

THE SWEDISH ELECTRICITY AND NATURAL GAS MARKETS 2013



The Swedish Energy Markets Inspectorate

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The Swedish Energy Markets Inspectorate R2014:17

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Foreword

The Swedish Energy Markets Inspectorate (Energimarknadsinspektionen, Ei) is the agency that regulates the electricity, natural gas and district heating markets in Sweden. The aim of this report is to provide an account of the development of the electricity and natural gas markets over the course of 2013.

According to Ei's instruction, the Inspectorate is to fulfil duties relating to the electric and natural gas market directives. This includes the production of an annual report in accordance with the reporting requirements resulting from these directives. The reporting includes matters of regulation, competition and security of supply.

This report uses the structure that has been worked out in collaboration with other European energy regulators and the European Commission. Within the context of European cooperation, a report summarising all of the national reports will be published in the autumn of 2014. This report, together with the national report of each Member State, will be available from the website of the Council of European Energy Regulators (CEER): www.energy-regulators.eu.

Eskilstuna, June 2014



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Summary –

The development of the electricity and natural gas markets

Trade on the Swedish electricity and natural gas markets is exposed to competition. The electricity and natural gas market operations are regulated monopolies as it would be unsuitable from a social and environmental standpoint to build parallel networks throughout the country.

As a regulatory authority, Ei is to continuously monitor and analyse the development of the electricity and natural gas markets and submit proposals for changes to regulations or other measures that may improve how the markets function.

The Electricity Market

The Swedish electricity network

The Swedish electricity network consists of 551,000 kilometres of power cables, of which 351,000 km are underground cables and 200,000 km overhead lines. Svenska kraftnät (SvK) is the State-owned utility that owns the Swedish transmission network, and is responsible for maintaining the balance between production and consumption of power, as well as for the operational reliability of the Swedish electricity transmission system. SvK is certified as a transmission system operator by Ei. In its role as a regulator, Ei has the task of scrutinising SvK.

Local and regional network companies are responsible for sufficiently maintaining their networks in order to guarantee that the security of supply is maintained within their individual networks. There are 162 electricity network companies in Sweden.

The Swedish electricity network is run as regulated monopolies, with Ei reviewing the network companies' revenues and assessing whether they are reasonable. Between 2013 and 2014, the network charges rose 4.0 per cent for customers in apartments, 3.1 per cent for customers in detached houses with 16 Amp fuses and 1.6 per cent for customers in detached houses with 20 Amp fuses.

The Wholesale Power Market for Electricity

The total production of electricity in Sweden 2013 was 149.5 TWh, which is a reduction of just under eight per cent from the record-breaking numbers of 2012. This was mainly due to hydroelectric production declining by more than 17 TWh since 2012. In this time, nuclear and wind-power production increased by 2.2 and 2.7 TWh respectively. The country's total production in 2013 was 149.5 TWh and the usage was 139.5 TWh, giving a net export of 10.0 TWh. The three biggest producers accounted for more than 78 per cent of the total Swedish electricity production.

In the Nordic countries, trade with physical contracts for electricity is organised through the Nordic electricity exchange Nord Pool Spot (NPS). Financial trading in the Nordic electricity market takes place on Nasdaq OMX Commodities. Contracts and hedging opportunities can be traded there for days, weeks, months, quarters and years.

The Retail Market for Electricity

In 2013 there were 123 electricity suppliers registered on the Ei price comparison site Elpriskollen.se. The three biggest traders had a total market share during the year of 41.1 per cent, measured by sold MWh.

The biggest portion (43 per cent) of the total costs for electricity paid by the consumers are tax and VAT. The cost of supplied electricity constituted 34 per cent and the remainder of network costs.

The most common form of electricity contract in Sweden is a variable price contract. The long-term trend is that more and more people move from fixed price contracts or default contracts to variable price contracts. In December 2013, 37.7 per cent of Swedish domestic customers had signed variable price contracts and 37.6 per cent had a fixed price contract with a subscription period of 1, 2 or 3 years.

The Natural Gas Market

The Swedish natural gas network

Natural gas was introduced to Sweden in 1985 through an extension of the Danish natural gas system to southern Sweden. The trade in natural gas in the Swedish system has been completely exposed to competition since 2007.

The Swedish natural gas network consists of 620 km of transmission pipeline and 2720 km of distribution pipes. The natural gas network stretches from Trelleborg in the south to Stenungsund in the north and also branches off into parts of Småland. As of June 2013, Swedegas AB has taken over responsibility from SvK for balancing supply and demand in the national natural gas network. Swedegas has been certified as a national system operator by Ei.

The Wholesale Power Market for Natural Gas

In the 30 municipalities that are supplied with natural gas, natural gas accounts for about 20 per cent of the total energy consumption; this number is in line with the average across the rest of the EU, which has a higher penetration of gas in the energy mix. Sweden does not produce any natural gas of its own; instead all natural gas is imported from Denmark. In 2013, 12.3 TWh of natural gas was used in Sweden, a reduction of five per cent from the previous year. The reduction was due to increased use of forms of energy other than natural gas.

Trade in natural gas from Denmark is done via Gaspoint Nordic. Gaspoint Nordic is owned by the Danish transmission network operator Energinet.dk and handles the physical trade of natural gas. In 2013 the gas trade price was on average 11 per cent higher than during 2012.

The End User Market for Natural Gas

There are eight suppliers on the Swedish retail market for natural gas. Six of these offer gas trade contracts for domestic customers. The customers' total cost for gas has changed fairly little since the deregulation in 2007. The reason for this is that the gas trade price has been relatively stable at just below 40 öre per kWh.

The single biggest share of the price, 48 per cent of the domestic consumers' total gas cost, is tax and VAT. The gas network cost and gas trade cost are 20 and 32 per cent of the customer's total cost, respectively.

Consumer protection and disputes

Ei checks that the companies in the electricity and natural gas markets abide by the law and, in certain cases, can also settle disputes between consumers and companies.

Ei supervises the markets in accordance with the consumer provisions of the Electricity Act and the Natural Gas Act. Examples of this in 2013 include inspection of the contract information that electricity suppliers provide for customers, complaint processing and whether the customers are informed of where to turn with complaints. Shortcomings were highlighted among some of the inspected companies in both the electricity and natural gas market.

Consumers on the Swedish electricity market are guaranteed information about their consumption details. In 2013 Ei continued its supervision of these provisions and it turned out that several smaller electricity network companies did not fulfil their obligations. All shortcomings that were noted as the result of inspection measures were addressed by the companies.

If an electricity or gas company does not follow the regulations in the Electricity Act or Natural Gas Act, consumers can report them to Ei. As the regulator, Ei can investigate whether the company is in breach of their legal obligations. In 2013 Ei received a total of 30 reports, 25 of which concerned the electricity network companies' responsibilities in accordance with the Electricity Act and 5 of which concerned the electricity suppliers' responsibilities in accordance with the same Act.

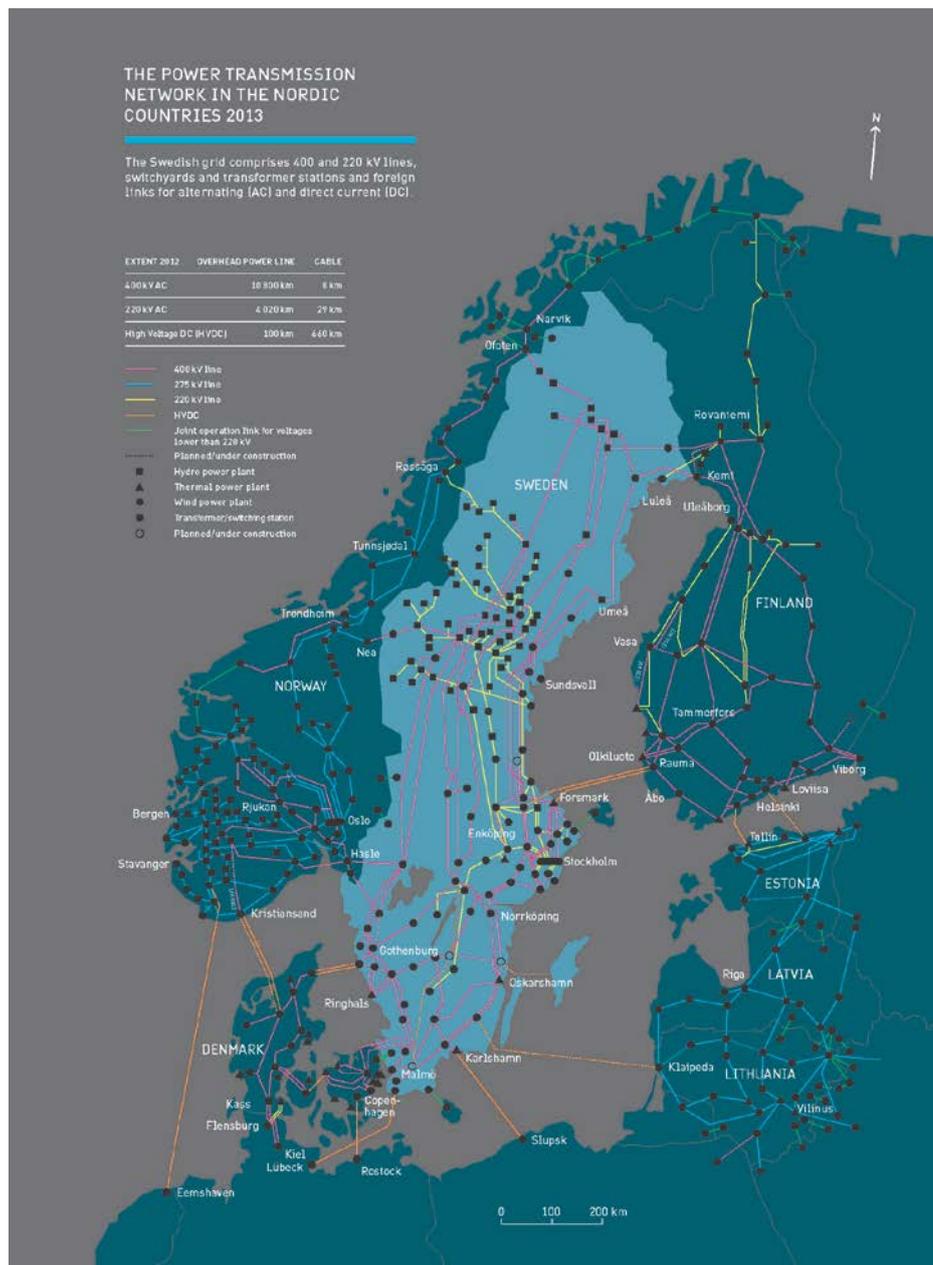


1.1 The electricity network

The Swedish electricity network consists of 551,000 kilometres of power cables, of which 351,000 km are underground cables and 200,000 km overhead lines. The electricity network can be divided into three levels: national (transmission) network, regional network and local network. The transmission network transports electricity over long distances with high voltage levels. Regional networks transport electricity from the transmission network to local networks and in some cases directly to major electricity consumers. The local networks connect to the regional networks and transport electricity to households and other end users.

In Sweden, Svenska kraftnät (SvK) is responsible for maintaining the balance between production and consumption and the operational reliability of the electricity network system. Local and regional network companies are responsible for operating and maintaining their networks in order to guarantee that the security of supply is maintained within their individual networks. Figure 1 shows a map of the Swedish transmission network's stations and cables, as well as planned additional cables and reinforcements of the network.

Figure 1. The Swedish transmission network



Source: Svenska kraftnät

As of 2012, there were 162 electricity network companies in Sweden. A total of 161 companies run local networks and five companies run regional networks.¹

1.1.1 Functional unbundling of electricity companies

Separation of electricity network operations

On 21 October 2009, the Swedish Parliament decided on changes to the Electricity Act (1997:857). These changes are in effect as of 1 January 2010, meaning that clearer provisions exist for the separation of companies conducting network operations or electricity production and trade in the same company group. A

¹ Four network companies run both local and regional networks.

company which runs electricity networks and is part of a company group whose total electricity network includes at least 100,000 consumers must, in respect of its decision-making and organisation, be separate from companies that produce or trade in electricity. The changes were made in order to follow the provisions of the European Parliament and Council's Directive 2003/54/EG of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC regarding functional separation of companies that are part of company groups which operate in electricity networks and production of or trade with electricity.

Ei supervises the transmission system operator

SvK runs and manages the Swedish transmission network. SvK is also the agency that is the transmission system operator for the Swedish electricity network. SvK is commissioned to commercially manage, run and develop a cost-effective, operationally safe and environmentally sound electricity transmission system, as well as to sell transmission capacity and conduct other activities connected to the electricity transmission system. According to the EU Electricity Market Directive², Ei has, in its regulatory role, the task of supervising SvK.³ In 2013, the supervision of SvK has included Ei stipulating a revenue framework for SvK for the 2014 regulatory period. Ei has also approved the methods used in the agreements regarding responsibility for balancing supply and demand within the electricity and gas networks. Ei has also approved the methods for formulating the terms of agreements for access to cables or a cable network.⁴

As of 1 January 2012, SvK's revenue framework will be set out in advance, as will those of other electricity network companies. The supervisory period for SvK is one calendar year, while those of the other electricity network companies is four years, according to general principals. Following a change in the law, Ei now also determines the revenue framework for SvK. Previously this was done by the Government. In accordance with Chapter 1, Section 5 a of the Electricity Act, revenue framework refers to the total revenue which a network concessionaire may draw from a network operation during a supervisory period.

According to the EU's electricity market directive⁵, transmission system operators must be certified. Ei received an application for certification from SvK in the autumn of 2011. The final decision to certify SvK as the transmission system operator for the Swedish electricity network was made by Ei in July 2012. Certification is valid indefinitely, but can be reassessed by Ei if the transmission system operator does not live up to the certification requirements.

² Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC

³ In Sweden there is no independent transmission system operator. The regulations that specifically cover the supervision of independent transmission system operators therefore do not apply to Ei.

⁴ According to Chapter 4, Section 1a of the Electricity Act.

⁵ According to Article 10.

1.1.2 The technical function of the electricity network

Security of supply in the electricity network is assessed by Ei based on reports of power cuts

Security of supply is affected, among other things, by the type of cable (overhead lines or underground cables) used. In order to weatherproof the electricity network, the proportion of underground cables in local networks has increased. However, underground cables are exposed to non-weather related disturbances, such as cable breaks due to digging or ageing components. In the overhead lines category, insulated power lines are more robust than uninsulated power lines. In 2012, about 98 per cent of the local networks' total length in the low-voltage network was insulated. At the medium and high voltage levels, approx. 67 per cent of the power lines in local networks are insulated.

The electricity network companies are, according to the requirements of the Electricity Act, obliged to report power cuts to Ei. Since 2011, annual detailed reporting of power cuts is carried out at the customer level, for both short and long power cuts. Long-term and extensive power cuts must be reported continually to Ei.

Reporting enables Ei to assess the quality of supply in the electricity network, as well as allowing it to intervene in a timely manner if the measures that have been implemented are not sufficient to ensure the security of supply for a specific electricity network company. The assessment of quality of supply also forms the basis of assessments of the fairness of the network charges. Table 1 shows power cuts in local networks between 2001 and 2012. The numbers indicate the average number of cuts per customer and are divided into unannounced and announced cuts. Announced cuts are planned power cuts carried out for operational reasons such as repairs and preventative maintenance in order to maintain good operational and supply security. According to the Electricity Act, power cuts may not last longer than is necessary in order to implement a solution.

