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1. Foreword

This is a document prepared by the Energy Market Authority to report to the European Commission on the state of the Finnish electricity and natural gas markets as required by the Electricity Directive (2003/54/EC) and the Natural Gas Directive (2003/55/EC). It is the fourth report in line after the entry into force of the above-mentioned directives. The document contains a description of the powers and tasks of the regulatory authority, an overview of the regulation and performance of electricity and natural gas sectors and an update of security of supply with regard to both gas and electricity. The Finnish Competition Authority has provided the information on the measures to avoid abuses of dominance as required by the Directives.

In 2007 the price of electricity and emissions trading were again frequently in the Finnish headlines. Due to abundant hydro power and cheap emission rights in 2007, the average day-ahead area price for Finland in 2007 was 30.01 Euros per MWh compared with 48.57 Euros in 2006. The share of electricity bought from the power exchange in relation to the Finnish electricity consumption amounted to 45.8 per cent.

The annual increase in the public retail prices of electric energy was 4.9 per cent. During the first half of the year, the prices fell by 3.3 per cent, but rose sharply towards the end of the year, as retailers were waiting for the Kyoto period to start.

The level of supplier switching activity in Finland has remained relatively low compared with other countries who like Finland have been forerunners in retail market opening. In 2007 the switching rate amounted to roughly 4 per cent. To improve the possibility of household customers to compare electricity retail prices and choose their supplier the Energy Market Authority has provided since February 2006 an Internet-based tariff calculator. It has been popular and so far approximately 3.2 million searches have been made using the IT system.

The balance between demand and supply of electricity during the peak hour has been deteriorating due to modest but stable increase in electricity consumption combined with the low level of generation investment activity. The generation capacity is expected to grow significantly only after the new Olkiluoto nuclear power plant unit has been completed, which is foreseen in summer 2011. Despite that Finland will remain dependent on imports during the peak load situations. The peak hourly demand was reached on the 8th of February 2007 when consumption in Finland totalled 14,808 MW. That is a record peak load so far. The domestic generation capacity and electricity imports from the other Nordic countries and Russia were sufficient to cover consumption.

The development in the electricity network business and regulation was stable in 2007. The Energy Market Authority continued to regulate electricity networks in an established manner based on ex ante regulatory regime, which was introduced at the beginning of 2005. The first three-year regulatory period came to an end at the end of 2007 and the Authority issued new guidelines and decisions containing network pricing principles for the second regulatory period (2008 – 2011). The major changes to the present methodology have been the introduction of firm-specific efficiency targets and the inclusion of quality of supply in the regulatory model.

To further improve the Nordic electricity market integration the Nordic ministries, TSOs, regulators and other relevant authorities and stakeholders continued their co-operation and efforts. The focus with regard to the further development of the Nordic wholesale market has been on the harmonized Nordic balancing mechanism, improved congestion management, joint planning of transmission network investments and certain aspects of market oversight and TSO regulation. The Nordic market has also been a forerunner in working for the development and integration of the end-user electricity market. A proposition for a harmonized supplier switching model was presented by the Nordic energy regulators and active work has continued to find solutions and prepare proposals for the harmonization of the Nordic end-user markets.

Furthermore, active work to integrate the Nordic market with the continental one was carried out within the framework of ERGEG Northern Electricity Regional Initiative, which concentrated at this stage on transparency issues, preparation of day-ahead market coupling between Denmark and Germany and the use of old merchant lines between the Nordel area and the continent.

Unlike the electricity market the Finnish natural gas market is less liberalised and competitive. All the natural gas needed is imported from Russia and there are no transmission connections to other EU countries. Finland has derogation from the Natural Gas Directive that allows it not to open its natural gas market. However, a secondary gas market has been introduced. In the secondary market the users of natural gas trade with each other in the natural gas they have acquired for their own use from the wholesale market. The development of the natural gas sector will be significantly affected by the realisation or non-realisation of certain projects which include the construction of a pipeline branch in the western Finland and a connection to the Baltic States.

The specificity of the Finnish energy regulator is the responsibilities related to emissions trading. As the Finnish emissions trading authority, the Energy Market Authority carried out preparations for the five-year Kyoto period, launched at the beginning of 2008 involving the handling of the emission permits of nearly 600 Finnish operators as well as the development and maintenance of the emissions trading registry.

