

Sweden

Key issues

The Swedish electricity market is integrated in the Nordic market and works well. However, congestion management and transparency provisions for cross-border exchanges give rise to some concerns. The Swedish TSO, Svenska Kraftnät, has intensified the investments in the grid to further develop the market and prepare for an increased share of renewable electricity.

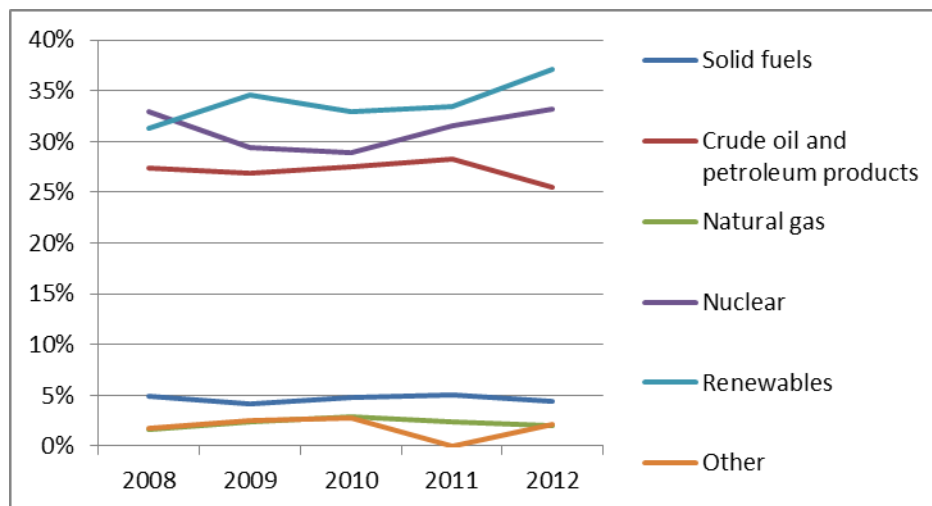
Since 2009, the Swedish DSOs are obliged to provide monthly meter readings to households and hourly readings to industrial customers. This has resulted in a full roll-out of smart meters.

Diversifying gas supply sources would encourage more competition and improve Sweden's energy security. Several new LNG-stations are therefore planned in Sweden including one of strategic importance for the Baltic market.

1. General overview

In 2012, the total energy consumption reached 49.8 Mtoe and was satisfied mostly by solid fuels, nuclear, and oil products⁴⁹⁵⁴⁹⁶⁴⁹⁷. Sweden's target for 2020 is to have 49% of renewables in gross final energy consumption. The country has already achieved its national 2020 RES target as the renewables share improved from 42.4% in 2006 to 51.0% in 2012⁴⁹⁸; this calls for a higher goal for 2020.

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



⁴⁹⁵ Eurostat.

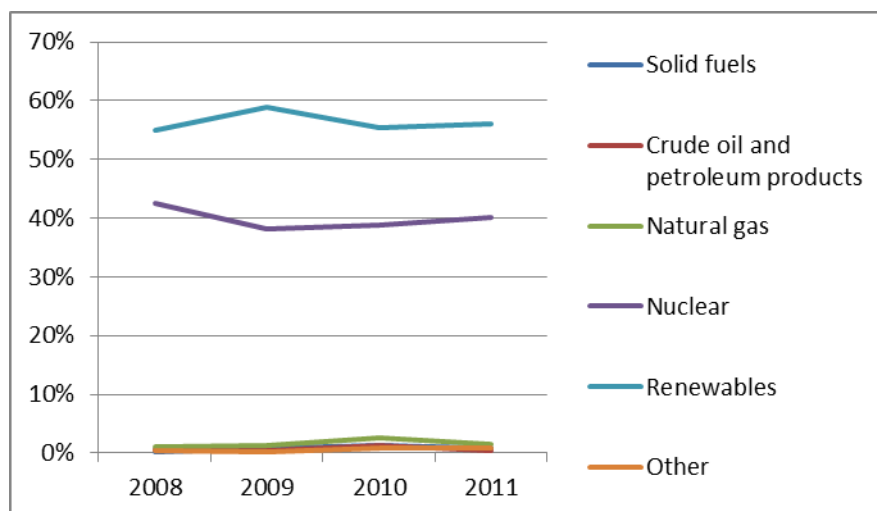
⁴⁹⁶ [http://www.energimyndigheten.se/Global/Engelska/Facts%20and%20figures/Energy in sweden 2012.pdf](http://www.energimyndigheten.se/Global/Engelska/Facts%20and%20figures/Energy%20in%20Sweden%202012.pdf).