Table 1. Power cuts in local networks resulting from a fault in the network, average value per customer⁶

Year	SAIFI, announced cuts (cuts/year)	SAIFI, unannounced cuts (cuts/year)	SAIDI, announced cuts (minutes/year)	SAIDI, unannounced cuts (minutes/year)
2001	0.18	1.03	27	128
2002	0.25	0.97	29	123
2003	0.19	0.90	27	118
2004	0.19	0.89	25	72
2005	0.21	1.26	32	890
2006	0.19	1.05	22	88
2007	0.31	1.49	22	307
2008	0.50	1.04	26	104
2009	0.22	0.88	20	63
2010	0.14	1.03	20	71
2011	0.19	1.31	16	174
2012	0.14	1.03	17	75

Source: Ei

Regulations concerning security of supply and compensation for power cuts

The electricity network companies are obliged to undertake risk and vulnerability analyses, and to produce action plans which show they will improve the security of supply in their own networks. The aim of the regulations is to ensure that the electricity network companies will, through preventative work, decrease the vulnerability of the electricity network and contribute to fulfilling the functional requirement of the Electricity Act which states that power cuts may not last longer than 24 hours. A report of the risk and vulnerability analyses, as well as the action plan, must be submitted to Ei. Ei has issued directives on the annual reporting of electricity network risk and vulnerability analyses.

Aside from the functional requirements of the Electricity Act, Ei has also prescribed which other requirements must be met in order for the transmission of electricity to be considered of a satisfactory quality. Parts of the directives regarding technical requirements for securing regional network power lines from trees and functional requirements for higher load levels were issued in 2010, while directives concerning voltage quality requirements were issued in the middle of 2011. In 2013 the directives were supplemented with guidelines for the number of power cuts at the individual customer level.

According to the Electricity Act, electricity consumers who are affected by disruption to the transmission of electricity for at least 12 hours have the right to compensation from the electricity network company that the consumer is connected to. The requirement applies to power cuts that are within the scope of

⁶ SAIFI=System Average Interruption Frequency Index (average number of cuts per customer throughout the year (number of cuts/year))

SAIDI=System Average Interruption Duration Index (average time spent without power per customer throughout the year (powerless minutes/year)).

the network owner's responsibility.⁷ Compensation is calculated according to a standardised formula and is paid automatically. The Electricity Act also regulates the right to damages from electricity network companies in the case of personal injury, damage to property or economic loss. Ei has drawn up directives on how a network owner will inform their customers about the regulations for power cut compensation.

1.1.3 Network charges for connection and transmission of electricity

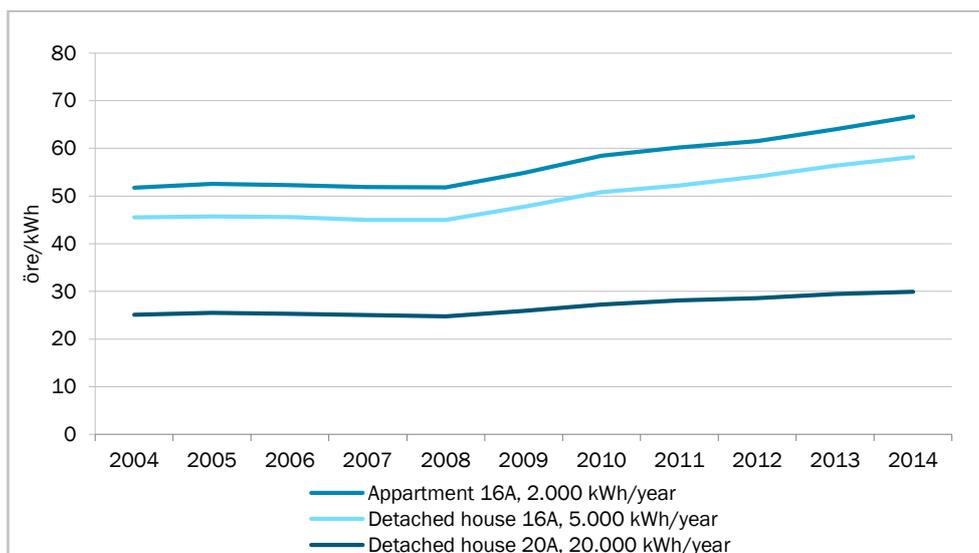
The Swedish electricity network is run as a regulated monopoly, with Ei reviewing the network companies' revenues and assessing whether they are fair. According to the Electricity Act, electricity network companies have the right to be compensated for the cost of operations and maintenance, as well as achieving a reasonable return on the enterprise's capital. The companies must improve the efficiency of their operations and maintain a satisfactory quality of supply. Details of the network charges are collected for 15 customer groups in order to simply compare network charges between electricity network companies.

Electricity network charges often consist of a fixed portion (subscription charge) and a variable portion (electricity transmission charge). The fixed portion varies with the size of the fuse or the volume of power subscribed to. The variable portion changes based on the customer's usage. For a detached house with electric heating, the fixed and variable portions of the charge are about the same.

Over the course of the previous ten years, the development of the network charges has varied. Between 2005 and 2008, the charges increased in line with inflation, see Figure 2; subsequently, the charges have risen faster than the rate of inflation. Between 2013 and 2014, the charges rose 4.0 per cent for customers in apartments, 3.1 per cent for customers in detached houses with 16 Amp fuses and 1.6 per cent for customers in detached houses with 20 Amp fuses. In monetary terms this is equivalent to an increase of SEK 53, 90 and 98, respectively, per year.

⁷ Incidents within the companies' responsibility are incidents which the company could reasonably have foreseen and for which the network companies can be expected to dimension the construction and operation of the network.

Figure 2. Real-terms development of network charges for domestic customers⁸



Source: Ei

Customers with low electricity consumption have fewer tariff alternatives than customers with high electricity consumption. Several electricity network companies offer only one type of tariff, simple tariff, to small customers. Simple tariff means that the customer pays the same amount, regardless of what time of day the electricity is used. The alternative to simple tariff is time of use tariff. The customer then pays a varying amount, depending on when the electricity is used. Normally the electricity price is lower at night than during the day.

Some electricity network companies have introduced capacity-based time of use tariffs for domestic customers. In these, the network tariff comprises a smaller fixed charge which is linked to the size of their main fuse. The size of the fuse determines the maximum possible capacity a consumer may use. An additional capacity charge is debited, depending on how the household uses the electricity network. The network tariff is differentiated within a specific fuse size, and various prices may be applicable, depending partly on the time of day and partly on the time of the year.

Ei's advance decision on electricity network charges for 2012–2015

Ei decides in advance how much revenue the electricity network companies may receive over the course of a four-year period.⁹ Revenues should cover the legitimate costs of running a network organisation over the period, as well as providing a reasonable return on the capital invested. The quality of the way in which the network companies conduct their activities will also be taken into consideration. The standardised method that Ei has developed takes into account the long-term investments the network companies need to make in order to sufficiently maintain the quality of the electricity network. In the formula that is used, the capital cost, ongoing costs and also the quality of the network activities for the supervisory period are taken into account. The aim of this regulatory model

⁸ Mean value, adjusted for 2014's price level, not weighted.

⁹ Since 1 January 2012, in accordance with the regulations in Chapter 5 of the Electricity Act (1997:857).

is partly so that the companies' customers will have predictable charges, partly to make it possible for the companies to invest in and maintain their networks.

In connection with the decision on revenue frameworks, Ei set the maximum level of revenue that Sweden's local and regional network companies may receive from their customers for network transmission during the regulatory period. In the assessment, Ei evaluated partly legitimate cost increases, partly what was considered reasonable compensation for the capital that the Swedish electricity network constitutes. Ei decided to implement a transitional period of four supervisory periods because there appears to be a need to even out the permissible revenue increases in the short-term. As a result, it was decided that network companies may increase the charges by two per cent per year on average, over and above the rate of inflation (real-terms increase). However, the permissible increases vary from approx. one per cent up to eight per cent.

The first supervisory period runs from 2012 to 2015.¹⁰ The decision regarding revenue frameworks for this period was made by Ei at the end of October 2011. Roughly half of the decisions issued were appealed to the Administrative Court in Linköping. The Administrative Court pronounced its judgment in the cases on 11 December 2013, including an assertion that Ei did not have the right to apply the 'transition method'. Furthermore, the Court found that the calculation for reasonable revenue should be done with a real cost of capital of 6.5 per cent before taxes. Ei appealed the ruling to the Administrative Court of Appeal in Jönköping which on 11 March 2014 decided to grant leave to appeal, meaning that the court will review the appeals. Ei's petitions include having the real calculation interest set to 5.2 per cent. The Court plans to settle the case during the summer of 2014.

1.1.4 International matters in the electricity market

Within the scope of NordREG (Nordic Energy Regulators), there is cooperation with the other Nordic energy regulators. Within the scope of the cooperation in the Northern Europe region, there is an exchange between the Nordic, German and Polish energy regulators. In addition work is being conducted on the so-called NWE region (North West Europe), which consists of the Northern Europe region, the CWE¹¹ region (Central Western European) and the United Kingdom. The aim of the cooperation is to reach a single price coupling system for all European trade in electricity. In early February 2014, day ahead trading was launched in this area. Work on intra-day trade is still underway, with delays. Cooperation will be successively expanded until it encompasses the entire EU.

An important prerequisite for a common market is that there are common rules for the transmission of and trade in electricity in a safe and efficient way in the various Member States. Not least, it must be certain that the technology for the transmission of electricity between countries' transmission networks works efficiently. In its work as part of the European Agency for the Cooperation of Energy Regulators (ACER), Ei has produced framework guidelines that are in line with the process that has been set out for the production of European regulations for a common European market for electricity, and has submitted a statement to the ministry on what are known as network codes. Work now continues on the

¹⁰ There are a few electricity network companies that have a one-year supervisory period.

¹¹ Germany, France, the Netherlands, Luxembourg and Belgium.

network codes that have been submitted to the European Commission as part of the 'comitology' where member states' governments are represented.

Collective Nordic balancing

For over a decade, balancing¹² has been conducted collectively in the Nordic area by the Nordic transmission system operators. This means that balancing is managed as if the Nordic synchronous area¹³ were a single control area. However, each national transmission system operator retains their responsibility. Furthermore, there is a common market for regulatory power in which the most efficient resources in the Nordic region are used for up or down regulation.

The common principals for the settlement of balancing services was introduced in 2009. Work is currently underway to facilitate the collective settlement of balancing services in the Nordic region as one route to a common consumer market. Preparations are also underway among the transmission system operators for a common market for automatic reserves in order to maintain the system frequency. The Nordic energy regulators are following developments and are adopting a common position on whether changes should be implemented. National decisions are taken thereafter. Ei normally adopts a position by approving changes in the general balancing contract between SvK and the companies with responsibility for balancing.

During 2013 work has been conducted to produce a joint network code for the balance market in the European Network of Transmission System Operators for Electricity, ENTSO-E. There are also a number of pilot projects planned within ENTSO-E concerning international balance regulation. Ei has participated indirectly in this work by submitting comments on suggested network codes via ACER, and by contributing to the statement submitted by ACER (the Agency for the Cooperation of Energy Regulators) to the European Commission on 21 March 2014.

For several years, the Nordic transmission system operators have collectively managed overloads using implicit auctions on the Nordic electricity exchange Nord Pool Spot. The methods used to calculate the capacity that is available to be placed on the market through such implicit auctions, as well as the methods used to announce the auctions, will be public. Changes in these methods must be approved by the regulator. Within the framework of the Nordic cooperation in NordREG, discussions are underway into whether the current methods used to calculate capacity are satisfactory or if changes should take place.

Continued efforts to increased European harmonisation

According to the EU's electricity market directives, the energy regulators have a duty to supervise how the access to cross-border infrastructure is managed by the transmission system operators. This duty is part of the responsibility Ei has in its role as a regulator. The common Nordic market is well-established, which means that it is primarily changes that require the attention of the regulators. Ei actively

¹² Balancing takes place in order to correct frequency deviations, i.e. restore the momentary balance, in the power system.

¹³ Electricity systems whose constituent parts are interconnected via alternating current connections and which thus have a common frequency.

works with the other Nordic regulators to ensure that internal rules and practices in the Nordic countries are developed in line with the goal of increased harmonisation.

1.1.5 Adherence to the electricity legislation

In accordance with the Electricity Act, Ei's duties as regulator include exercising supervision to ensure that companies comply with the electricity legislation. The Act states¹⁴ that Ei is also the regulator in accordance with the regulation¹⁵ governing the terms for access to the network for international trade in electricity. Ei is commissioned by the Government to fulfil the duties within its area as per the EU's electricity market directive.

According to the EU electricity market regulation¹⁶, the national regulators will follow and implement the legally binding and relevant decisions taken by ACER and the European Commission. No specific legislation is required in order for this to apply in Sweden because the provision has an advisory character. In order for Ei to adhere to the Commission's decisions, provisions have been introduced in the Electricity Act¹⁷ and in the Act¹⁸ on the Certification of Transmission System Operators for Electricity. These provisions mean that, in decisions which are affected by such guidelines as are referred to in the electricity market regulation¹⁹, Ei must specify that the decision may be altered or annulled at the request of the European Commission.

According to the Electricity Act, Ei has the right to obtain information and access documents, upon request, as required in its role as regulator²⁰. Ei may issue such enforcement orders as are required in order to ensure compliance with the regulations and provisions that are covered by its role as regulator²¹. Such an order may be associated with a fine²².

¹⁴ According to Chapter 12, Section 1, fourth paragraph.

¹⁵ (EC) No 714/2009.

¹⁶ Article 37.1 d.

¹⁷ Chapter 12, Section 1 b.

¹⁸ 2011:710 Chapter 3, Section 4 § and Chapter 4, Section 3.

¹⁹ Article 39.

²⁰ Chapter 12, Section 2 of the Electricity Act.

²¹ According to Chapter 12, Section 3 of the Electricity Act.

²² There is nothing to prevent such fines from amounting to up to ten per cent of a company's turnover.

1.2 The Wholesale Power Market for Electricity

The Swedish wholesale market is part of an integrated Nordic market through transmission connections to Norway, Denmark and Finland. The Nordic network is in turn connected to the European network. The operative management of the electricity network is done within each respective country, where the transmission system operator is responsible for ensuring that the national network is constantly balanced.

The Swedish electricity production is primarily based on nuclear and hydroelectric power. Electricity usage is affected by a relatively high portion of power-intensive industry and by many households having electric heating. Electricity trade between producers and buyers is in Sweden done to a large degree via the Nordic electricity exchange Nord Pool Spot.

1.2.1 Monitoring of price trends, transparency and market competition

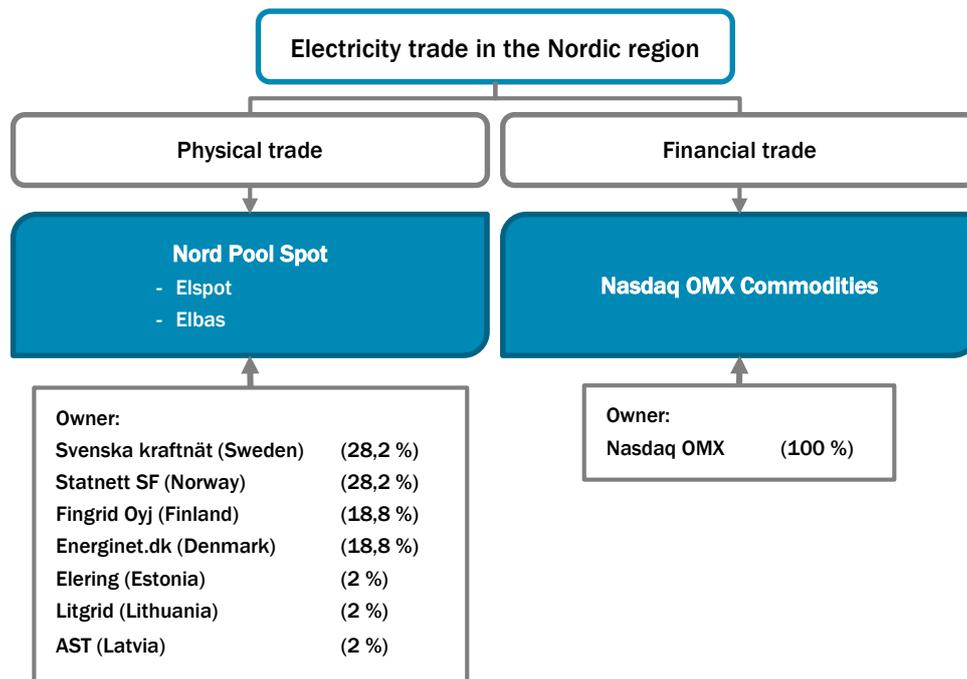
Electricity trade in the Nordic region

In the Nordic countries, trade with physical contracts for electricity is organised through Nord Pool Spot (NPS). On NPS, the system price²³ and spot prices are set 24 hours in advance for each hour of the following day on Elspot. The physical adjustment market where trade can be conducted up to an hour before delivery around the clock is known as Elbas and is also traded on NPS.