Asta Sihvonon-Punkka
Director General
Energy Market Authority

2. Major Developments in the last year

2.1 The Regulatory Authority

2.1.1 Organization and legal basis of the regulatory authority

The Energy Market Authority is the regulatory agency for electricity and natural gas. Furthermore, it acts as the emissions trade authority in Finland. The Authority is a monocratic office, which means that it is directed by the head of agency. The Authority's director general, which is the head of the agency, is responsible for the decisions of the authority.

The legal basis for the Energy Market Authority lies within the Act (No. 507/2000) and Decree (No. 621/2000) on Energy Market Authority as well as in the Electricity Market Act (No. 386/1995), the Natural Gas Market Act (No. 508/2000) and the Emissions Trade Act (No. 683/2004).

As per July 2008, the total number of staff in Energy Market Authority amounted to 33. Of this number, 12 were occupied with the electricity market issues, 4 with natural gas market issues and 10 with emissions trading issues. The remaining staff members were involved in all of these three areas providing assistance for IT, general administration and secretarial services. The total expenses for 2007 were 3.1 million Euros of which 1.1 million Euros were used for the activities related to emissions trade.

2.1.2 Main tasks, statutory objectives, legal powers and appeal process

The mission of the Energy Market Authority is to oversee and promote the operation of the electricity and natural gas markets and to create a framework for emissions trading.

As regards the electricity market, the Energy Market Authority shall

- regulate the pricing and conditions of electricity transmission and distribution;
- grant licences for electrical power networks and construction of power lines;
- supervise the obligation to develop the electrical power network;
- monitor the security of electricity supply;
- supervise the guarantee of origin system for electricity; and
- gather and publish data on prices of network services and electrical energy
- oversee the Reserve Power Act

In the field of natural gas market, the Energy Market Authority shall

- regulate the pricing and conditions of natural gas transmission and distribution;
- grant licences for operation of natural gas networks;
- monitor the security of natural gas supply; and
- gather and publish data on prices of network services and natural gas

The tasks of the Energy Market Authority as emissions trade authority include

- issuing and supervising emissions licences;
- maintaining and developing the national emissions trading register; and
- approving the verifiers for emissions trading

The Energy Market Authority is mandated to issue both administrative decisions and administrative regulations. The administrative decisions are binding on individual entrepreneurs (network operators, retail sellers, operators covered by the emissions trade legislation). On the basis of the general administrative legislation the Energy Market Authority shall give justification for its decisions. The decisions are subject to appeal the first appellate level being either the Market Court (market supervision issues) or the Administrative Courts (licence issues). The final appeal body in both cases is the Supreme Administrative Court.

On the basis of the Electricity Market Act and the Natural Gas Market Act the Energy Market Authority is empowered to issue administrative regulations on certain clearly defined issues. The administrative regulations are binding on all the entrepreneurs who are active in the defined operation (for instance electricity distribution network operators, natural gas distribution network operators, electricity retail supplier who have the obligation to supply). The administrative regulations are not subject to appeal.

The administrative regulations cover the following issues:

- a regulation instructing the network operators on how and when to submit unbundled accounts information to the Energy Market Authority (natural gas);
- a regulation on the basis of the Authority can issue more detailed instructions on what information and which key figures the network operator has to publish and how the publication shall be carried out (electricity and natural gas);
- a regulation on the publication of technical key figures of the network operation (electricity and natural gas);
- a regulation on the itemization of bills (electricity and natural gas);
- a regulation instructing the retail suppliers on how to publish and inform prices as well as sales terms and conditions (electricity and natural gas); and
- a regulation instructing the network operators on how to publish and inform prices as well as sales terms and conditions (electricity and natural gas)

2.1.3 Independence and accountability

The agency head – director general – is appointed for an undefined period of time by the Council of State. The Energy Market Authority is in the Ministry of Employment and the Economy's field of administration and the appointment is made on the proposition of the Minister of the Economy. The head of the Authority cannot be dismissed for political reasons.