⁴⁹⁷ [http://epp.eurostat.ec.europa.eu/cache/ITY OFFPUB/KS-DK-13-001/EN/KS-DK-13-001-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-DK-13-001/EN/KS-DK-13-001-EN.PDF).

⁴⁹⁸ Eurostat.

The power generation mix in 2011 (166.6 TWh) was dominated by renewable and nuclear sources⁴⁹⁹. The share of cogeneration in electricity production was 10% in 2011⁵⁰⁰, showing a significant increase compared to the level of 6.7% in 2005⁵⁰¹.

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



2. Regulatory framework

National Energy Regulator

The Swedish regulator, Energy Market Inspectorate (Ei), has been in operation since 2008, employing 100 staff with an annual budget of around EUR 11 million⁵⁰². Despite being an agency administratively attached to the Ministry of Enterprise, Energy and Communication, it is an independent regulatory authority.

Unbundling

Svenska Kraftnät is the Transmission System Operator (TSO) for electricity, and Swedegas for gas. Both TSOs have been certified under the ownership unbundling model. Baltic Cable has so far not been certified. Ei should cooperate with the Germany regulator Bundesnetzagentur to ensure compliance of this cable with the unbundling requirements. In electricity, 171 Distribution System Operators (DSO) are functionally unbundled, and in gas, five.

⁴⁹⁹ Eurostat.

⁵⁰⁰ Eurostat.

⁵⁰¹ ACER,

http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Market%20Monitoring%20Report%202013.pdf.

⁵⁰² <http://ei.se/sv/nyhetsrum/nyheter/nyhetsarkiv/nyhetsarkiv-2012/extra-pengar-till-ei-i-regeringens-budget/>.

3. Wholesale markets

Electricity

The Swedish wholesale power market is part of the integrated Nordic power market. In 2012, electricity production was dominated by three companies, Vattenfall, Fortum and E.ON, together controlling 79% of the generation⁵⁰³. However, due to the connection with Nord Pool, the actual number of players active on the wholesale market is higher. The three incumbents have joint ownership of nuclear power plants, and the Swedish Competition Authority is concerned by the inherent risk of information being shared between sites, diminishing confidence in a functioning market. This problem has been addressed by the energy regulator, which forced the owners of nuclear power stations to agree on common ethical rules. However, the risks arising from links among major competing producers still remain and the Authority should continue to monitor the situation, intervening when necessary. Nord Pool Spot is the common Nordic market place with which the Swedish wholesale power market is integrated and where three-quarters of Nordic electricity is traded. New market coupling interconnections between the Continent and Nordic countries (Baltic Cable and SwePol Link) are likely to increase continental influence on the Nord Pool system price. This is seen as the first step towards Europe widemarket integration. The average wholesale price on Nord Pool Spot's day ahead bidding market in four Sweden's bidding areas in 2012 was around EUR 32.5/MWh. In terms of liquidity, volumes traded on Nord Pool Spot are the highest on European power exchanges. Swedish volumes reached 131 TWh, 94% of national electricity consumption.

Gas

Sweden does not produce natural gas. In 2012, it imported all of its requirements, about 1.5 bcm, through the pipeline from Denmark. Sweden has around 37,000 end-users, of whom approximately 3600 are business customers and the remainder domestic. At wholesale level, two operators are active, E.ON Sverige and Dong Energy. There is no wholesale market hub as all gas is imported. To gain access to the Swedish market, a supplier needs to acquire transmission capacity on the Danish interconnector. There is currently no congestion on the grid, either nationally or in the import link from Denmark.