Financial trading in the Nordic electricity market takes place on Nasdaq OMX Commodities. Long-term contracts and hedging opportunities are available there for days, weeks, months, quarters and years. Carbon emissions permits are also traded on Nasdaq OMX. The structure and ownership of Nordic trade is shown in Figure 3.

²³ The system price is an equilibrium price, based on all the bids and offers in the entire Nord Pool Spot area.

Figure 3. Marketplaces for electricity in the Nordic market



The total volume traded on NPS increased by just over 4 per cent compared to the previous year, and was 353 TWh for 2013 (348.9 TWh on Elspot and 4.2 TWh on Elbas). In total, the number of members of Nord Pool Spot amounted to 349 on Elspot and 139 on Elbas. Of the electricity produced in Sweden in 2013, 92.7 per cent was sold via Nord Pool Spot. Meanwhile, Nord Pool Spot's market share of the total electricity consumption in the Nordics was approximately 84 per cent. The remainder of the produced electricity is sold through bilateral agreements, known as OTC contacts²⁴. The financial market decreased by 1.5 per cent compared to 2012 and the total turnover in 2013 was 1637 TWh.

Market splitting and counter-trading for bottleneck management.

The requirement to transmit electricity within Sweden and the Nordic region is primarily affected by variation in the availability of hydro-electricity, as well as seasonal variations in consumption. At the same time, there are congestions in the transmission capacity of the Nordic network that can lead to congestion. Congestion in the Swedish transmission network is normally associated with a high level of hydro-electric production in the north, leading to a large requirement for transmission in a southerly direction. Congestion also occurs in situations where there is a large amount of transmission in a northerly direction from Denmark and the continent to the Swedish west coast and onward to southern Norway.

In Sweden and the Nordic countries, two methods are used to manage congestion in the form of bottlenecks – market splitting and counter-trading.

Market splitting means that the electricity market is sometimes divided into sub-markets, known as bidding areas (also known as spot price areas). Prices are

²⁴ Over the counter.

determined by production and consumption within the respective area, as well as the capacity to transmit power to and from that area. The most common bidding areas on Nord Pool Spot are Luleå (SE1), Sundsvall (SE2), Stockholm (SE3), Malmö (SE4), Finland, Western Denmark (DK1), Eastern Denmark (DK2), Northern Norway, Central Norway and Southern Norway. Norway may be divided into additional price areas during periods of extensive congestion. Sweden has been divided into bidding areas since November 2011.

SvK can therefore manage transfer limits via counter-trading. This involves SvK paying for an increase in the production of electricity in the area which has a deficit and/or reduced production in the area with a surplus. Counter-trading costs are charged to SvK and thereby act as signals that the network needs reinforcing.

Ei has carried out government commissions regarding follow-up of market splitting

In its appropriations letter for 2013, the Government commissioned Ei during 2013–2014 to continue its work on following up on the introduction of bidding areas in Sweden. The task was divided into two parts with a first interim report produced in August 2013²⁵ which primarily was a statistical summary of data since the introduction of bidding areas on 1 November 2011. The second part was a final report of the commission and included longer time periods for data analysis and a deeper analysis of the bidding area reform's consequences.²⁶

In the reports it was noted that the price differences between Swedish bidding areas have been relatively small on average since the introduction, not least compared with what was expected beforehand. The analysis showed that the average price difference between bidding area 1 and 3 was approximately one per cent. The difference was reduced compared to the comparison made by Ei in 2012²⁷. Back then the difference was almost three per cent. The reduced difference applies to all bidding areas and for bidding area 4 the price difference compared to area 3 was reduced from five per cent to around 3.5 per cent. An important reason for price differences being lower than many feared is that the variations in electricity price have been reduced. Important reasons for this include lower coal and gas prices and a reduced cost for carbon dioxide emissions due to the current financial recession. The expansion of renewable energy production in Northern Europe has also contributed to this.

In the analysis, a common denominator could be identified based on the studied periods. The common denominator was that price differences generally arise when there is congestion in the system. Congestion in the system may consist of either loss of production, transfer limitations in the network, or both. Network congestion arises both due to planned maintenance and external circumstances which cannot be controlled.

Another common feature for the studied periods was that the price differences generally arose during high load hours and usually during the winter, when the

²⁵ EiR 2013:12 Uppföljning av elområdesreformen – en delrapport.

²⁶ EiR 2014:08 Utvärdering av effekterna av elområdesindelningen.

²⁷ EiR 2012:06 Elområden i Sverige – Analys av utvecklingen och konsekvenserna på marknaden.

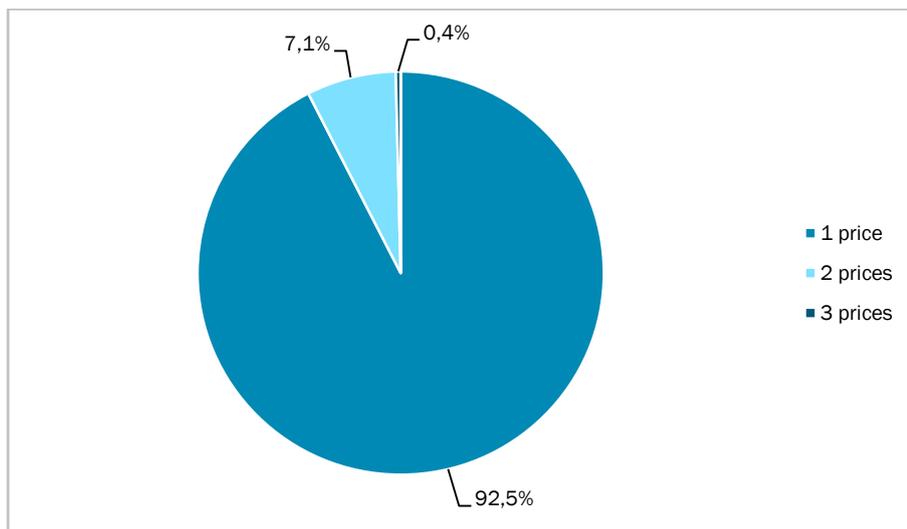
system has small margins. When congestions coincide with high load hours, the risk of price differences also increases.

However, the report notes that the time span since bidding areas was introduced is relatively short and that it is likely that the market has not yet faced all imaginable scenarios. An example of one such scenario is a year with very good hydrological balance (wet year). A wet year would mean that the water reservoirs in northern Sweden would be full to the brim, and that the producers with overfull reservoirs need to export a large amount of electricity to the south. In this scenario, the transmission capacity may not be sufficient and bottlenecks may arise.

Sweden mainly consists of one shared bidding area.

In 2013 Sweden had a shared price for approximately 92 per cent of the time, which was more than the previous year when the price was shared for 83 per cent of the year. Sweden was divided into at most three bidding areas, which was the case for a period of 35 hours.

Figure 4. Proportion of the time with common pricing in Sweden, 2013



Source: Nord Pool Spot, adapted by EI

Bidding area 1 (Luleå) and bidding area 2 (Sundsvall) constituted a bidding area throughout the entire year. Bidding area 4 (Malmö) was isolated from the other Swedish bidding areas for about 5 per cent of the year. The Nordic region constituted a shared bidding area for 23 per cent of the year.

Price differences generally arise when transmission congestions are combined with periods of high load, cold winter weather, spring floods or limited availability of nuclear power capacity.

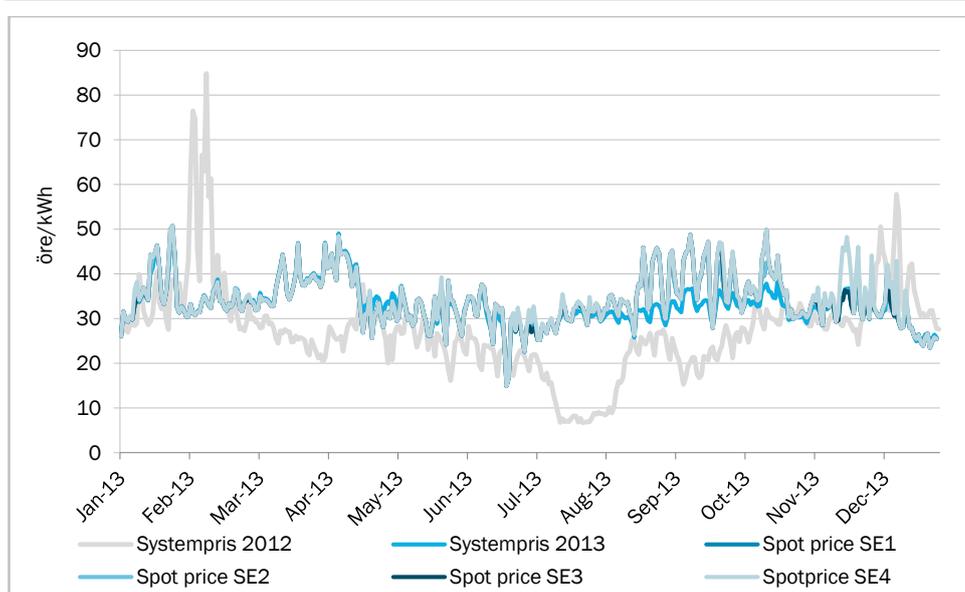
Even price development throughout the year

The price spread was more even in 2013 than in the previous year, see Figure 5. The difference between the highest and lowest system price in 2013 was 33.9 öre per kWh, while the difference was 78.1 öre per kWh in 2012. The highest 24-hour average system price was in April, when it was 49 öre per kWh. The lowest 24 hour average price was in late June at 15.2 öre per kWh. In Sweden, the average price in bidding areas 1 and 2 was 33.9 öre per kWh. Bidding area 3 had an average price of

34.1 öre per kWh and in the southern bidding area, SE4, the average price was 34.5 öre per kWh. Prices in the respective Swedish bidding areas was more similar throughout the year than during the previous year. In 2013 the average difference²⁸ was 0.7 öre per kWh while it had been 2.1 öre per kWh in 2012. The stable price level is due to a continued global recession combined with stable nuclear energy production and low usage due to relatively mild weather.

The average price in 2013 was higher than for the previous year²⁹. The average system price in 2013 was 32.9 öre per kWh, which was an increase of 20 per cent compared to the previous year, where the average system price was 27.2 öre per kWh.

Figure 5. Price development 2013, daily average in öre per kWh



Source: Nord Pool Spot

Continued increase of wind power production

The total electricity production of electricity in Sweden in 2013 was 149.5 TWh, which is a reduction of just under eight per cent from the record-breaking numbers of 2012. Again, the main contributor to the decrease was a reduction in hydroelectric power. The hydroelectric production was approximately 17 TWh lower than in 2012. Nuclear energy production increased by 2.2 TWh, corresponding to a little above three per cent. Meanwhile, wind energy production continued to grow. In total there was an increase in wind power of 2.7 TWh since the previous year. The trend of reduced electricity production in heat and power stations continued in 2013. The reduction was four per cent since the previous year. Table 2 shows the Swedish electricity balance between 2005 and 2013.

²⁸ Bidding areas 2 and 4 are compared here.

²⁹ The price development on Nord Pool Spot is explained, to a large extent, by basic factors such as variations in precipitation, wind and temperature.

Table 2. Sweden's electricity balance 2006 – 2013, TWh³⁰

	2006	2007	2008	2009	2010	2011	2012	2013
Domestic production	140.3	145	146	133.7	144.9	146.9	162.0	149.5
Hydro-electric	61.1	65.5	68.4	65.3	66.8	66.0	78.0	60.8
Nuclear	65	64.3	61.3	50	55.6	58.0	61.4	63.6
Other thermal	13.3	13.8	14.3	15.9	19.1	16.8	15.5	15.2
Wind	1	1.4	2	2.5	3.5	6.1	7.2	9.9
Domestic consumption	146.3	146.3	144.1	138.3	147.1	139.7	142.4	139.5
Network losses	11	11.9	11	10.2	11	10.2	11.0	11.0
Imports	20.5	18.5	15.6	16.4	17.6	14.8	13.1	15.1
Exports	-14.4	-17.2	-17.6	-11.7	-15.6	-22	-32.7	-25.1
Net Imports	6.1	1.3	-2	4.7	2	-7.2	-19.6	-10.0

Source: Statistics Sweden and Svensk Energi

Of all electricity produced in Sweden, a total of 139.5 TWh was consumed in the country. This is a reduction of two per cent since 2012. The remainder of the produced electricity was exported from Sweden via existing connections in Norway, Finland, Denmark, Germany and Poland. In total, 25.1 TWh of electric power was exported. Meanwhile, 15.1 TWh was imported during the same period, resulting in a net export of 10 TWh. This was a reduction compared with the previous record-breaking year, in which Sweden exported 19.6 TWh.

Homes and services use the most electricity

Homes and services constituted slightly more than half of the total energy consumption, corresponding to 71 TWh. The next largest consumer category is mineral extraction and production, with a 36 per cent share of roughly 50 TWh. Various utilities³¹ consumed 3.8 TWh (3 per cent) and the transport sector³² consumed 3.1 TWh (2 per cent). The remaining electricity was accounted for by losses³³.

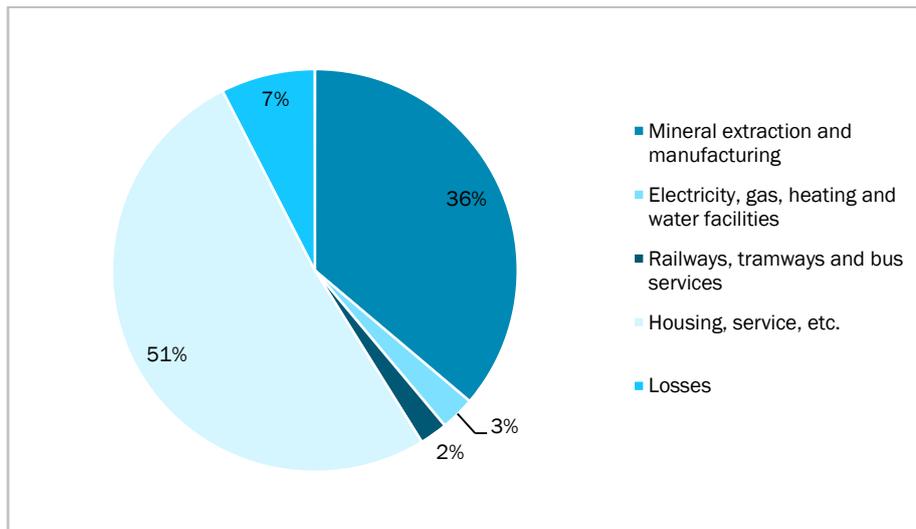
³⁰ Negative values indicate exports.

³¹ Power stations, gasworks, thermal power stations, waterworks.

³² Railways, trams, buses.