The Energy Market Authority is overseen by the Ministry of Employment and the Economy and especially by its Energy Department according to the standard principles applied in the Finnish public administration. This means agreeing on an annual basis of the objectives and results of the work of the Authority and checking the achievements bi-annually. The Authority has to present an annual report of its activities for information to the ministry.

On the other hand, the ministry cannot interfere or influence the decisions by the Authority, as they can only be appealed to the Market Court, Administrative Courts and finally to the Supreme Administrative Court. This guarantees the independence in decision-making.

The Energy Market Authority's operating expenses are financed mainly with supervision and license fees collected from electricity and natural gas network operators and the actors falling within the scope of emissions trading.

2.1.4 Overlapping jurisdictions

The Energy Market Authority has partly overlapping jurisdiction with the Finnish Competition Authority. On the basis of the Act on Competition Restrictions the Finnish Competition Authority has the general supervision mandate over all sectors of the economy including electricity and natural gas markets.

As a general rule, the Energy Market Authority does not have any powers regarding the competitive parts of the electricity and natural gas markets the exceptions being the tasks to supervise retail supply of electricity and natural gas under obligation to supply and to monitor security of supply.

The Energy Market Authority's main areas of supervision and regulation are the network operations in electricity and natural gas markets, and there especially the regulation of pricing and terms and conditions. Furthermore, an important area is the supervisory tasks in the field of electricity and natural gas supply covered by the obligation to supply. There the Energy Market Authority can interfere with pricing or refusals to supply, for instance. On the basis of the Act on Competition Restrictions and its rules against the abuse of dominant position, the Finnish Competition Authority may investigate the pricing and terms of network services ex post. Additionally, the Finnish Competition Authority may investigate the pricing of electricity and natural gas supply as well as other competition restrictions related to them.

Since the establishment of the sector-specific regulator in 1995, the Energy Market Authority and the Finnish Competition Authority have created a good and functioning platform for co-operation within the limits of their powers and introduced a division of work to prevent forum shopping and contradictory decisions. In January 2006, the Energy Market Authority and the Finnish Competition Authority signed a Memorandum of Understanding. The document contains a description of the areas and modes of co-operation and as such, strengthens and makes the co-operation more visible towards the electricity and natural gas markets.

2.2 Main developments in the gas and electricity markets

2.2.1 Electricity market

Wholesale market

In 2007 Finland consumed 90.3 TWh of electricity, with growth on the previous year of only 0.3 per cent. This was partly due to weather that was milder than usual, as the need for heating was reduced last year and industrial electricity consumption remained at the previous year's level. Industry and the construction sector used a good half of electricity, household and agriculture one fourth and services and the public sector around twenty per cent. Transmission and distribution losses accounted for a good three per cent.

Last year, combined heat and power generation (CHP) covered 29 per cent of electricity consumption, nuclear power 25 per cent, hydropower 15 per cent and conventional condensing power 16 per cent. Net electricity imports grew by ten per cent, now accounting for 14 per cent of electricity consumption. A new record of 0.2 billion kWh was reached in wind power generation last year, with wind power accounting for 0.2 per cent of electricity supply.

Due to plentiful rainfall, hydro power grew by almost 24 per cent. Combined heat and power generation declined due to the mild winter by almost four per cent. The nuclear power stations achieved an all-time record of 22.5 TWh, with nuclear power growth of a good two per cent. Condensing generation fell by more than 17 per cent, as cheaper electricity than that obtained by coal condensing was available from the neighbouring countries and other domestic power plants.

Net electricity imports grew by some ten per cent. Thanks to the good year for water, electricity imports from Sweden and Norway grew. In addition, the Estlink cable between Finland and Estonia, commissioned at the end of 2006, increased the opportunities for power imports from Estonia. Estonia is also able to buy electricity from Finland via the Estlink cable. Approx. two per cent of the electricity consumed last year was of Estonian origin.

Power imports from Russia declined by more than eight per cent last year. The share of Russian electricity of the total annual power consumption in Finland fell to a good 11 per cent. Two years ago, the share of Russian electricity peaked at over 13 per cent.