4. Retail markets

Electricity

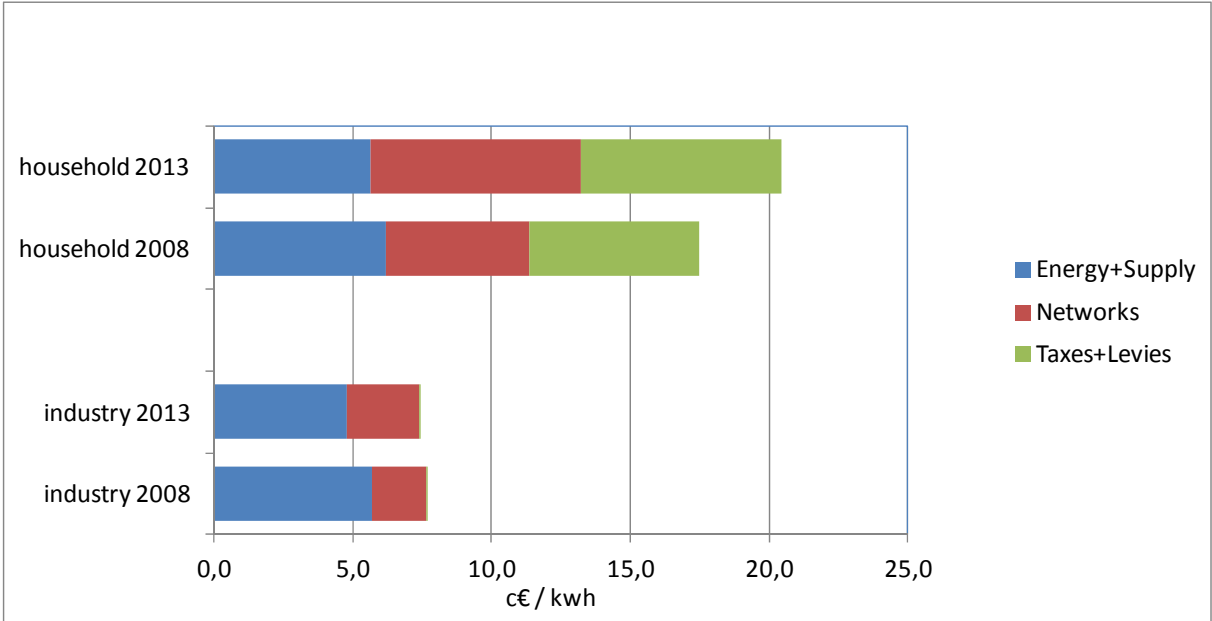
The same three incumbents, Vattenfall, Fortum and E.ON, in the wholesale market hold 42% of the retail market. Unlike the wholesale power market the retail market is national in scope. In 2012, there were 121 retail electricity suppliers, though smaller players have occasionally found it difficult to enter the market⁵⁰⁴. Switching of suppliers is relatively high. Around 10% of domestic customers switched their electricity supplier in 2012 and a further 27% re-negotiated their contract with their

⁵⁰³ Ei, National Report on the Swedish electricity and natural gas markets 2012, June 2013, http://www.ceer.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/NATIONAL_REPORTS/National%20Reporting%202013/NR_En/C13_NR_Sweden-EN.pdf.

⁵⁰⁴ Ei, National Report on the Swedish electricity and natural gas markets 2012, June 2013.

current supplier. Thus, 37% of domestic customers took an active part in the retail market during 2012. The wholesale price had a significant influence on the retail price, neither one being regulated.

Figure 3: Electricity price change by component 2008 – 2013 (source: Eurostat, energy statistics)



By 2009, Swedish DSOs were obliged to provide monthly meter readings to household customers and hourly readings to commercial and industrial customers. This resulted in practically a full roll-out of smart meters, enabling remote readings. However, some meters are not suitable for hourly readings without additional investment, preventing demand response services. Since October 2012, DSOs are obliged to provide hourly meter readings to households requesting them.