³³ For example, transmission network losses.

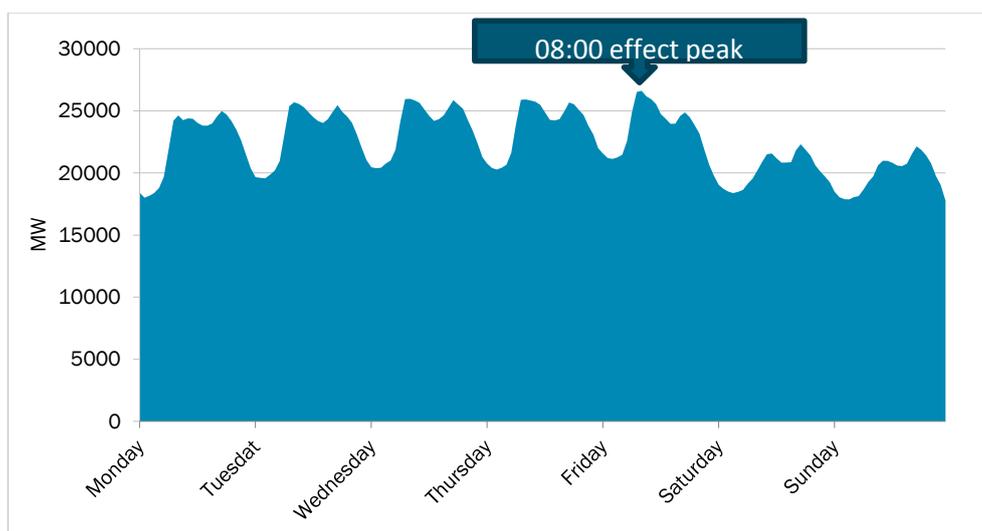
Figure 6. Total electricity consumption by area of use, 2013



Source: SCB

The greatest electricity consumption per hour in 2013 occurred at 08:00 on Friday 25 January, see Figure 7. The total usage for this hour was 26,612 MW, which was just over 600 MW more than SvK's forecasted maximum consumption for a normal winter. The forecast for a normal winter was 26,000 MW in the winter of 2012/2013. The following winter, 2013/2014, SvK's forecast for a normal winter was 26,200 MW. However, the highest usage in 2013 was under the level of a ten-year winter prognosis, which included forecasts of 27,500 MW and 27,700 MW for the winters of 2012/2013 and 2013/2014 respectively. Sweden's highest electricity consumption to date was reached on 5 February 2001, peaking at 27,000 MW.

Figure 7. Greatest electricity consumption per hour 2013



Source: Nord Pool Spot

Competition in the wholesale market remains unchanged

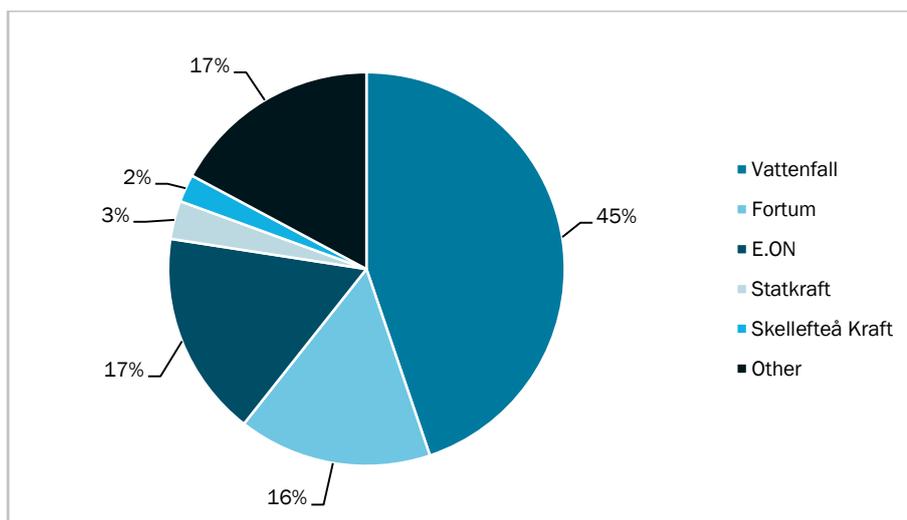
In previous evaluations of the bidding area reform, Ei has analysed the competitive conditions on the wholesale market and found them to be good on the whole³⁴. In the report published in April 2014, the wholesale market's functioning was evaluated again by analysing developments in company concentration on the wholesale market³⁵. The analysis showed that conditions had not changed significantly compared to previous evaluations. Conditions exist for good competition in the Swedish bidding areas, presuming that the transmission capacity to surrounding areas is sufficient.

Generally, competition was weakest in bidding area 1 in northern Sweden and in bidding area 4 in southern Sweden. In bidding area 1 the production is dominated by a single actor. Ei found that the negative effects of this and the possibility of the actor to take unfair advantage of their position are slim. This is because the area has significant excess production and strong connections to both bidding area 2 and northern Finland. Ei also found competition to be good in bidding area 4. Unlike bidding area 1, area 4 has a significant production deficit in relation to its consumption. However, the competitive pressure from surrounding areas (bidding area 3, Zealand and Germany) was seen as a contributory factor to companies with dominant positions in the area having less market power.

More small producers contribute to lower market shares for major producers

The largest electricity producers' share of total electricity production has been relatively constant over the past four years. The five largest Swedish electricity producers constituted almost 83 per cent of the total electricity production in 2013, see Figure 8. Vattenfall, Fortum and Eon together constituted more than 78 per cent of the country's total electricity production.

Figure 8. The largest electricity producers in Sweden 2013³⁶



Source: Svensk Energi

³⁴ EiR 2014:08 Utvärdering av effekterna av elområdesindelningen.

³⁵ The study used HHI index and residual supply index.

³⁶ Vattenfall is owned by the state. E.ON is a privately owned energy company. Fortum is 60 per cent owned by the Finnish State. Statkraft is a state-owned Norwegian company. Skellefteå Kraft is a wholly-owned municipal company.

In total, 38 per cent of the installed capacity in Sweden was owned by foreign owners. The Swedish State, as owner of Vattenfall, owned a total of 38 per cent of the total installed capacity, which was also a reduction. Swedish municipalities together own 13 per cent of the capacity.

1.3 The Retail Market for Electricity

The Swedish retail market for electricity has been exposed to competition since 1996. There is no price regulation. There are roughly 5.3 million electricity consumers in Sweden, of which approximately 4.6 million are domestic consumers.

1.3.1 Monitoring of price trends, transparency and market competition

Actors on the Swedish retail market

Electricity suppliers that offer contracts to electricity consumers are obliged in accordance with Ei's directive EIFS 2013:7 to report these to the price comparison website Elpriskollen.se. Elpriskollen is run by Ei and allows users to compare prices and offers from different electricity suppliers. According to Elpriskollen, in 2013 there were 123 electricity suppliers who offered at least one of the most common contract forms to consumers in one of the Swedish bidding areas³⁷. Of these, 15 traders are only active within a limited geographical area, primarily within the company group's own electricity network.

However, the number of electricity suppliers in each bidding area is lower than the total number of electricity traders offering contracts in Sweden. There are also a number of electricity suppliers who, for example, offer contracts in all bidding areas but who are not actively marketing or offering competitive prices in all bidding areas.

In total there were almost 2,000 electricity contracts registered with Elpriskollen, of which 1,200 were "green contracts". Green contracts refer to contracts where the supplier has stated that 100 per cent of the electricity comes from renewable resources. The three biggest traders had a total market share during the year of 41.1 per cent, measured per MWh sold³⁸.

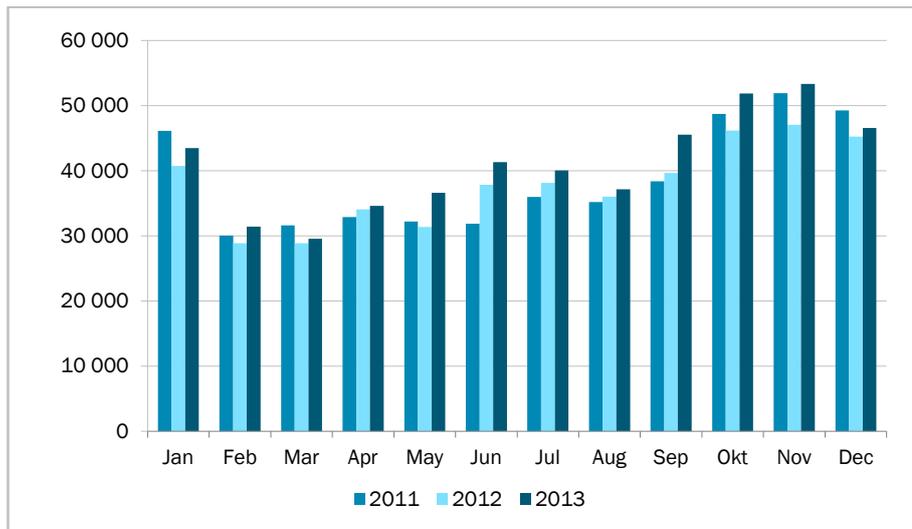
Customer activity

The number of active customers has been fairly constant over the past three years, see Figure 9. In 2013 a total of 568,000 switches of electricity supplier were made, 73,000 of which by corporate customers. In total, 10.7 per cent of customers switched electricity suppliers in 2013.

³⁷ The number of electricity suppliers is defined as the number of traders who have at any point during the year reported at least one of the most common electricity contracts to Elpriskollen.se.

³⁸ Source: The Swedish Energy Agency

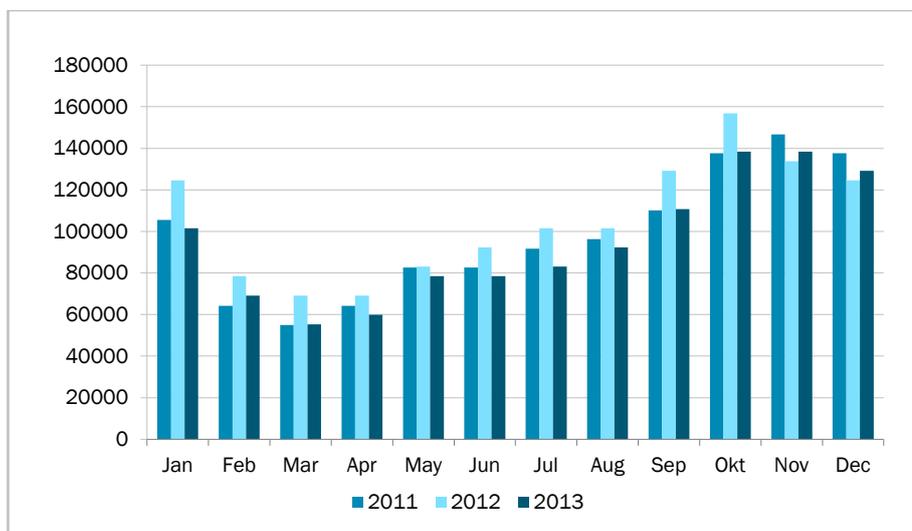
Figure 9. Number of domestic customers who have changed electricity supplier



Source: SCB

During the same period, 1,144,000 contracts were renegotiated, 10,000 of which were corporate contracts. The number of renegotiated contracts has also been fairly constant over the past three years, see Figure 10. In total, 24.6 per cent of all domestic customers signed a new electricity contract in 2013.

Figure 10 Number of domestic customers who have renegotiated their electricity contract

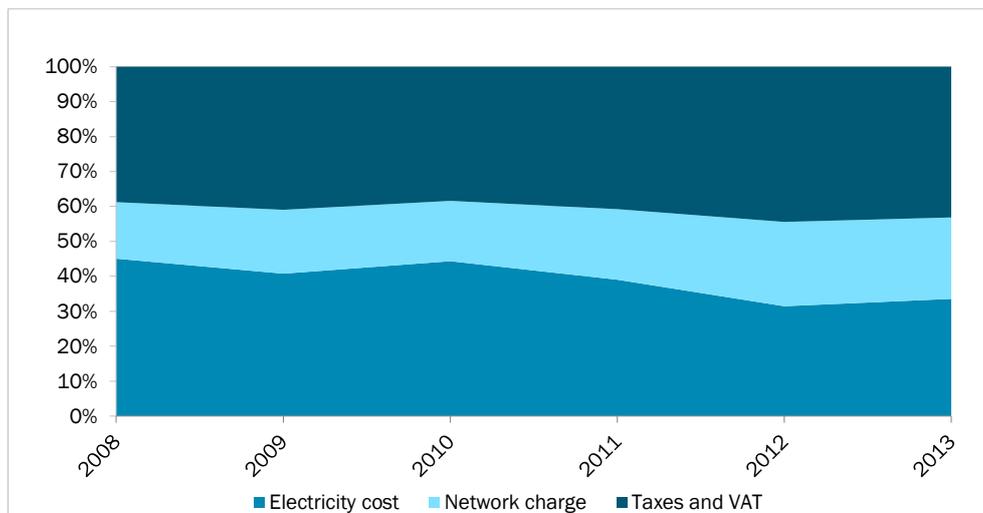


Source: SCB

Total Cost of Electricity

The total cost of electricity faced by a detached house with electrical heating has varied over time. The reason for this is that the price of supplied electricity has varied historically, see Figure 11.

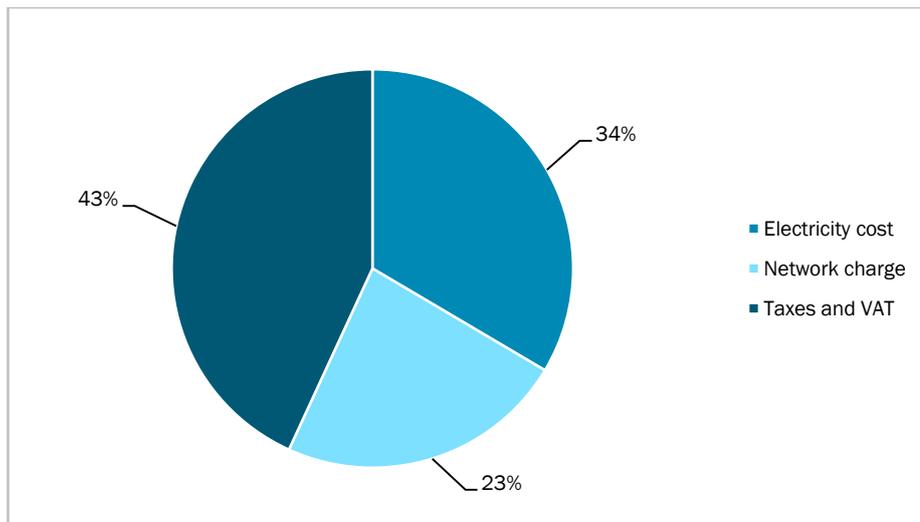
Figure 11 Change of electricity cost for a consumer using 20,000 kWh/year, in real terms³⁹



Source: Elpriskollen, Ei, Statistics Sweden

The biggest portion, 43 per cent, of the total costs for electricity paid by the consumer are tax and VAT. The cost of the supplied electricity constituted 34 per cent of the electricity consumer's total electricity cost.