Finland is an integral part of the Nordic electricity market. In year 2007 about 95 percent of the time Finland and Sweden belonged to the same price area – an increase of 2% compared with the previous year. For 29% of the time the day-ahead price in the whole Nordic market was the same resulting in a wholesale market with 390 TWhs.

The abundant supply of hydro power and the low prices of emission rights were reflected in the wholesale prices. The average day-ahead area price for Finland in Nord Pool Spot was EUR 30.01 per MWh whereas the price in 2006 was EUR 48.57 per MWh. These were close to day-ahead system prices, which amounted to EUR 27.93 in 2007 and 48.59 in 2006.

Infrastructure – electricity transmission

Finland belongs to the Nordic electricity market and congestions across the borders are managed by implicit auctions in the day-ahead market in power exchange Nord Pool. This fulfils the requirements set in the Congestion Management Guidelines. Remaining transmission capacity after day-ahead allocation is set for intra-day and balancing markets. Finland is considered as a single price area within Nordic market and congestions within Finland and after day-ahead market closure are managed by counter-trade.

To decrease congestion on interconnectors between Finland and Sweden the TSOs have launched an investment project to build a new DC interconnection Fenno-Skan 2 between Finland and Sweden. The investment decision is part of the five prioritised Nordic cross-section reinforcements agreed by the Nordic TSOs in June 2004. The capacity of the interconnection will be 800 MW and it will be commissioned in the year 2011. The new interconnection will improve the interconnection capacity between Finland and Sweden by 40% resulting in tighter integration of the Nordic market.

In March 2008 the Nordic TSOs agreed on a Nordic Grid Master Plan identifying new Nordic grid enforcements to be implemented by 2025. In it Nordel proposes to initiate planning process to reinforce three internal Nordic grid areas. Furthermore, Nordel also recommends that studies are initiated within the multiregional planning co-operation with the Baltic TSOs and

with the continental TSOs now within UCTE to investigate further HVDC interconnections between Nordel and those areas.

There exist no priority transmission rights for cross-border trade from Finland to Sweden and from Finland to Norway or vice versa. However, priority transmission rights are used to allocate capacity between Finland and Russia.

Electricity retail market

In Finland the number of retail suppliers of electricity has remained at a relatively high level since the opening up of the market in the late 1990's. To serve Finland's circa 3,1 million electricity customers, there are currently more than 70 retail suppliers of which approximately a third market electricity actively outside their traditional supply area.

An IT system intended for consumers, linked to the Energy Market Authority's website was introduced in February 2006. It has enabled household customers in particular to compare electricity suppliers' offers. Consumers have been using the IT system diligently. So far more than 3.2 million searches had been made within the IT system, which means that several hundreds of thousands of people have visited the website.

Compared to the sharp rise (14 per cent in a year) in the retail prices of electric energy in 2006, the year 2007 was moderate. The annual increase in the public retail prices of electric energy was only 4.9 per cent. During the first half of the year, the prices fell by 3.3 per cent, but rose sharply towards the end of the year, as retailers were waiting for the Kyoto period to start. The fact that the water situation remained good and the market price of emission allowances was low curbed the rise in the electricity price on the power exchange, however, and the changes in the retail prices remained relatively small.

On 1 January 2008, the price including tax of electric energy bought from a retailer with the obligation to deliver was on average 5.89 cents/kWh for household customers and 5.23 cents/kWh for electric-heating customers. When viewed regionally, Western Finland had the lowest public retail prices and Northern Finland had the highest ones in the country.

The offer prices for household customers, valid until further notice, rose by 4.5 per cent in 2007, i.e. more slowly than the public list prices. The corresponding offer prices for electric-heating households rose by 5.7-6.3 per cent, depending on the heating system. At the beginning of 2008, the offer prices of products based on contracts concluded for a fixed term of one or two years were approx. one fifth higher than a year ago. During the first half of the year 2007, the prices of the bargain-priced products were at their lowest, and consumers were then able to conclude budget priced electricity contracts for a fixed term of one or two years.

The Energy Market Authority has launched a regular collection of supplier switching information in 2007. According to it 4.0 per cent of electricity consumers changed their supplier in 2007. Supplier switching rate was in 2007 lower than in 2006 (4.3 per cent).