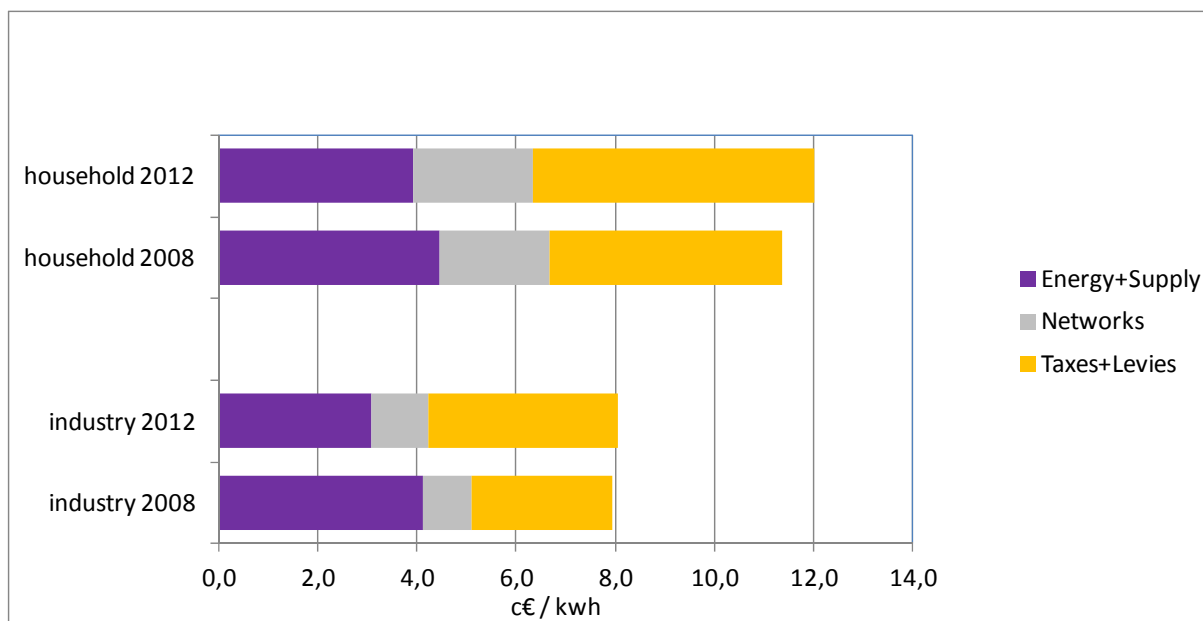
Gas

In 2012, there were six natural gas suppliers⁵⁰⁵. The three largest companies, E.ON, Dong Energy and Goteborg Energi, held around 85% of the market. The Swedish gas retail market consists of around 33,400 domestic customers in South-Western Sweden. It has been a free market since 2007. During 2012, 157 of these households switched suppliers, 44% fewer than in the previous year, and about 0.5% of domestic customers⁵⁰⁶. This may be due to the small size of the gas market, which does not incentivise competition. End-user prices are not regulated. Gas prices for final consumers moved in line with global gas and oil prices. Both households and industry pay high taxes, amounting to almost half the retail price.

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

⁵⁰⁵ Ei, National Report on The Swedisch electricity and natural gas markets 2012, June 2013.

⁵⁰⁶ Ei, National Report on The Swedisch electricity and natural gas markets 2012, June 2013.



5. Consumers

Consumers' overall assessment of retail electricity market is slightly above the EU average (73.5 points compared to 72.0⁵⁰⁷, corresponding to 14th place EU-wide), and equal to the average of 31 domestic services markets (18th place). The market has seen a considerable increase in score (7.4 points) since 2012 (which represents the highest and 4th highest increase domestically and EU-wide, respectively). The choice of providers records the highest EU score and switching rates are well above the average; yet the comparability of offers is assessed as poor. The incidence of problems reported in the electricity retail market is lower than the EU average but those who encounter a problem are more likely to complain.⁵⁰⁸

In 2008, Ei launched an online electricity price comparison site, which enables consumers to compare prices, terms, and conditions for all Swedish suppliers. For gas, there is no single price comparison site. Electricity and natural gas consumers may report disputes with companies to the National Board for Consumer Disputes (named Allmänna reklamationsnämnden, ARN). ARN is a public authority which adjudicates in disputes between customers and companies. Since 2011, there is a definition of vulnerable consumers within the national legislation. This category of consumer is protected in the Swedish electricity and gas markets by social legislation in that the consumer has the right to receive assistance with their payment of electricity and natural gas supplies.

