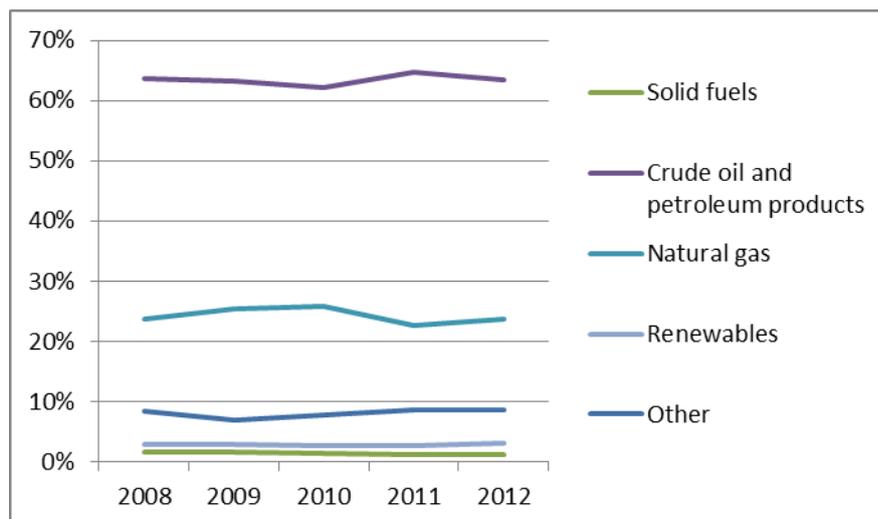
The natural gas sector is almost 100% dependent on imports. Reinforcing the interconnections with neighbouring countries would alleviate current concerns. Firm entry capacity in Luxembourg remains limited, and a better congestion mechanism would help to address this issue.

More should be done to encourage competition in the retail market, especially for domestic customers.

1. General overview

Oil products for energy production provided 63% of Luxembourgian gross inland consumption in 2012, while the share of natural gas increased to 24% (compared to 2011). The contribution of renewable sources also increased, reaching 3.1%. However, this figure continues to fall short of the 11% target for 2020. In 2011, power generation saw a decline of 20% in internal production (mainly thermal generation) from 2010 levels due to one of the combined cycles operating on reduced availability³⁵². Gas is the primary fuel for electricity generation (62% of total electricity generated), followed by renewable energy (35% with most coming from hydro power).

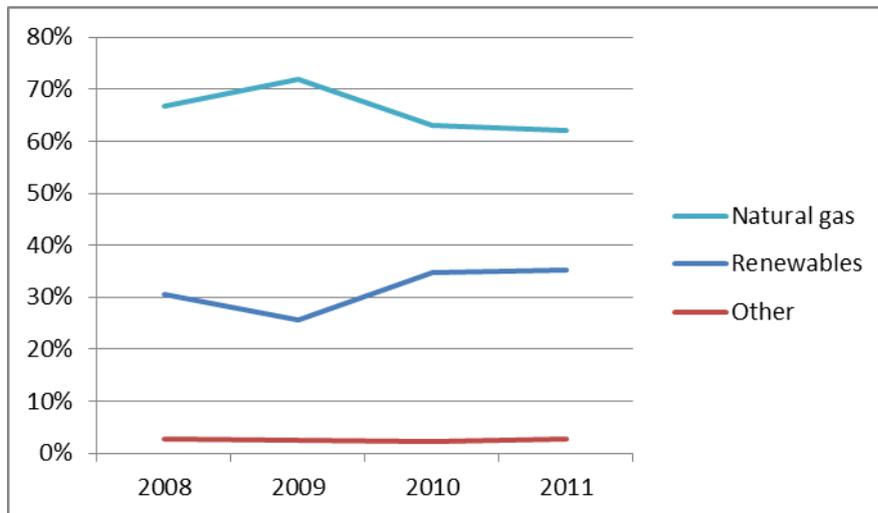
Figure 1: Gross inland consumption mix 2008 – 2012 (source: Eurostat)



³⁵² ILR,

http://www.ilr.public.lu/electricite/documents_NEW/rapport/VERSION_FINALE_rapport_benchmark_2012_20130906.pdf.

Figure 2: Gross electricity generation mix 2008 – 2011 (source: EU Energy in Figures – Pocketbook 2012 and 2013)



2. Regulatory framework

General

Two laws³⁵³ came into force in August 2012 transposing Directives 2009/72/EC and 2009/73/EC, concerning common rules for the internal market in electricity and gas. An infringement procedure for incorrect transposition of the Third Energy Package Directives was launched in March 2014 and is on-going³⁵⁴.