Figure 12 Total electricity cost for consumer using 20,000 kWh/year in December 2013



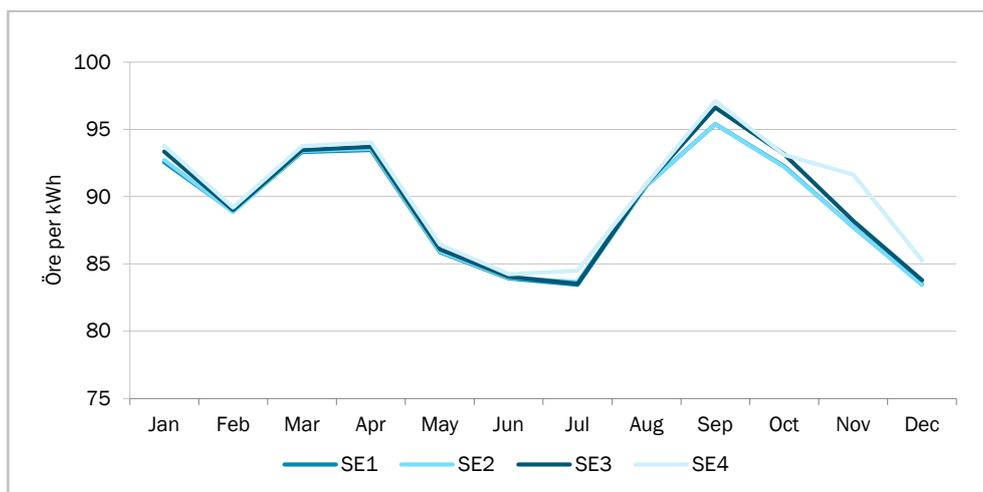
Source: Elpriskollen.se, Statistics Sweden

Electricity prices

Unit price for variable price contracts is presented in Figure 13. Throughout the year, consumers in the four Swedish bidding areas have had very similar prices in variable price contracts. The variable price contracts have closely followed the spot price which had two minor peaks during the first months of the year and the autumn, and two dips during the summer months and November-December.

³⁹ The electricity price is the average price for a variable price contract. As of November 2011 the electricity price is from SE3.

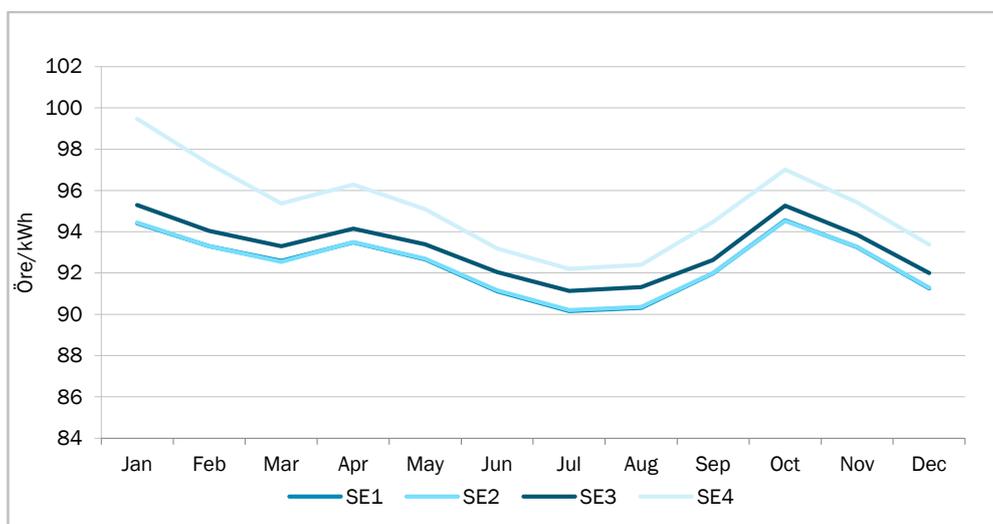
Figure 13 Unit prices 2013 for variable price contracts for average customer 20,000 kWh/year



Source: Elpriskollen.se

Prices for fixed price contracts with a subscription period of a year follow variable price contracts. However, price levels for fixed price contracts vary significantly between bidding areas due to the electricity suppliers' costs for area hedging. Due to this, prices are higher in bidding area 4 compared to the other bidding areas. The lowest prices can be found in bidding areas 1-2.

Figure 14 Unit prices 2013 for fixed price contracts 1 year for average customer 20,000 kWh/year

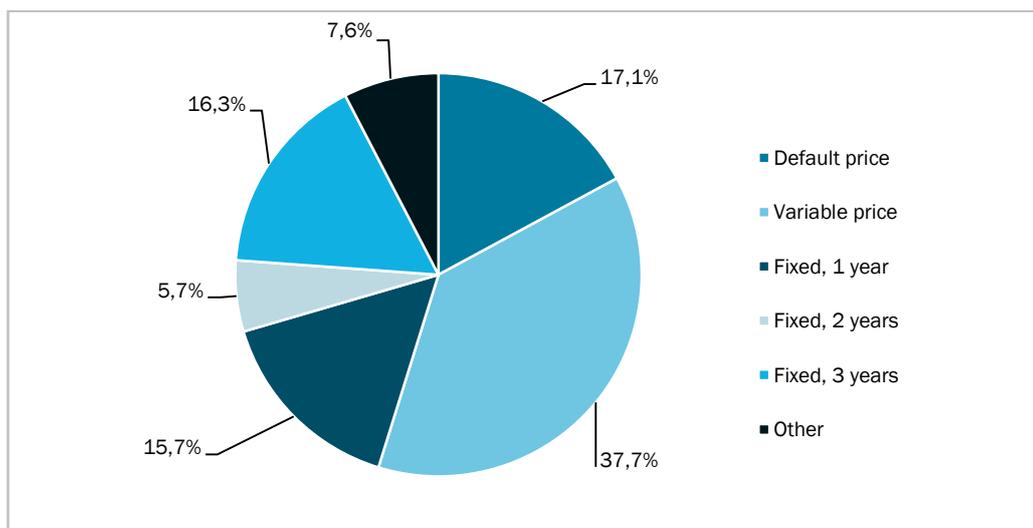


Source: Elpriskollen.se

Distribution of domestic customers by type of contract

The most common form of electricity contract in Sweden is a variable price contract. The long-term trend is that more and more consumers move from fixed price contracts or default contracts to variable price contracts. In December 2013, 37.7 per cent of Swedish domestic customers had signed variable price contracts and 37.6 per cent had a fixed price contract with a subscription period of 1, 2 or 3 years.

Figure 15 Distribution of domestic customers by type of contract in December 2013



Source: SCB

Many consumers still have default contracts

Customers on the Swedish electricity market are free to choose their preferred electricity supplier. This means that companies operate in an open market in competition with other companies and that pricing is discretionary. If the customer does not make an active choice, the relevant network owner is responsible for assigning a default supplier.

In 2013, Ei investigated default contracts and presented its findings in the report "Anvisade elavtal – nuläget och framtida utveckling Ei R2013:17". While the share of electricity customers with default contracts has decreased over time, at the time of the report in September 2013, 17 per cent of electricity customers still had default contracts. On average, these customers paid 30 per cent more than customers with other contract forms. The report also shows that many customers – more than half – stay with this form of contract for more than a year. Ei believes that too many customers have default contracts and that the difference in price is too big compared to other contracts. Ei deems that a supplier-centric transfer process will significantly reduce the share of customers who have default contracts.

Ei has also carried out supervision regarding the information that network owners provide to customers with default contracts, and when the customer receives this contract in accordance with Chapter 8, Section 8, second paragraph of the Electricity Act. The inspection included ten network owners and all ten were found to have shortcomings. The shortcomings concerned both the contents of the information and the point in time when the customer was given this information. All inspected companies took measures to address these issues and presented their actions to Ei.

Work on a Nordic retail market

At present, the Swedish consumer electricity market is national. For many years, however, there has been the political will to create a common Nordic consumer electricity market. The aim of a Nordic retail market is to make it easier for electricity suppliers to be active in several countries, and thus promote

competition. The model should also make things simpler for electricity customers by making the electricity supplier the central point of contact for the electricity customer.

In the creation of a common market, the formulation of market regulations is a central issue. In order to achieve a common retail market, it is important that the design of the market is harmonised to minimise the barriers to being involved in several Nordic countries at the same time which take the form of adaptation costs and increased transaction costs.

In 2013 the Nordic energy regulators, through their joint organisation NordREG, published recommendations regarding harmonised rules for switching suppliers⁴⁰, transparency⁴¹ and how joint billing can be implemented⁴². NordREG has also given recommendations that aim to ensure that electricity network companies act in a non-discriminatory way towards actors on the competitive market.⁴³ In addition to this, NordREG has described how the implementation of previously issued recommendations is progressing in the Nordic countries. NordREG also notes that it is important that all involved actors – governments, the industry and government bodies – work to enable a joint Nordic retail market for electricity.⁴⁴

In the fall of 2012, Ei was commissioned by the Government to produce a proposal about the changes that are required to Swedish law in order to lay the foundations for a Nordic retail market. A report on this work was submitted to the department in mid-June 2013. In this report, Ei proposed, for example, that the electricity suppliers become the customer's primary point of contact when changing supplier, moving house and also for billing. The proposal also involves obligatory combined billing.⁴⁵

Ei has been commissioned by the Government to, during the spring of 2014, investigate and give recommendations for a future information exchange model for the electricity market, i.e. how data should be communicated between market actors and how data can be made available to different actors. Ei shall also define a suitable division of responsibilities between the electricity market's actors and to what degree the model should be regulated. Ei has previously noted that the Swedish information management model needs to be modified and modernised to allow for a Nordic end user market for electricity.

Hourly contracts are still rare in Sweden

Ei has delivered a final report on the Government's commission to investigate how the market for contracts that require hourly metering has developed since the hourly meter reform in "Uppföljning av timmättningsreformen Ei R2014:05". In the report it is noted that the number of consumers with hourly contracts remains low

⁴⁰ NordREG (2013). *Harmonised Model for Supplier Switching*, Report (4/2013).

⁴¹ NordREG (2013). *NordREG recommendations for customers and market actors access to metering data and transparency*, Note (2013-05-06).

⁴² NordREG (2013). *NordREG recommendations on implementing combined billing*, Note.

⁴³ NordREG (2013). *Nordic harmonisation of universal service supply obligations*, Report (3/2013).

⁴⁴ NordREG (2013). *NordREG status report to EMG on the project Nordic end user market*, Status report (2013-07-08) and NordREG (2013). *Road map towards a common harmonised Nordic retail market*, Report (5/2013).

⁴⁵ EiR 2013:09 Enklare för kunden – förslag som ökar förutsättningarna för en nordisk slutkundsmarknad

and that few customers have shown interest in hourly contracts in relation to the consumers that have switched suppliers or renegotiated their contracts. One important reason for the low number of consumers who have signed hourly contracts is that it is hard for the individual consumer to assess and find information on hourly contracts. For example, it is still impossible to compare contracts that require hourly metering on existing price comparison websites. It is also hard to judge in advance if an agreement which requires hourly metering is financially beneficial as the consumers often do not have access to hourly measurement data before choosing a contract that requires hourly metering.

Elpriskollen – an independent price comparison website

As part of its regulatory duties for the retail market, Ei runs the price comparison website Elpriskollen.se where electricity suppliers are required to report prices and contract terms. Since April 2013 this information forms the basis of Sweden's official electricity price statistics, which are compiled by the Swedish Energy Agency and Statistics Sweden. Elpriskollen was launched in 2008 and is the only independent price comparison website in Sweden.

In 2013, Ei conducted an investigation of the general public's awareness of Elpriskollen and found that 68 per cent of those who receive information from price comparison websites use or know of Elpriskollen. The number of visitors to Elpriskollen is very dependent on current events on the electricity market, such as price changes. The number of visitors to the site in 2013 was lower than in the previous year, most likely due to price changes being fairly small throughout the year. Despite this, Elpriskollen had more than 100,000 visitors in 2013.

1.4 Recommendations for electricity prices, investigations and measures for promoting effective competition

Several agencies and public bodies collaborate in the supervision of the Swedish and Nordic electricity market with the aim of using various measures to create a functioning electricity market and prevent the exercise of market power.

Areas of responsibility in supervising the electricity market

Ei is responsible for the regulation and supervision of the Swedish electricity market and the implementation of the Electricity Act. These duties result from Ei's role as the network authority in accordance with the Electricity Act and the supervision that this authority shall exercise. Ei continuously monitors and analyses the development of the electricity markets and submits proposals for changes to regulations or other measures that may improve how the markets function. Ei is also charged with working to promote effective competition in the electricity market. In 2013 Ei has among other things investigated whether the bidding area reform has affected the competition on the wholesale and retail market. The effects of the bidding areas on competition are described in detail in Chapter 2.2

The Swedish Financial Supervisory Authority (Finansinspektionen) supervises Swedish actors who with the authority's permission operate on the financial electricity market. Supervision of trade and businesses' actions takes place on the exchanges Nord Pool Spot and Nasdaq OMX. Nord Pool Spot, which is based in Norway, is supervised by the Norwegian Water Resources and Energy Directorate (Norges vassdrags- og energidirektorat, NVE) and the Financial Supervision Authority of Norway (Finanstilsynet).

The Swedish Competition Authority (KKV) is the authority that ensures that companies in the Swedish electricity market do not violate the competition regulations set out in the Competition Act and the Treaty on the Functioning of the European Union (TFEU). The Competition Act also includes rules that mean the State, a municipality or a county council, or legal persons over which these have a dominant influence, may be banned from using certain practices in sales activities. KKV may, on its own initiative or following reports from companies and the general public, take action against anti-competitive cooperation between companies, companies that misuse their dominant position and against public bodies that violate the regulations on anti-competitive sales activities in the public sector. The Competition Act also includes rules governing mergers and acquisitions. KKV also proposes changes to regulations and other measures which aim to eliminate existing barriers to competition.

Supervision of the Swedish markets in accordance with REMIT

In 2011 the new regulation on wholesale energy market integrity and transparency (REMIT)⁴⁶ came into force, which facilitates coherent supervision of the increasingly integrated European electricity and gas markets. The responsibility of

⁴⁶ The full title of the regulation is: Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency.

Ei and its continuous work to supervise the Swedish markets has thus increased; Ei has also created a new department to accomplish this duty. In 2012, Ei intensified its cooperation with ACER and the regulatory authorities of other countries to work out the details of the regulations for the implementation and application of REMIT.

The subsequent timescale for implementation is dependent on when the European Commission decides on the proposals for detailed regulation that have been worked out. The decision is expected in the summer of 2014, which means that the continual supervision in accordance with REMIT can be expected to begin in the second half of 2014.

The registration of market members will begin in the summer of 2014, while all market actors will begin to report their transaction in wholesale products in accordance with the Regulation by the end of 2014.

The exchanges regulations and market supervision

All of the members of Nord Pool Spot and Nasdaq OMX must follow the electricity exchanges' regulations concerning to the management of information that can have an impact on prices. Nord Pool Spot's regulations include provisions relating to bidding on the spot market. In accordance with Nord Pool Spot's trading licence, it has a specific duty to supervise the market, continually monitoring trade. As a result, all transactions are monitored to ensure that the members have submitted the information they are obliged to submit in order to prevent insider trading, price manipulation or the exercising of market power. As soon as is possible, the members are also obliged to provide Nord Pool Spot with all of the information that it deems relevant to its ability to supervise trade.

If a violation of the regulations is identified, there is a system of sanctions that includes such measures as warnings, fines and the revocation of permission to trade.

Fines for electricity exchanges

In March 2014 the European Commission decided to fine the Nord Pool Spot (Norway) and Epex Spot (France) exchanges for breach of the EU competition regulations. The reason for this is that the exchanges for seven months between 2011 and 2012 had agreed not to compete with each other's spot market prices in Europe.

Through a voluntary settlement, Nord Pool Spot has agreed to pay fines equal to SEK 21 million. Epex has agreed to pay fines equal to SEK 34 million. The voluntary settlement meant a ten per cent decrease in the fines which would otherwise be issued by the Commission.

Ei believes that the exchanges are vital in creating efficient electricity markets and believes that striving to create competition between exchanges is good as long as the functionality of the market is not jeopardised.