Infrastructure – electricity distribution

The Energy Market Authority supervised 89 distribution network operators, 13 regional network operators and one transmission system operator at the beginning of 2008.

Development of electricity distribution prices has been stable for several years. Although a maximum rate of return has been determined in the regulation model in advance for each electricity system operator, the majority of the electricity system operators have not taken full advantage of the limit set for returns. At the close of 2007, some distribution system operators adjusted their distribution prices to better correspond to the methods confirmed by the Energy Market Authority. Consequently, the distribution prices excluding tax were 3.7 per cent higher at the turn of the year than a year ago.

Unbundling

According to the Electricity Market Act, electricity network operations must be legally unbundled from electricity trade operations and electricity generation if the annual quantity of electricity transmitted to the customers through the network operator's 400 V distribution network has been 200 GWh or more during three consecutive calendar years. The arrangements were to be implemented no later than the beginning of 2007. Also some distribution system operators under this threshold value have legally unbundled network activities. In June 2008 a total of 50 distribution system operators of 89 operators were legally unbundled in Finland.

Security of supply

A new record peak load in total electricity consumption was reached in February 2007 when hourly demand amounted to 14,808 MW. During the new record hour, Finland's own electricity generation amounted to 12,078 MW. During the peak hour, the electricity import capacity was 2,836 MW, with half of the peak hour import coming from Russia.

The balance between demand and supply of electricity during the peak hour has been deteriorating due to modest but stable increase in electricity consumption combined with the low level of generation investment activity. The generation capacity is expected to grow significantly only after the new Olkiluoto nuclear power plant unit has been completed in 2011.

Two new temporary systems to improve security of electricity supply before the commissioning of the Olkiluoto nuclear power plant unit have been introduced through legislation in 2006 and 2007. Large peat condensing power plants over 120 MVA can get limited feed in tariff during years 2007 – 2010 due to security of supply reasons. Feed in tariff system is limited for total capacity of about 400 MW peat power and at maximum for 3,900 hours per year. Feed in tariff will depend on prices of coal and CO₂-emissions and it is paid by the TSO to the peat power plants and charged from network users by the TSO. The system is overseen by the Energy Market Authority.

Furthermore to secure balance between supply and demand during peak load, a temporary power reserve arrangement was introduced through temporary legislation (2007-2011) in December 2006. In this arrangement condensing power plants having prerequisites defined in legislation can be part of the arrangement and get compensation maintaining fast start up time (within 12 hours) during wintertime (from the beginning of December to end of February). Terms and conditions for tendering the peak reserves and their financing by TSO are subject to ex-ante approval by the Energy Market Authority.

2.2.2 Natural gas market

Wholesale and retail natural gas market

The natural gas market in Finland is relatively isolated and small. In 2007, natural gas consumption in Finland totalled 4.5 bcm, which was all imported from Russia by Gasum Ltd acting as the sole wholesale supplier in Finland. Pricing of the natural gas is based on oil price, and additionally, the price on coal and domestic market energy prices. The wholesale supply of natural gas to the Finnish end-users and retailers is for the majority of the users based on public tariff. However, there are few wholesale customers who still continue to buy natural gas based on fixed-term contracts they entered into before the Natural Gas Market Act.

Large users account for the bulk of natural gas consumption in Finland. Energy and power companies, which use natural gas to co-generate heat and power, use over 50 per cent and pulp and paper companies over 30 per cent of Finland's total gas consumption. Natural gas accounts for approximately 11 per cent of Finland's total energy consumption.

The retail supply of natural gas covers only about 5 per cent of the total consumption. The share of the top three retail suppliers is about 50 per cent of the total volume.

The natural gas market is characterized by vertical integration. The wholesale supplier of natural gas – Gasum Ltd – is the sole importer and operator of the transmission system. Furthermore, it is downward vertically integrated into retail supply and distribution network operation. The undertakings operating in the retail market are active both in retail supply and distribution network operation.

Finland has availed itself of the possibility of an exemption allowed by the current and the previous Natural Gas Directive. According to the exemption there is neither legal nor operational unbundling of the natural gas transmission system operator. Furthermore, on the Finnish natural gas market, only natural gas users with a consumption of more than 5 million cubic metres and with remote metering can trade in the secondary market with the gas that they have acquired for their own use or retail.