National Energy Regulator

In 2012, the Luxembourg national regulatory authority, the *Institut Luxembourgeois de Régulation* (ILR), had 51 employees and an annual budget of almost EUR 7 million. ILR is also responsible for regulating other sectors such as the telecoms and postal sectors.

To promote competition in the electricity and natural gas markets, new responsibilities were assigned to the ILR in network access and pricing, cross-border cooperation, monitoring investment plans and monitoring the function and transparency of the energy markets.

Unbundling

Luxembourg has been granted a derogation from the unbundling provisions of the Third energy package on the basis of Article 44(2) of the Electricity Directive and Article 49(6) of the Gas Directive. The legislative framework, however, guarantees a relative degree of independence of system operators through legal, functional and financial requirements. The electricity grid is jointly managed by Creos Luxembourg S.A (who has been granted transmission and distribution system operator license), five distribution system operators (DSOs) and one industrial system operator (ISO). In the

³⁵³ Law of 7 August 2012 on electricity market, <http://www.legilux.public.lu/leg/a/archives/2012/0178/a178.pdf#page=2>, and Law of 7 August 2012 on natural gas market, <http://www.legilux.public.lu/leg/a/archives/2012/0179/a179.pdf#page=2>.

³⁵⁴ Information on the letter of formal notice issued is available at http://ec.europa.eu/eu_law/eulaw/decisions/dec_20140328.htm.

gas sector Creos is the transmission and the main distribution system operator. The gas distribution grid is also managed by two other DSOs.

3. Wholesale markets

Electricity

At generation level, the three largest producers (GdF Suez, Enovos, Soler) provided 89% of power generation volume.

The volume of electricity traded on the wholesale market in 2012 amounted to 6.93 TWh (17% less than the previous year). Luxembourg relies on imports from neighbouring countries, mainly Germany, for the majority of its domestic consumption (57%)³⁵⁵.

There is currently no power exchange or spot market for electricity, but the absence of congestion on interconnectors means wholesale operators can participate on other power exchanges.

Gas

The national consumption of natural gas was 13.6 TWh, slightly higher than 2011. 2012 was characterised by a particularly high peak demand due to extreme temperatures in the beginning of the year. The vast majority of gas is imported from Belgium, Germany and (to a lesser extent) France, with only a small part locally produced by biogas plants. The Luxembourg market has been impeded by the limited availability of firm entry capacity. However, in 2013 and 2014, additional firm entry capacity has been made available which has resolved congestion issues.

There is no wholesale market in Luxembourg and the gas market has a quasi monopolistic structure. In 2012, the dominant company (Enovos) consolidated its market share despite the fact that transparent and non-discriminatory access to transmission capacity has been made available.

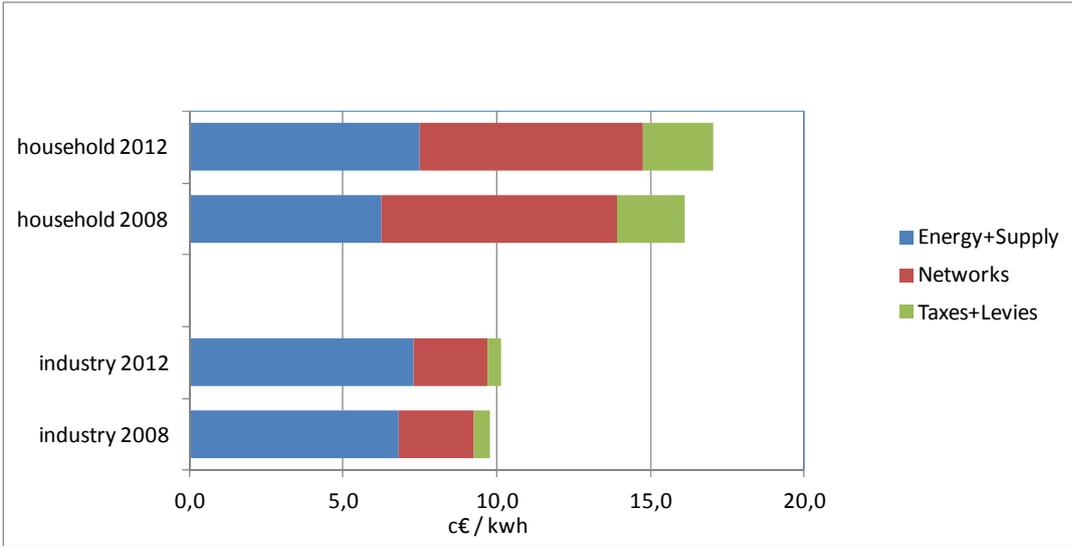
4. Retail markets

Electricity

2012 saw 11 suppliers provide around 6.4 TWh of electricity to final consumers. The retail market was concentrated as the four biggest distributors accounted for 93% of the total amount of energy supplied. Enovos dominated the market for all three segments (residential, business and industrial) with 55% of the total consumption. The supplier switching rate in 2012 was 0.22% by customer number and 9.7% by consumption volumes, demonstrating that industrial users were more active in switching suppliers.