⁵⁰⁷ However the difference is not statistically significant

⁵⁰⁸ 10th Consumer Markets Scoreboard,

http://ec.europa.eu/consumers/consumer_evidence/consumer_scoreboards/10_edition/index_en.htm

6. Infrastructure

The Swedish Energy Markets Inspectorate has been designated as National Competent Authority responsible for facilitating and coordinating the permit granting process for projects of common interest in accordance with the provisions of the TEN-E Regulation ('one-stop shop').

Electricity

Sweden is divided into four different bidding areas. Most of the electricity production occurs in the two northern areas and most of the consumption is concentrated to the south. At times, this creates congestion within the national grid. Sweden is interconnected to Norway and eastern Denmark through AC lines and to Finland, Denmark, Germany and Poland through undersea DC cables. Svenska Kraftnät, the Swedish TSO, has an extensive plan to develop the national grid to ensure network stability and increase the capacity while increasing the amount of variable energy on the grid. This is part of the Third Energy Package. Currently, work is progressing on the Nordbalt01 project, which has received funding under the EEPF and will interconnect Sweden and Lithuania through a HVDC submarine cable. Maintaining the grid transfer capacity and ensuring the n-1 criterion for operation of the interconnection are being addressed through the construction of the new OHL between Ekhyddan and Nybro/Hemsjö on the Swedish territory (PCI 4.4.2).

Gas

Several new LNG terminals are planned, including one in Gothenburg labeled as a PCI (8.6) and planned to be commissioned in 2015 - which is of strategic importance for the Baltic energy market and would contribute to increased security of supply and flexibility for the Swedish market.

7. Security of supply

Electricity

Sweden is working to ensure the power of supply both in short and long terms. Svenska Kraftnät is responsible for balancing the grid and ensuring the delivery of electricity to the customers. Local distributors are responsible for maintaining their networks to ensure that the connections between each network meet the required quality standards⁵⁰⁹.

To ensure the security of supply in the longer term, Sweden is investing heavily in wind power generation. Wind power is one way of shifting the production areas to the southern parts of Sweden where the consumption is high and decreasing the congestion on the grid. Sweden introduced strategic capacity reserves in 2003 to meet peaks in demand during winter. The mechanism will be gradually reduced until 2020 when the energy only market is expected to be restored⁵¹⁰.

Gas

Since Sweden has no national production of natural gas, it is completely dependent on import. Interconnected only to Denmark, Sweden is vulnerable to gas supply disruption. One possible route for diversification was investigated through the Skanled pipeline running from Norway, but there are

⁵⁰⁹ http://www.energimarknadsinspektionen.se/Documents/Publikationer/rapporter_och_pm/Rapporter%202013/Ei_R2013_10.pdf.

⁵¹⁰ CREG, Study on capacity remuneration mechanisms, October 2012.

currently no plans to implement this pipeline. Sweden is currently exempted from the N-1 obligation set out by Regulation 994/2010 concerning measures to safeguard security of gas supply. Sweden has no significant storage facilities, and relies on storage, mainly in Denmark, to balance seasonal swings in demand.

In 2012, Ei published a National Preventative Action Plan and a National Emergency Plan, in accordance with the requirements of regulation 994/2010 on the security of natural gas⁵¹¹. The plans include market based methods to minimise the possible negative effects on several scales and divides the responsibility for meeting the natural gas demand.

8. Key indicators

Electricity		Gas	
Number of companies representing at least 95% of net power generation	74	Number of entities bringing natural gas into country	1
Number of main power-generation companies	3	Number of main gas entities	1
Market share of the largest power-generation company	44%	Market share of the largest entity bringing natural gas	100%
Number of electricity retailers	120	Number of retailers selling natural gas to final customers	7
Number of main electricity retailers	3	Number of main natural gas retailers	N/A
Switching rates (entire electricity retail market)	9.9%	Switching rates for gas (entire retail market)	1.4%
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	~2,650	HHI in gas supply market	~5,000
HHI in electricity retail market	N/A	HHI in gas retail market	N/A
Electricity market value ⁵¹² (bn€)	13.349	Gas market value ¹⁷ (bn€)	0.456
Installed generation capacity (MW)	37,353		
Peak demand (MW)	26,200		
Number of smart meters installed	100%		

⁵¹¹http://www.energimarknadsinspektionen.se/Documents/Publikationer/rapporter_och_pm/Rapporter%202013/Ei_R2013_10.pdf.

⁵¹²Market 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.