Infrastructure

At the end of 2007, the maximum transmission capacity of the natural gas transmission pipeline was 8,000 MW and the total length of the transmission network amounted to approximately 1,100 kilometres. Total of 23 km parallel new gas transmission pipeline was completed in 2007.

The TSO, Gasum Ltd, is planning to expand its natural gas transmission pipeline to the western part of Finland where there currently does not exist any gas pipeline. A letter of intent was signed at the beginning of 2008 and the final decision on the investment is foreseen in the autumn of 2008. The main target for the use of gas would be to replace coal in the production of power and district heat.

The natural gas pipeline from Russia to Finland was damaged in Russia in July 2007, but the failure did not jeopardize the security of supply, and there was no need to restrict the consumption of natural gas in Finland.

2.3 Major issues dealt with by the regulator

2.3.1 Electricity

In the field of electricity, the Energy Market Authority is responsible for regulating 89 distribution network operators, 13 regional network operators and one transmission system operator. Furthermore, the Authority is mandated with the supervision of altogether 69 electricity retailers with the obligation to supply.

The amendments to the Electricity Market Act, which entered into force at the end of December 2004, implemented the Electricity Market Directive's obligations in Finland. The legislative amendments significantly changed the regulation principles concerning the pricing of the electricity network services.

The first regulatory period conforming to the new regulation model commenced at the beginning of 2005 and expired at the end of 2007. In autumn 2008, the Energy Market Authority will confirm the realised returns that have accrued to each electricity system operator during regulatory period 2005 - 2007, along with a reasonable rate of return. If a surplus has accrued to a system operator during the period, the Energy Market Authority will oblige the company to return it to customers in the form of lower distribution tariffs in the course of the regulatory period 2008 – 2011.

The Energy Market Authority has already calculated and published preliminary results of the actual profit and reasonable earnings from electricity network operations on the basis of financial statements and other information from 2005 and 2006. According to the preliminary results, the combined two-year returns of 89 of 103 electricity system operators (distribution, regional and transmission system operators) have remained below the reasonable rate of return calculated on the capital invested in electricity system operation. Thus only a total of 14 electricity system operators had made higher actual profit during these years than what was deemed reasonable.

The second regulatory period of price regulation in electricity network operation covers the years 2008 - 2011. The Energy Market Authority confirmed in December 2007 the methods concerning the rate of return in electricity network operation to be followed in the next regulatory period. The network operators are encouraged to increase the efficiency of their operations and to maintain a high security of electricity supply.

In the first regulatory period, the Energy Market Authority set an efficiency-improvement target for the operative costs of the operators of electricity distribution and regional networks, which did not, however, take into account any company-specific differences in efficiency. The general efficiency-improvement target was based on improvement of the industry's productivity. As of 2008, company-specific efficiency differences have also been taken into consideration, which means that the requirements set for efficient system operators are lighter than those set for inefficient operators. The company-specific efficiency goals are based on the benchmarking of DSOs by using both the DEA-model and the SFA-model. The confirmed methodology includes incentives to improve the cost efficiency also for the regional and transmission system operators.

In addition to the price, high-quality electricity is also important to electricity users. The regulation model encourages system operators also to improve the quality of electricity in two ways: by taking into account network investments in the capital base and by treating the losses caused to customers by interruptions as items comparable with costs.

Ever since the first regulatory period, the Energy Market Authority has encouraged system operators to make investments in the electricity network. In the regulation model, all investments in the network will annually be taken into account in the capital base which is used to determine the reasonable rate of return.

A total of 91 electricity system operators filed appeals with the Market Court in January 2008 against the methods for the second regulatory period confirmed by the Energy Market Authority. The Market Court has not issued decisions on the appeals yet.

By virtue of the amendment to the Act, the Energy Market Authority confirmed in 2005 also the principles to be followed in the pricing of connections to electrical distribution networks, as well as the revised terms and conditions of network services and connection to the network. The Energy Market Authority confirmed updated principles in February 2008. Because the principles were confirmed, the pricing of connections to electricity distribution networks were clarified, and the pricing principles of the different electricity network operators are now more uniform than before.