Measures to minimise the risk of joint ownership of nuclear power

KKV has in various contexts highlighted the general risks of joint ownership of resources for the production of electricity. The Government has attempted,

unsuccessfully, to negotiate limitations in the joint ownership of nuclear power production facilities and is thus of the opinion, as is KKV, that confidence issues and risks relating to joint ownership remain. The ambition should therefore continue to be to break up the joint ownership of nuclear power companies. Following a proposal from Ei, the owners of the nuclear power stations have also adopted industry-wide ethical rules on the exchange of information between companies. Moreover, independent observers have positions on the nuclear power companies' boards, with the specific duty of supervising the application of the industry's ethical rules. Ei nominates the observers and publishes reports each year from each of the companies, including any comments from the observers. One observer highlighted, in the 2012 report, that it was inappropriate for one person to be the chairman of the board of one nuclear power company and the deputy chair of the board of another at the same time. This person subsequently resigned from the post of deputy chair.

1.5 Security of supply – electricity

The Swedish electrical system's security of supply is generally good. Manual disconnection of consumption, which is the method that SvK is instructed by law to use if there is no other way of achieving balance between input and output in the electrical system, has never been needed.

1.5.1 Supervision of the electricity supply and demand balance

Additional operational wind turbines increased electricity production capacity

In Sweden, investments in new electricity production capacity are done on a market basis. Permission from Ei is not required prior to constructing a new electrical plant in Sweden; however, permission in accordance with both the Swedish Environmental Code and the Planning and Building Act is required.

At the end of 2013, the combined installed capacity of Sweden's power stations was 38,273 MW, which was an increase of slightly more than two per cent, 920 MW, over the figure from the previous year. All in all, 1034 MW of capacity was added, while 115 MW was lost over the course of the previous year.

Wind power constituted the majority of the added capacity, 725 MW. Wind-power increased by approximately 20 per cent from the previous year as a result of the addition of around 350 new wind turbines. By the end of 2013, there were some 2700 wind turbines in Sweden. The lost capacity was due to cut backs in hydroelectric plant effect corresponding to a reduction of 53 MW. Solar power capacity saw the largest percentage increase compared to last year, increasing by 79 per cent. However, the total solar power capacity still only constitutes 0.1 per cent of the total capacity.

Table 3 shows the installed capacity distributed by production technology. Of the total installed capacity, renewables constituted close to two thirds.

Table 3. Capacity of Sweden's power stations as of 31 December 2012, MW

	2011	2012	2013
Nuclear	9,363	9,363	9,531
Fossil	4,793	4,636	4,635
Renewables	22,307	23,354	24,107
- Hydro	16,197	16,203	16,150
- Biofuel	2,870	3,036	3,080
- Wind	2,899	3,745	4,470
- Waste	325	346	364
- Solar	16	24	43
Total	36,463	37,353	38,273

Source: Svensk Energi

Forecast for future electricity consumption and supply

In Sweden the Energy Agency is responsible for producing forecasts for future energy consumption and supply. The Government has tasked the Agency with

providing short-term forecasts twice per year for the development of the energy system, each with a three-year scope. Long-term forecasts are produced every other year, looking at the long-term development (10-25 years) of the energy system based on established instruments of control. The forecasts include energy provision and energy consumption within the transport, housing, service and industrial sectors in Sweden.

During the autumn of 2013, the Swedish Energy Agency issued a short-term forecast for the years 2013-2015⁴⁷. The forecast is that the supply of nuclear power will increase the most in absolute numbers and that wind power will have the highest percentage increase by 2015.

Regarding electricity consumption, the forecast is for industrial consumption to increase during 2014 and 2015, after a decline in the latest years. The reason for this is the economic growth. At the same time, measures are being taken in the industry to increase energy efficiency, which means that the electricity consumption is not expected to increase drastically.

Domestic electricity consumption in Sweden has increased over the past decades. However, the increase has died off in recent years. The short-term forecast is for domestic electricity consumption to be stable at around 21 TWh. Domestic electricity consumption is affected by two opposing trends. More energy-efficient appliances are created which should mean a reduction in energy consumption. On the other hand, the number of household appliances is increasing and many devices are being given additional functions, which counteracts the increased efficiency.

In the long term, the Swedish Energy Agency⁴⁸ forecasts an increase in electricity production. The increase will primarily happen through renewable energy sources as part of the electricity certificate system and through planned capacity increases in the nuclear sector. At the same time, electricity consumption is expected to see a fairly small increase. The long-term forecast is therefore that Sweden will in all scenarios see an increased net export of electricity over the years in the forecast.

1.5.2 Supervision of investments into electric production capacity regarding security of supply

Plans for extensive reinforcement of the Swedish transmission network

The Swedish transmission network is currently undergoing significant expansion. The network is reinforced to allow for new electricity production, to further integrate the market with the surrounding world and to contribute to the creation of a common European electricity market. At the same time, there is a significant requirement for reinvestment.

Currently, one of the biggest projects underway to increase capacity and security of supply in the Nordic energy system is the South West Link. The aim of this project is to reduce the existing congestion between the Mälaren Valley region and

⁴⁷ Kortsiktsprognos över energianvändningen och energitillförsel 2013-2015 Hösten 2013 ER 2013:15.

⁴⁸ Långsiktsprognos 2012 En konsekvensanalys av gällande styrmedel inom energi- och klimatområdet ER 2013:03

southern Sweden. The South West Link is being built in two part which join up near Jönköping. From the junction, one link heads south to Skåne, while the other heads north to Hallsberg. The entire South West Link is expected to be in operation 2015/2016.

Another large project is SvK's construction of NordBalt, which is a direct current connection between Sweden and Lithuania. The new connection is part of the project to connect the three Baltic states' electricity networks with that of the Nordic countries, and is also important for ensuring security of supply in the Baltic states. Today, one cable between Estonia and Finland is the only connection between the Baltic states and the Nordic countries. A completed cable is estimated to be ready in 2015/2016.

Aside from the South West Link and NordBalt, several other projects are ongoing in order to reinforce the electricity networks in the regions surrounding Sweden's major cities, as well as reinforcement of the intersections between bidding areas. New cables to nuclear power stations and connections to wind farms are also included in the plan. In addition, SvK is planning a transmission network connection between Gotland and the Swedish mainland.

1.5.3 Measures to cover demand peaks or deficits in available electricity

SvK is responsible for ensuring that capacity is available in reserve during the winter.^[1] The capacity reserve is created by SvK procuring and entering into contracts with electricity producers and consumers to place additional production capacity or the possibility of a reduction in the consumption at its disposal.

The Government has decided that the capacity reserve is to be successively phased out by 15 March 2020. The State's purchases of electricity production and consumption reductions on a competitive market via SvK are deemed to disrupt the functioning of the electricity market. The matter of maintaining capacity balance will as of 2020 instead be solved by the market actors.

To ensure that the phasing out is done in a controlled fashion, the Government has decided that the amount of procured reserves shall be reduced each year up to 2020. The capacity reserve was 1,719 MW during the winter of 2012/2013 and was reduced by 230 MW to 1,489 MW during the winter of 2013/2014. Legislation states that the capacity reserve shall consist of both production and consumption reduction. Activation of the product part of the capacity reserve is done by SvK while the owners of consumption reductions are free to trade their resources on Nord Pool Spot."

^[1] According to the Act (2003:436) on capacity reserve.

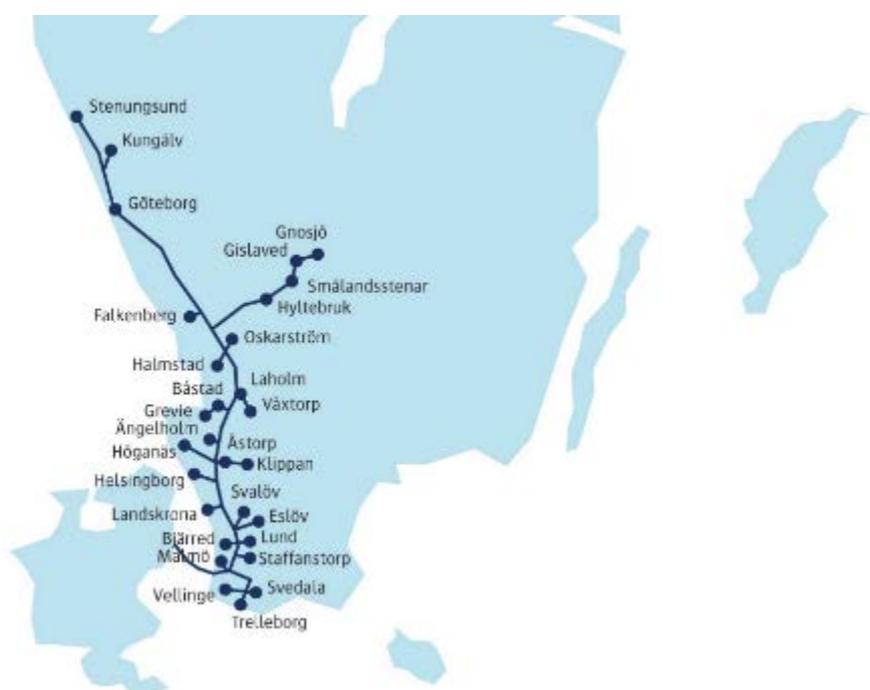


2.1 The gas network

The Swedish natural gas network consists of 620 km of transmission pipeline and 2720 km of distribution pipes. The natural gas network is divided into four operational areas: transmission, distribution, gasification and storage. In transmission pipes, the long transports take place under great pressure. A pressure reduction is then performed in metering and regulation stations before the local distribution network transports the gas to the consumers. The transmission network is owned by Swedegas.

The Swedish natural gas network stretches from Trelleborg in the south to Stenungsund in the north and also branches off into parts of Småland. Of Sweden's 290 municipalities, 30 or so have access to natural gas. Existing pipelines are shown in Figure 16.

Figure 16. The Swedish natural gas network



Source: The Swedish Gas Association (Energigas Sverige)

2.1.1 Functional unbundling of natural gas companies

With the aim of preventing cross-subsidisation, there is a requirement that natural gas companies are functionally unbundled. Operations must be kept separate for the purposes of accounting. This means that a company which transmits, stores or gasifies natural gas may not conduct trade in natural gas within the same subsidiary. Board members, Managing Directors or authorised signatories in a company that owns natural gas pipelines may not occupy any of these roles in a company that trades in natural gas. However, there is no Swedish legislation that forbids a gas network company from being part of a conglomerate that also conducts production of or trade in natural gas.

In cases where a natural gas company does not follow the legal framework set up in the Natural Gas Act (2005:403), Ei is able to order the company to take corrective measures in order to fulfil the Natural Gas Act. An order may be subject to a fine.

All companies involved in the transmission, storage or gasification of natural gas must produce a supervision plan in accordance with the Natural Gas Act. The companies must also publish an annual report which gives an account of the measures they have implemented according to the plan. The aim of the monitoring plan is to ensure that the companies act objectively and do not improperly favour any particular actors in the market. The monitoring plan must state the measures that will be taken to prevent discriminatory behaviour against other actors in the market.

Certification of transmission system operators

According to the gas market directive⁴⁹, transmission system operators must be certified. As part of the work towards certification, the European Commission⁵⁰ remarked on Ei's preliminary decision in advance of Ei making its final certification decision. The final decision to certify the privately owned company Swedegas AB as the transmission system operator for the Swedish national gas network was made by Ei in July 2012.

On 1 June 2013 the Government appointed Swedegas as responsible for balancing the natural gas transmission network. Before that, SvK has been responsible for this balancing. Ei also certified SvK as an independent transmission system operator in the Swedish natural gas transmission network in 2012.

Certification is valid indefinitely, but the decision can be overturned by Ei if the transmission system operator does not live up to the certification requirements.

2.1.2 The technical function of the natural gas network

Balancing of natural gas

On 1 June 2013 the Government appointed Swedegas AB as responsible for balancing the transmission network on the south and west coasts.⁵¹ This means that Swedegas handled the operation and maintenance of the system, as well as having responsibility for maintaining the short-term balance between input and outflow of natural gas from the national system.

In order to maintain the short-term balance in the natural gas system, Swedegas has contracts for balancing responsibility with natural gas companies. The balancing authority is financially responsible for ensuring that the end-users' consumption is equivalent to the supply. Balancing takes place daily. Because the transmission network acts as a storage facility, the tolerance level for short-term imbalance may be up to 25 per cent of consumption on a winter's day.

The party responsible for balancing the system may not enter into contracts for balancing responsibility with individual gas wholesalers before the methods that have been used to design the contract have been approved by Ei.

⁴⁹ According to Article 10 of the gas market directive.

⁵⁰ The European Commission checks that Member States only certify competent transmission system operators.

⁵¹ Up until 1 June 2013 SvK was responsible for balancing the network while Swedegas Ab was the transmission system operator.

Quality control of the natural gas network

The gas network companies are responsible for ensuring that the operation and maintenance of their facilities is secure, reliable and efficient so that they meet reasonable long-term requirements regarding transmission, storage and gasification of gas.

The Swedish transmission system primarily consists of steel pipelines. The system's functions are regularly checked, and defects or worn-out equipment replaced. The lifespan of the pipes is expected to be a minimum of 40 years, while certain pieces of equipment for monitoring, control and regulation are expected to last for 15-20 years.

Distribution pipes are primarily constructed of polyethylene. Steel pipes are used in certain cases for customers who require a gas pressure greater than four bar. Guidelines for the execution, operation, care, maintenance, etc., of distribution networks for a maximum operating pressure of four bar are harmonised in the energy gas standards that have been worked out by the trade association that is the Swedish Gas Association.

Connecting to a natural gas pipeline

The owner of a natural gas pipeline is obliged to connect other natural gas pipelines, storage facilities and gasification facilities to it on reasonable terms. When requested to make a connection, the owner of the pipeline shall submit written information regarding the fee and other terms of the connection within a reasonable time frame of the request. This responsibility does not apply if the facility lacks the necessary capacity.

Connection to a storage facility or gasification facility

The owner of a facility or pipeline for storage of natural gas or a gasification facility connected to the Swedish natural gas system must accept, on reasonable terms, natural gas owned by another party for storage or gasification. When requested to accept gas input, the owner of the storage or gasification facility shall provide written information regarding the fee and other terms of the connection within reasonable time of the request. This responsibility does not apply if the facility lacks the necessary capacity.

Reviewing terms for connecting to a natural gas facility

The methods for designing agreements for connections to various types of natural gas facilities are approved by Ei before being put into use. The terms specified in the connection agreements must also be approved before they are implemented by the owners of the natural gas facilities.

Supervision of safety measures

Currently supervision is only carried out for the natural gas network that is connected to the Danish natural gas system, known as the West Coast Gas Network. It has been suggested that other gas networks should also be regulated by Ei. The earliest possible date for this would be as of 2015.

2.1.3 Network charges for connection and transmission of natural gas

Review of gas network charges

Ei supervises the gas network companies and must approve the methods these companies use to calculate their network charges. In the formulation of the charges for transmission or natural gas, specific consideration will be given to the number of customers that are connected, the geographical position of the customers, the quantity of energy transmitted, the contractual costs of overlying pipes, security of supply and the pressure in the pipes.

In 2012, a change came in to force as a result of the gas market directive⁵². The change meant that method approval in accordance with the Natural Gas Act shall also include tariffs for access to gasification facilities. Access tariffs are not applicable prior to approval of the methods used to calculate the tariffs by Ei.

Ei's regulation of the methods that form the basis of the calculation of charges aims to ensure that they are objective and non-discriminatory in accordance with the requirements of the Natural Gas Act. Ei's regulatory decisions may be appealed within three weeks by the party the decision concerns. Review also takes place in the administrative courts.