³⁵⁵ All figures on electricity and gas markets, including those of the following paragraphs, are extracted from ILR's latest report on energy markets in 2012, unless otherwise specified, http://www.ilr.public.lu/electricite/documents_NEW/rapport/VERSION_FINALE_rapport_benchmark_2012_20130906.pdf.

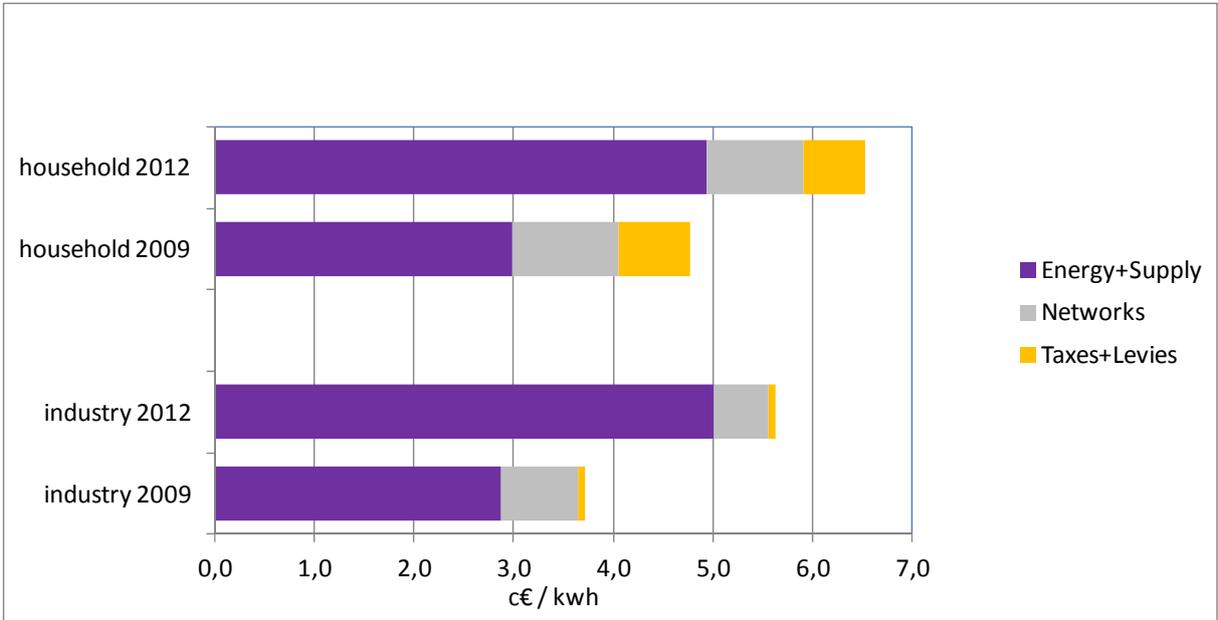
Figure 3: Electricity price change by component 2008 – 2012 (source: Eurostat, energy statistics)



Gas

The natural gas sector was much more concentrated than the electricity sector. In 2012, a total of eight suppliers served final consumers, with just three suppliers holding 94% of the market. Competition differs significantly within the different segments. As a result of the small number of players a monopoly within segments of industrial consumers and power producers has been created. The opening of the gas sector remained very low with supplier switching rates less than 0.1%.

Figure 4: Natural gas price change by component 2008 – 2012 (source: EC, EPCR metadata)



5. Consumers

The consumers' assessment of both the electricity and gas retail markets in Luxembourg is the 3rd highest in the EU and in both cases well above the EU average (80.3 points vs. 72.0 and 79.7 vs. 74.1

respectively). The electricity market scores better than the EU average on all components (with the lowest incidence of consumer complaints in the EU) with the exception of switching (which is third lowest in the EU despite Luxembourg being 6th in the EU ranking on the ease of switching). A similar picture is seen for gas services, with all the components – except for switching – assessed above the EU average. Comparability, ease of switching and choice are within the 3 best EU ratings and the incidence of complaints is the third lowest in the EU.³⁵⁶

Various services are now available to consumers to provide information on services and their rights. An online information point³⁵⁷ provides extensive support to customers with details on suppliers, products, switching procedures, opportunities and rights and responsibilities in the context of the non-regulated market. An automated on-line price comparison tool³⁵⁸ is now available to residential customers. Additional services include the alternative dispute resolution procedure which has been available to residential customers since 2011. In 2012, two dispute resolutions were registered under the alternative dispute resolution procedure. In addition the ILR is responsible for the electricity labelling system to provide customers with information on environmental impact depending on type of energy sources used.