In 2007 the Energy Market Authority prepared a proposal for a degree of the Ministry of Employment and the Economy on information exchange. The degree will include binding rules for information exchange between market actors in connection with the supplier switching: what kind of information and in which timetable the new supplier and the DSO have to send to the other market actors and also what are the conditions for the present supplier to reject the supplier switching process. In 2007 the Energy Market Authority also gave some decisions in which the Energy Market Authority clarified the roles and responsibilities of DSOs and suppliers in connection with the supplier switching.

The amendments made to the Electricity Market Act at the end of 2004 – to implement the present Electricity Directive – charged the Energy Market Authority with a new task of monitoring the security of electricity supply. To facilitate the carrying out of the task, the Authority established a power plant registry. As a part of the security of supply monitoring duty, Energy Market Authority published its third annual report on the security of electricity and natural gas supply in November 2007.

2.3.2 Natural gas

At the start of 2007, the Energy Market Authority was responsible for regulating 32 natural gas distribution network operators and one natural gas transmission network operator. Additionally, the Energy Market Authority supervised the wholesale and retail supply activities of the operators as well.

In 2007 the regulation of natural gas network operations continued in the established manner. It was the second year of the 4-year regulatory period. The Energy Market Authority had issued the network operator-specific confirmation decisions on the methodology for the pricing of natural gas network services in May and June 2005. The first four-year regulatory pe-

riod commenced at the beginning of 2006 and will come to an end at the end of 2009. None of the natural gas network operators made an appeal to the Market Court to amend the decisions.

With regard to the supervision of the pricing of natural gas the decision made by the Energy Market Authority in March 2008 was a landmark. In March 2008 the Energy Market Authority made a decision on whether the pricing of wholesale supply of natural gas had been reasonable. The decision dealt with the pricing during financial years 2006 and 2007. According to the decision the pricing of Gasum Ltd's gas supply was not at the reasonable level during these years and Gasum was ordered to change their pricing policy starting from financial year 2008. Gasum Ltd has appealed the decision to the Market Court. The final stage of appeal is the Supreme Administrative Court.

Due to the fact that the gas supply business is not capital intensive but resembles any other trading business, the Energy Market Authority opted for using the gas supply margin as the measure for assessing the reasonable level of pricing. EBIT-% (earnings before tax and interests %) was selected as an indicator of reasonable pricing and the reasonable level (2.5 %) was entered at by using benchmarking studies in the field.

The Energy Market Authority is also charged with a task of monitoring the security of gas supply. As a consequence, the Energy Market Authority published its third report on the security of electricity and natural gas supply in November 2007.

In autumn 2007, the Energy Market Authority published a report on the present state and development needs of the regulation of the Finnish natural gas market. The report was based on a discussion paper published in spring 2007, and actors in the sector gave their opinions of it to the Energy Market Authority. The main conclusions were related to assessment of the objectives of regulation, and, on the other hand, to targeting of regulation.

The purpose of the Natural Gas Market Act is to secure the preconditions for an efficiently functioning natural gas market, so that the supply of reasonably priced natural gas of a sufficiently high quality can be ensured. Such preconditions arise whenever the demand for natural gas is steered by a healthy economic competition.

According to the report, healthy competition is not possible as long as natural gas must be imported to Finland from one single source of supply. On the other hand, the opportunities for competition are very limited, because the obligation to transmit laid down in the Natural Gas Market Act applies only to the gas acquired from the wholesaler for one's own use or with the intention of selling it via one's own distribution network.

A good way to start the development of regulation is to reassess the objectives set for regulation. Because the objective to create healthy and effective economic competition seems impossible to achieve, it could be abandoned. Instead, the new objectives could be to prevent unreasonable monopolistic pricing and to maintain fair service principles in both network service provision and natural gas sales.

The targeting of regulation and monitoring can be examined between the different functions. Because customers must buy the network service and natural gas from the same supplier, they regard it as one commodity entity (an amount of gas supplied to the consumption site). There are separate, and to some extent also different kinds of, provisions on these transactions in the present Natural Gas Market Act. It is important to remove all unnecessary differences be-

tween the regulation of sales and network service. The report also examined the focus of regulation of network system operators. It was concluded the focus should increasingly be shifted from distribution system operators towards Gasum Ltd, because it plays a key role in natural gas price formation.