The Swedish Parliament has adopted the government's bill⁵³ on changes to the Natural Gas Act in order to facilitate the prospective regulation of natural gas tariffs in Sweden. The new provisions entered into force on 1 June 2013. This means that natural gas companies in 2014 must request a revenue framework for an initial four-year period between 2015 and 2018. Ei will decide on the revenue framework no later than two months before it begins to apply, i.e. no later than 31 October 2014. Until 2015, the fairness of network charges are assessed retrospectively.

The gas network companies are obliged, according to the Natural Gas Act, to draw up, in the form of an annual report, separate financial accounts for their transmission, distribution, storage and gasification activities. The annual report⁵⁴ must have reached Ei within seven months of the end of the financial year. This forms the basis of further supervision.

Preventative cross-subsidisation

The supervision of natural gas companies' tariffs includes companies who are connected to the Swedish natural gas system in accordance with the provisions of the Natural Gas Act (2005:403). The supervision is done retrospectively and carried out using information from the submitted annual reports, supplemented by information regarding acquisition of the companies' facility assets. To determine whether tariffs and charges used by gas network companies are reasonable, an assessment is made of the companies' revenues in relation to an estimated approved revenue in accordance with the Ei model.

⁵² Article 41.6 a.

⁵³ Government bill 2012/13:85.

⁵⁴ The annual report shall contain comprehensive financial results and balance sheet for each of the reporting units.

Regulated access to storage and gasification facilities

Parties who own storage facilities or have the capacity to store natural gas in pipelines is obliged to store natural gas on behalf of another party on reasonable terms. Parties who own gasification facilities are likewise obliged to feed natural gas into natural gas pipelines. These obligations are void if the facilities or pipelines lack the required capacity.

2.1.4 Transnational matters in the electricity market

Ei participates in transnational cooperation as part of several bodies. Despite there being no formal cooperation with the other Nordic regulators with regard to the gas sector, continual discussions are ongoing with the Danish regulator about how the common market can be developed and in what way the security of supply can be improved. Moreover, Ei cooperates with European regulators in Germany, the Netherlands, Belgium, Luxembourg, France, the United Kingdom and Ireland.

The cooperation aims to facilitate swift application of European legislation. Via the cooperative body ACER, Ei has contributed to producing guidelines for drawing up European regulations for the internal market for natural gas and has submitted comments on network codes to ENTSO-G.

2.1.5 Adherence to the natural gas legislation

Ei is the regulator according to the Natural Gas Act⁵⁵. The Act⁵⁶ states that the regulator ensures that the regulations in the Natural Gas Act are observed. Ei also ensures that the regulation⁵⁷ on conditions for access to the natural gas transmission networks is followed. Ei is directed by the government to fulfil the duties within its area as per the EU's gas market directive.

According to the gas market directive⁵⁸, the regulator will follow and implement the legally binding and relevant decisions made by ACER and the European Commission. No specific legislation is required in order for this to apply in Sweden because the provision has an advisory character. There is a requirement that it is clear in other regulations – such as EU regulations – as to which decisions are binding and relevant. To make it possible for Ei to follow the Commission's decisions, provisions have been introduced into the Natural Gas Act⁵⁹ and in the Act on the certification of certain natural gas companies⁶⁰. These provisions mean that in decisions which are affected by such guidelines as are referred to in Article 43, Ei must specify that the decision may be altered or annulled at the request of the European Commission.

Ei may, according to the Natural Gas Act⁶¹, issue such enforcement orders as are required in order to ensure compliance with the regulations and provisions that are covered by its role as regulator. Such an order may be associated with a fine. There is nothing to prevent such fines from amounting to up to ten per cent of a

⁵⁵ Chapter 1, Section 9.

⁵⁶ Chapter 10, Section 1, fourth paragraph.

⁵⁷ (EC) No 715/2009.

⁵⁸ Article 41.1 d.

⁵⁹ Chapter 10, Section 1 a.

⁶⁰ 2011:711 Chapter 3, Section 4 § and Chapter 4, Section 3.

⁶¹ Chapter 10, Section 3.

company's turnover. The law⁶² also stipulates that the regulator is entitled, upon request, to obtain such information and access such documents as are necessary to undertake its regulatory role. The regulator may also issue such enforcement orders as are required in order to ensure compliance with the regulations that are within the scope of its regulatory role.

⁶² Chapter 10, Section 2.

2.2 Gas supply

Natural gas covers approximately 2 per cent of Sweden's total energy needs and is in other words a minor energy source. In the municipalities that are supplied with natural gas, however, it accounts for about 20 per cent of the total energy consumption; this is in line with the average across the rest of Europe.

2.2.1 Monitoring of price trends, transparency and market competition

Continued reduction in natural gas consumption

Sweden does not produce any natural gas of its own; instead all natural gas is imported from Denmark. In 2013, 12.3 TWh of natural gas was used in Sweden (see Table 4), a reduction of five per cent from the previous year. The reduction was due to increased use of forms of energy other than natural gas.

Sweden has a growing production of biogas. Between one and two per cent of the natural gas that is distributed in the Swedish natural gas system consists of domestically produced biogas. The total biogas production as well as the total amount of biogas that is fed into the natural gas network is continuously increasing and there is a long-term political ambition to completely replace natural gas with biogas.

There is capacity for annually transporting around 22 TWh of natural gas in the existing transmission pipeline between Malmö and Göteborg. By increasing the working pressure, with the help of compressors, the capacity can be increased to about 30 TWh.

Table 4. The development of natural gas transmission⁶³

	Total consumption (TWh)	Production	Import capacity (TWh) total
2006	11.1	0	15
2007	11.8	0	15
2008	10.3	0	15
2009	13.9	0	15
2010	18.7	0	22
2011	15.0	0	22
2012	12.9	0	22
2013	12.3	0	22

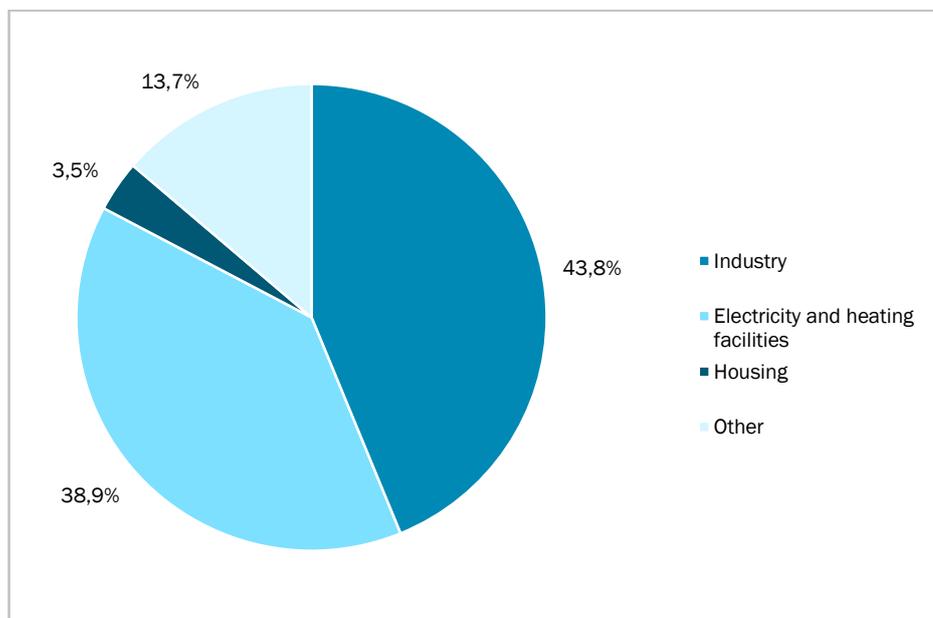
Source: SvK and Swedegas

In Sweden, industry is the largest consumer of natural gas, see Figure 17. It constitutes almost 44 per cent of the total consumption, corresponding to 5.4 TWh per year. Combined power and heating plants and district heating plants use 4.8 TWh, corresponding to 39 per cent of natural gas usage. Only 0.4 TWh, corresponding to 3.5 per cent of natural gas, is used for domestic heating. The remaining consumption, 1.7 TWh, is categorised as other business use.

⁶³ Consumption is expressed in gross calorific value. The net calorific value is about ten per cent lower.

Natural gas which is used in heating plants is the only consumption category that has increased between 2012 and 2013. The category increased by two per cent. All other categories saw a reduction. Domestic natural gas consumption was the category with the biggest reduction. In total, consumption was down 26 per cent compared to the previous year.

Figure 17. Natural gas consumption by consumer category



Source: SCB

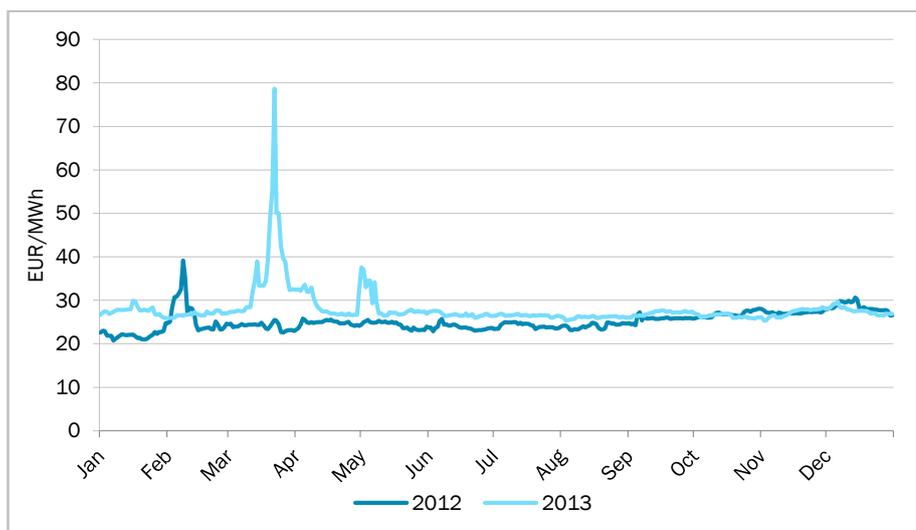
Trade in natural gas

Trade in natural gas from Denmark takes place on Gaspoint Nordic⁶⁴. Gaspoint Nordic organises the physical trade of natural gas. The exchange is wholly owned by the Danish transmission system operator Energinet.dk and is a marketplace for producers, natural gas suppliers, energy companies and larger consumers. Natural gas suppliers may trade on the exchange themselves or use agents. The gas exchange had over 20 members in 2013.

The price on Gaspoint Nordic is set based on supply and demand for natural gas in Denmark which, in turn, affects the conditions for import and extraction of gas, as well as the price of substitute fuels. The daily price on Gaspoint Nordic is set based on a weighted average of the day's trading. The development of the price on the gas exchange is shown in Figure 18.

⁶⁴ Nord Pool Gas up until July 2013.

Figure 18. Price development in 2013 on the gas exchange⁶⁵, daily average EUR/MWh



Source: Gaspoint Nordic

In 2013 the gas trade price was on average 11 per cent higher than during the previous year. At the end of March the price hit EUR 78 per MWh as a result of high demand due to the cold weather combined with production disruptions in the North Sea.

⁶⁵ Closing prices for the following day.

2.3 The Retail Market for Natural Gas

The final step in exposing the natural gas retail market to competition was taken in July 2007. Since then all natural gas consumers have been free to choose their natural gas supplier.

In Sweden, there are about 38,000 natural gas consumers, of which around 33,000 are domestic customers and the rest are business customers.

The final step in exposing the natural gas retail market to competition was taken in July 2007. Since

2.3.1 Monitoring of price trends, transparency and market competition

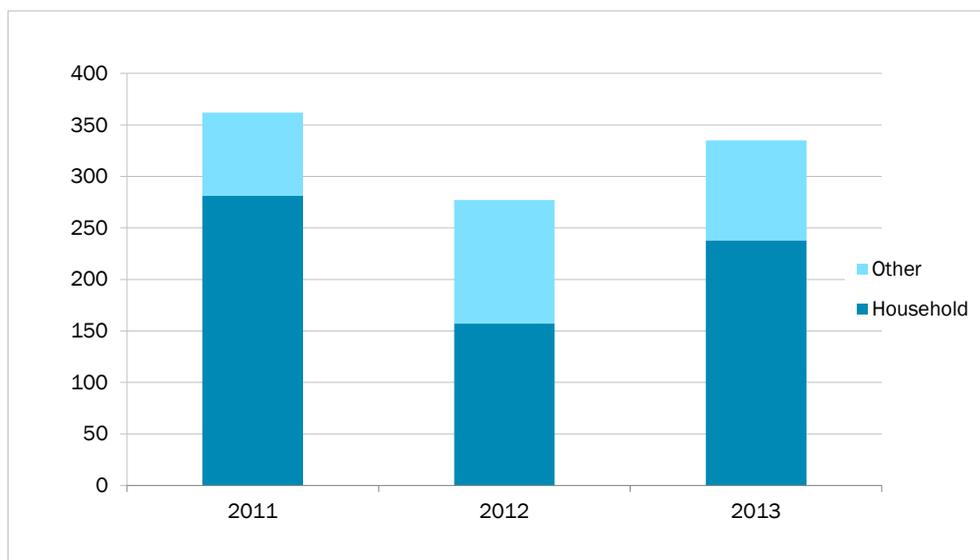
Actors on the natural gas market

There are eight actors⁶⁶ on the Swedish retail market for natural gas. Six of these actors offer gas trade contracts for domestic customers.⁶⁷

Consumer activity on the natural gas market

In 2013 there were 335 supplier switches made on the Swedish natural gas market, 97 of which were made by companies. This corresponds to a total switching frequency of 0.89 per cent. Over the last three years, the annual number of switches has ranged from 250 to 370, see Figure 20.

Figure 19. Number of switches of natural gas suppliers per year



Source: SCB

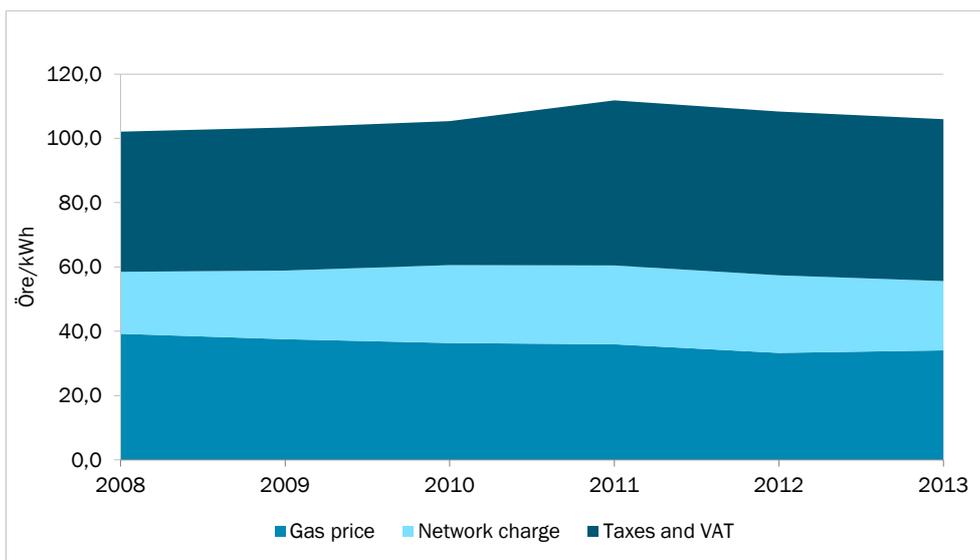
The majority of the natural gas cost is taxes and VAT

The customers' total cost for gas has changed little since the deregulation in 2007. The reason for this is that the gas trade price has been relatively stable at right below 40 öre per kWh. The other items in the total gas price have also developed similarly over the past few years.