All customers are de facto considered as potentially vulnerable in Luxembourg. Both the electricity and the gas legislations foresee provisions governing the situation of customers in default payment of their bill. Clear rules determine disconnection conditions in case of default payment and the installation of prepayment meters for individuals in a precarious social situation. Situations of default payment are also covered by the law of 18 December 2009 on social aid.

6. Infrastructure

The Luxemburgish authorities should ensure a proper and timely adoption of the measures stemming from the TEN-E Regulation, including the establishment of the one-stop-shop for Projects of Common Interest (PCIs) (due by 16 November 2013), and other measures foreseen for 2014 and 2015, including the publication of the manual on the permit granting process for project promoters, and the adoption of legislative and non-legislative measures streamlining the environmental assessment procedures.

Electricity

The total generation capacity amounted to 1,785 MW, including the *Vianden* pump storage power plant (1,096 MW of capacity installed) which is directly connected to the German transmission grid. The generation assets currently available are not sufficient to provide the required electricity to cover the national demand of Luxembourg, which relies on imports from neighbouring countries.

Upgrade of the existing internal grid is underway and there are planned investments to ensure continued n-1 contingency on internal lines. Luxembourg's transmission network is connected with Germany by two interconnectors whilst the industrial grid of *Sotel* is connected to the Belgian transmission network.

³⁵⁶ 10th Consumer Markets Scoreboard, http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm.

³⁵⁷ <http://www.ilr.public.lu/stroumagas/index.html> or <http://www.STROUMaGAS.lu>.

³⁵⁸ <http://www.calculix.lu/web/tk/tk>.

PCIs under the guidelines for trans-European energy infrastructure have been identified in order to increase the capacity at the Belgian/Luxembourg border, also including Phase Shift Transformers for better load management.

Gas

Internal production of natural gas is only from three biogas plants being connected to the gas network in 2013. Almost all gas for consumption is imported from neighbouring countries through high pressure pipelines from Germany and Belgium and medium pressure pipelines from France. There are four entry points: two on the Belgian border, which are combined in one virtual entry point, one for the German border and one on the French border.

Luxemburg has no storage infrastructure; it relies upon the storage capacity of neighbouring countries. PCIs foresee increase of the existing interconnection with France and Belgium.

Two new Laws in August 2012 provide the opportunity for mass roll-out of smart meters. This is expected to reach 95% of electricity consumers by 2018, and 95% of natural gas consumers by 2020. Provisions for the public charging infrastructure of electric vehicles were made to promote their use.

7. Security of supply

Electricity

According to the latest evaluations, the n-1 criterion is covered by existing German interconnections. The need for investment in new cross-border interconnections with Belgium and France, in new generation capacity and in upgrades of the internal grid is being analysed to improve security of supply. As there are insufficient emergency generation reserves in Luxembourg, load shedding might be the only viable emergency response tool³⁵⁹.

Gas

In 2013 and 2014, additional firm entry capacity has been made available resolving congestion issues. Interruptible capacity and flexibility mechanisms are currently used by Creos in order to manage cases of missing firm capacity. Due to the absence of storage facilities in the country, load shedding can be used in case of emergencies. However, it has never been used till now. With about half of the gas supplied through the German entry point, Luxembourg does not comply with the N-1 rule. However, it obtained a derogation under Regulation 994/2010.

8. Key indicators

Electricity		Gas	
Number of companies representing at least 95% of net power generation	4	Number of entities bringing natural gas into country	5
Number of main power-generation companies	2	Number of main gas entities	1
Market share of the largest power-generation company	82%	Market share of the largest entity bringing natural gas	N/A

³⁵⁹ <http://www.creos-net.lu/index.php?id=556>.

Number of electricity retailers	11	Number of retailers selling natural gas to final customers	8
Number of main electricity retailers	4	Number of main natural gas retailers	3
Switching rates (entire electricity retail market)	0.22%	Switching rates for gas (entire retail market)	0.1%
Regulated prices for households – electricity	No	Regulated prices for households – gas	No
Regulated prices for non-households – electricity	No	Regulated prices for non-households – gas	No
HHI in power-generation market	2,311	HHI in gas supply market	High
HHI in electricity retail market	High	HHI in gas retail market	High
Electricity market value ³⁶⁰ (bn€)	0.425	Gas market value ¹⁰ (bn€)	0.282
Installed generation capacity (MW, 2012)	1,785		
Peak demand (MW)	1,009		
Number of smart meters installed	N/A		

³⁶⁰ Market value is an estimation of the size of the retail electricity and gas markets. It is calculated using data on electricity and gas consumption in the household and non-household sectors (average bands) and annual average retail prices.