⁶⁶ ApportGas AB, DONG Energy AB, Göteborg Energi AB, Kraftringen Försäljning AB, Lunds Energikoncernen AB, Modity Energy Trading AB, Öresundskraft Företagsmarknad AB, Öresundskraft Marknad AB, E.ON Försäljning Sverige AB, E.ON Gashandel Sverige AB

⁶⁷ More information about the offered contracts can be found at gaspriskollen.se which is run by the Swedish Consumer Energy Markets Bureau (KE).

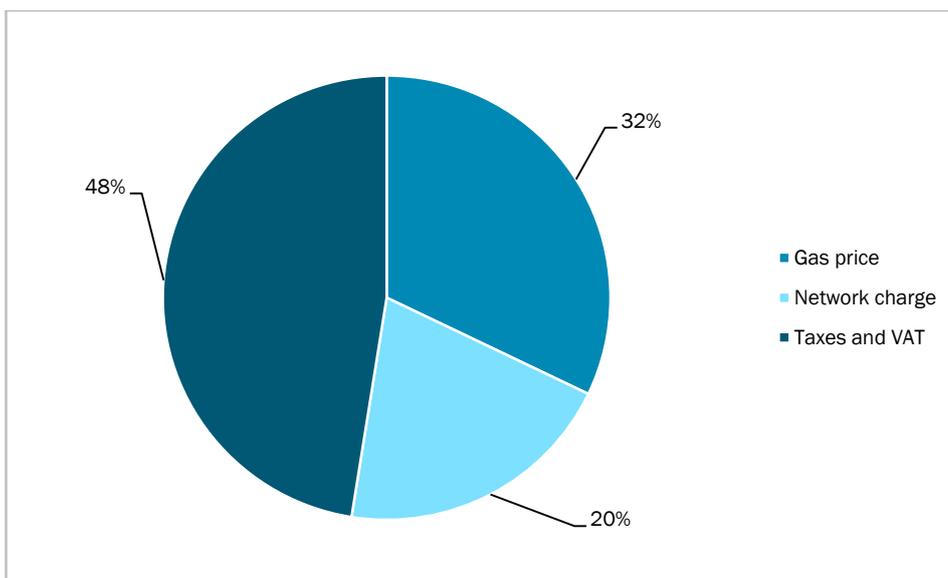
Figure 20. Change in the various expense items for a household with gas heating, in real terms



Source: SCB

The single biggest expense item in the domestic consumer' total gas cost is tax and VAT, see Figure 22.

Figure 21. Share of total gas cost



Source: SCB

2.4 Recommendations for natural gas prices, investigations and measures for promoting effective competition

Ei cooperates with other government agencies in supervising the natural gas market in order to create a functioning natural gas market.

2.4.1 Ei supervises the natural gas market

Ei continually monitors the function of the natural gas market as a result of its regulatory role as stipulated by the Natural Gas Act. Ei is directed by the Government with the duty to monitor and analyse the development of the natural gas market and submit proposals for changes in regulations or other measures to improve the function of the market. Ei is also charged with the role of working to promote effective competition in the natural gas market.

The Swedish Competition Authority's (KKV) general supervision and inspection duties on the natural gas market correspond with those it has on the electricity market, see point 2.4.

2.4.2 Potentially increased competition on the natural gas market as a result of new LNG terminals

One problem faced by the Swedish market has been a lack of alternatives for natural gas supply. At the end of the summer, Sweden's second terminal for liquefied natural gas (LNG) is opened. Skangass and the Preem oil company are building the terminal in Lysekil. The terminal has a capacity of 30,000 cubic metres of liquefied natural gas. Work also recently began on another LNG terminal in Göteborg, see chapter 3.5.2.

2.5 Security of supply - natural gas

Even if security of supply has historically been high, the Swedish natural gas market can be vulnerable both in the short and long term. The single point of supply combined with the fact that Sweden does not have natural gas production of its own makes the Swedish natural gas market sensitive to external disruptions in the short term. In the longer term, gas deliveries from Denmark decrease as the supply of gas in Danish gas fields decreases.

2.5.1 Supervision of the balance between natural gas supply and demand

The Swedish Energy Agency is the regulator in accordance with the Act⁶⁸ on security of natural gas supply. In accordance with the requirements of the regulation on the security of natural gas supply⁶⁹, a national preventative action plan and a national emergency plan for securing the supply of natural gas were published in 2012.

The supply regulation stipulates that the emergency plan of each Member State must be built on three crisis levels: early warning, alert and emergency. The responsible parties must adopt measures at each of the three levels to mitigate the effects of the situation that has occurred. These measures are divided into market-based and non-market-based measures, with non-market-based measures only being used once market-based mechanisms are no longer able to secure the supply to protected customers and the crisis level 'emergency' has been declared.

2.5.2 Expectations regarding future demand and delivery and added capacity for natural gas

A number of projects regarding extraction and production of renewable gas are being carried out in connection with the Swedish natural gas system. Consumption of natural gas is expected to increase in the coming decade. The main increase is expected to occur via increased demand for gas for both commercial and private transports.

A gasification facility for biofuel is planned for Gothenburg, which is expected to be capable of producing about 100 MW of gas of a quality that is equivalent to natural gas. In the first stage, the planned production capacity is 20 MW. The first stage is expected to be completed in the first quarter of 2014. There are currently no decisions regarding investment into further expansion.

A liquefied natural gas (LNG) terminal is currently being constructed in the Port of Gothenburg.⁷⁰ The first stage is primarily intended to provide LNG for transport, for example, as fuel for boats and vehicles. The second stage will include an LNG regasification plant, which will feed natural gas into the natural gas system. The plant is expected to be finished in 2016. The connection to the natural gas system is mainly done from a security of supply perspective.

⁶⁸ Act (2012:273).

⁶⁹ (EU) No 994/2010.

⁷⁰ The work is a collaboration between Swedegas AB, Göteborgs Hamn AB and the Dutch company Vopak LNG Holding B.V.

2.5.3 Measures to cover peaks in demand or deficits in natural gas

Peaks in consumption and insufficient deliveries are managed by means of the balancing authority using the balancing space that is provided by pressure variations in the transmission system (line pack). If additional measures are required, Swedegas uses market mechanisms to manage imbalances for as long as possible. The Swedish Energy Agency may also order network owners to limit or cut off supplies of natural gas to their customers. If this is done, supply to consumers will be safeguarded.

Execution of safety measures

The owners of natural gas pipelines, storage facilities or gasification facilities must adopt whatever measures are required, in terms of planning or otherwise, in order to ensure the operation and security of their own facilities in the event of an emergency situation.⁷¹ The measures will encompass the management of emergency situations, information management in such situations and regular assessments of vulnerability and threat level. The owners must draw up an emergency management plan, and ensure that the plan is distributed throughout their organisation and followed. The owners must also inform the transmission system operator and other stakeholders of their plans.

⁷¹ The regulations are set out in the Swedish Energy Agency's Regulations and General Advice on Company Planning and on the Obligation to Submit Information about Natural Gas Supply, STEMFS 2012:4.



3.1 Consumer protection

As a consequence of the European Union's third energy package for the internal market for electricity and gas, a number of consumer provisions were implemented in the Electricity Act and Natural Gas Act in 2011. As the regulator, Ei is tasked with cooperating with other relevant government agencies to ensure that consumer protection measures are effective and implemented.

Ei shall also inform the consumer in matters regarding switching electricity and natural gas suppliers, what the cost is for connecting to a network and how the consumer can report their supplier or network company.

Ei's supervision of consumer regulations

In 2013 Ei's supervision in accordance with the consumer provisions of the Electricity and Natural Gas Acts included companies' responsibilities for informing individual consumers of the information included in the contract before a contract is signed or confirmed. In addition, the review looked at whether the electricity and gas suppliers, on their websites and bills, provided or directed the customer to information on consumer rights, on how to submit a complaint and where to turn for information and dispute resolution. The supervision also included the electricity and gas suppliers' responsibility for establishing procedures for handling complaints. A few shortcomings were highlighted among the inspected companies in both the electricity and natural gas markets. All shortcomings that were noted as the result of inspection measures were addressed by the companies.

The consumer's rights regarding meter values

Consumers on the Swedish electricity market are guaranteed access to their consumption data as the network companies are obliged to report meter values to the consumer no later than the time of billing. This obligation also covers information about the meter reading at the end of each month (if the billing period is longer than one month), annual consumption and annual consumption in kWh for the last thirteen months. The electricity network companies are obliged to provide consumers with this information in an easily understandable format, and the information will usually be provided to the customer on their bill or once they have logged into their account on the electricity network company's website. In 2013, Ei continued its supervision of these provisions and it turned out that several smaller electricity network companies did not fulfil their obligations with regard to these provisions. However, after Ei's inspection all companies have addressed the highlighted shortcomings.

The right to meter values also applies to consumers who produce their own electricity. Electricity network companies are obliged to meter both input and output electricity and must report all meter values to consumers who produce their own electricity after the end of the delivery month and no later than the time of billing. Ei has also received questions from consumers who produce their own electricity. They wondered why meter values for input and output are not provided by the electricity supplier, as it is to them that the consumers often sell the excess electricity that is fed to the network. However, Swedish legislation states that the electricity network companies are the ones who are obliged to report this information to the consumer. Whether or not the consumers who produce electricity shall receive meter values from their electricity supplier as well is a matter that should be settled in the contract between the supplier and consumer.

Reports to Ei

If an electricity or gas company does not follow the regulations in the Electricity Act or Natural Gas Act, consumers can report them to Ei. As the regulator, Ei can investigate whether the company is in breach of their legal obligations.

Table 5. Consumer reports to Ei

	Number of reports
2012	17
2013	30

Source: Ei

In 2013 Ei received a total of 30 reports. 25 of the reports concerned the electricity network companies' responsibilities in accordance with the Electricity Act while 5 reports concerned the electricity suppliers' responsibilities in accordance with the same Act.

Changes to the Natural Gas Act benefit the consumer

On 1 June 2013 the Natural Gas Act was amended, meaning that as of 2015 Ei must regulate in advance the total revenues that natural gas companies gain from their customers. The amendment is intended to ensure that the charges faced by consumers on the gas market are reasonable. The regulation also contributes to increasing the security of supply in the gas networks. This amendment means that the gas network companies are regulated in a manner similar to that of the electricity network companies, which is also in line with European directives regarding regulation of monopolies.

Assistance for vulnerable customers

The definition of vulnerable customers is set out in Ei's charter, which says "*vulnerable customers are persons who, in the foreseeable future, lack the ability to pay for the electricity or natural gas which is transmitted or delivered to them for purposes which fall outside of the scope of business activities*". 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 electricity and natural gas supplies. Ei has previously noted that around 20,000 consumers are included in the Swedish definition of the term.

There are also provisions in both the Electricity Act and the Natural Gas Act that protect consumers who are at risk of being disconnected from the electricity or natural gas networks as a result of unpaid bills or other significant breaches of contract. This means that consumers can be disconnected from the electricity or gas networks in the case of a significant breach of contract, but that the company who undertakes the disconnections must first follow a certain procedure that is set out in law. This includes, for example, the consumer's right to accurate information from the company, the opportunity for the consumer to rectify the situation without being disconnected, and also that the company must notify the social services in the municipality where the consumer lives a certain time in advance of the disconnection taking place.

The Swedish Consumer Energy Markets Bureau as the national contact point

In 2013, Ei has also continued its work as one of the agencies responsible for the Swedish Consumer Energy Markets Bureau (Konsumenternas Energimarknadsbyrå, KE). KE is an independent bureau that provides information and guidance to consumers on issues relating to electricity, gas and district heating. Consumers can receive guidance free of charge. There is an existing agreement between Ei and KE which states that KE is the national contact point for the electricity and gas market. This fulfils the requirement of the EU's electricity and gas market directives.

In 2013 KE launched an independent gas price comparison website where Sweden's gas consumers can compare gas supply contracts. The aim of this launch is to make gas consumers more active in the market and to make them aware that there is money to be saved by switching gas suppliers.

In 2013, around 40,000 consumers visited the website and KE had direct contact with around 1,900 consumers by telephone or e-mail. This was a decrease in direct contacts compared to the previous year while the website had about as many visitors as in 2012. Roughly half of KE's direct contacts with consumers related to questions about the energy markets, for example choice of contracts, while the other half of the consumer contacts related to complaints about companies. The majority of the complaints were about the electricity market and were aimed both at electricity suppliers and companies in the electricity market that broker switches and contracts. The number of brokering companies on the electricity market increased compared to the previous year, which may have contributed to the number of complaints regarding these companies increasing in 2013.

The complaints received by KE in 2013 regarding electricity supply concerned, among other things, unclear or unreasonable price and contract terms or problems relating to or arising from cold call sales techniques. Consumers have felt misled by the information they receive from salespersons and KE also notes that rules regarding price information and complaints have not always been adhered to by the electricity suppliers. Complaints regarding brokering companies have been about consumers not understanding that they are switching suppliers, thinking instead that they were simply given a suggested contract presented to them. In some cases the brokered contracts have also included unexpected or non-standard terms which have not been explained beforehand to the consumers. In 2013 KE contributed to ensuring that complaints were quickly brought to the companies' attentions so that they could then be resolved in a proper and customer-friendly way.

KE also noted that the number of complaints concerning bills and electricity consumption decreased in 2013.

The few complaints and questions that related to district heating and the gas market were about price information, billing, consumption and contract issues.

Other consumer advice

Among the other agencies that have a responsibility to electricity and gas consumers, the Swedish Consumer Agency (Konsumentverket, KO) is worth highlighting. KO investigates, for example, whether companies have used

misleading or aggressive marketing or unfair contractual terms, or provided insufficient price information. KO is has also, with the gas industry as the opposite party, negotiated new general terms and agreements which began to apply in 2013.

For advice on various issues, electricity and gas consumers also have the opportunity to turn to the municipality in which they live. There are consumer advisers who offer advice, among other services, before signing a contract and guidance on disputes. Budget and debt advisers can offer advice and support in the event of payment problems, while energy and climate advisers can offer analysis of energy consumption and advice when choosing a new source of heating.

3.2 Dispute resolution

The electricity and gas suppliers must provide clear information on consumer rights, on how to submit a complaint and where to turn for information and dispute settlement.

For information and guidance, the consumers can contact the Swedish Consumer Energy Markets Bureau or a municipal consumer advisor.

Disputes that are managed by Ei

Ei checks that the companies in the electricity and natural gas markets abide by the law and, in certain cases, can also settle disputes between consumers and companies. This concerns, for example, complaints relating to the cost of metering of the consumer's electricity consumption, as well as the charges and terms affecting the consumer in conjunction with their connection to the electricity network.

As stipulated in the Electricity Act, the connection charge must be fair, but if the consumer considers the cost to be too high, they may refer this to Ei for investigation. If Ei concludes that the connection charge is too high, the electricity network company must refund the difference to the consumer. Ei's decision on the fairness of the connection charge may be appealed, and it is the courts who ultimately determine what applies. Requests for Ei to investigate and appeals of Ei decisions are free of charge.

Assistance with settling disputes from the National Board for Consumer Disputes

Electricity and natural gas consumers may report disputes with companies to the National Board for Consumer Disputes (Allmänna reklamationsnämnden, ARN). This is a fast and simple, yet still legally secure, alternative to using the courts. ARN is a public authority which adjudicates in disputes between customers and companies in the electricity and gas market, for example. ARN will not perform its own investigation, relying instead on the parties involved to submit and present background information for it to consider. When passing judgment in a dispute, ARN will base its decision on the applicable law and legal precedent. ARN's decision includes a proposal for how the dispute should be settled. In order for a consumer to report a dispute to ARN, the company must have rejected the consumer's claim. In addition, the complaint must be made within six months of

the day the company rejected the consumer's claim, and the consumer's claim must have a value exceeding SEK 2,000.

ARN will process the matter within five to six months of when the complaint was received. The consumer may also turn to the public courts in order to resolve a dispute with an electricity or natural gas company.