2.3.3 Emissions trading (EU-ETS)

The Energy Market Authority is the National Emissions Trading Authority in Finland. The Energy Market Authority grants the emissions permits, pursuant to which the installations have right to emit carbon dioxide into atmosphere. The Energy Market Authority also supervises the monitoring and reporting of emissions data and maintains the Emissions Trading Registry of Finland. For the second period of EU emissions trading scheme covering the years 2008 - 2012 a total of 587 installations had to submit their emissions permit application to the Energy Market Authority in 2007.

In Finland, the total amount of emissions of installations within the scope of emissions trading scheme (EU ETS) amounted to 42.5 million tons of carbon dioxide in 2007. The emissions declined by 3.4 tons from the previous year. The emission allowances allocated to the installations sufficiently covered the emissions. The installations within the scope of the EU emissions trading scheme had been allocated emission allowances equalling 45.9 million tons of emissions, and 3.3 million tons of allowances were unused.

For the whole first three year period of EU's internal emissions trading scheme, the Finnish installations were allocated a total of 136.85 million tons of allowances and the emissions amounted to 120.28 millions of tons of carbon dioxide. A total of 16.57 millions of tons of allowances were left unused. The second period will be characterized by as the total amount of emission allowances is about 85% of the emissions realized in the first period.

In the EU's internal emissions trading scheme, emission allowance prices were low last year. In the course of the year 2007, the average market price of emission allowances was EUR 0.7 per ton of carbon dioxide, which means a price reduction of 96 per cent compared to the price of EUR 18.5 in the previous year. The fact that the Kyoto period in emissions trading started at the beginning of 2008 raised the market price of emission allowances to approx. EUR 20 – 21 per ton of carbon dioxide at the end of January.

3. Regulation and Performance of the Electricity Market

3.1 Regulatory Issues

3.1.1 General

In 1995, the Electricity Market Act introduced competition in the electricity market. Production, import, export and supply of electricity were opened for competition. As to the supply of electricity, market opening took place gradually. At the first stage the users with a power requirement of at least 500 kW (circa 2,000 users) were able to choose their supplier. At the beginning of 1997, small-scale users of electricity gained access to the open market. Accordingly, Finland opened fully its electricity market in 1997 and since then all electricity customers (100 per cent of customers) have been able to choose their supplier.

In 1998, the position of small-scale users of electricity was improved by creating a balance clearing system based on load-profiling, thus making it possible for them to change their supplier without the requirement of hourly metering. Since then the ordinary consumers have been also in practice free to change the supplier.

According to the Electricity Market Act, consumption places that are equipped with main fuses of over 3 x 63 amperes must have metering based on hourly metering. However, if an electricity user does not want, the hourly metering is not required for those consumption places to which electricity is bought with terms and conditions applying to retailer's obligation to supply, if a service (connection) contract applied to a consumption place has been agreed before the 1st of January 2005 or if consumption in a consumption place is no more than 5,000 kWh per year.

Table 1 shows the development of the opening up of the Finnish electricity market since 1995.

Table 1. Development of market opening.

Year	Threshold	% Market Open (by volume)
1995	500 kW	about 50-60
1997	No	100
1999	No	100
2001	No	100
2003	No	100
2005	No	100
2007	No	100

3.1.2 Management and Allocation of interconnection capacity and mechanisms to deal with congestion

Congestion management

Finland is a part of synchronously operated Nordic power system. It has 400 kV and 220 kV AC interconnectors to Sweden and one 220 kV AC interconnector to Norway. Furthermore there exists Fenno-Skan DC line between Finland and Sweden. Finland has also interconnectors to Russia (back-to-back DC converter station at Vyborg and a 400 kV and two 110 kV AC interconnectors synchronised to Finnish power system) and Estonia (350 MW DC interconnector Estlink). Transmission capacities on interconnectors within Nordic power system are presented in Figure 1 Virhe. Viitteen lähdettä ei löytynyt..

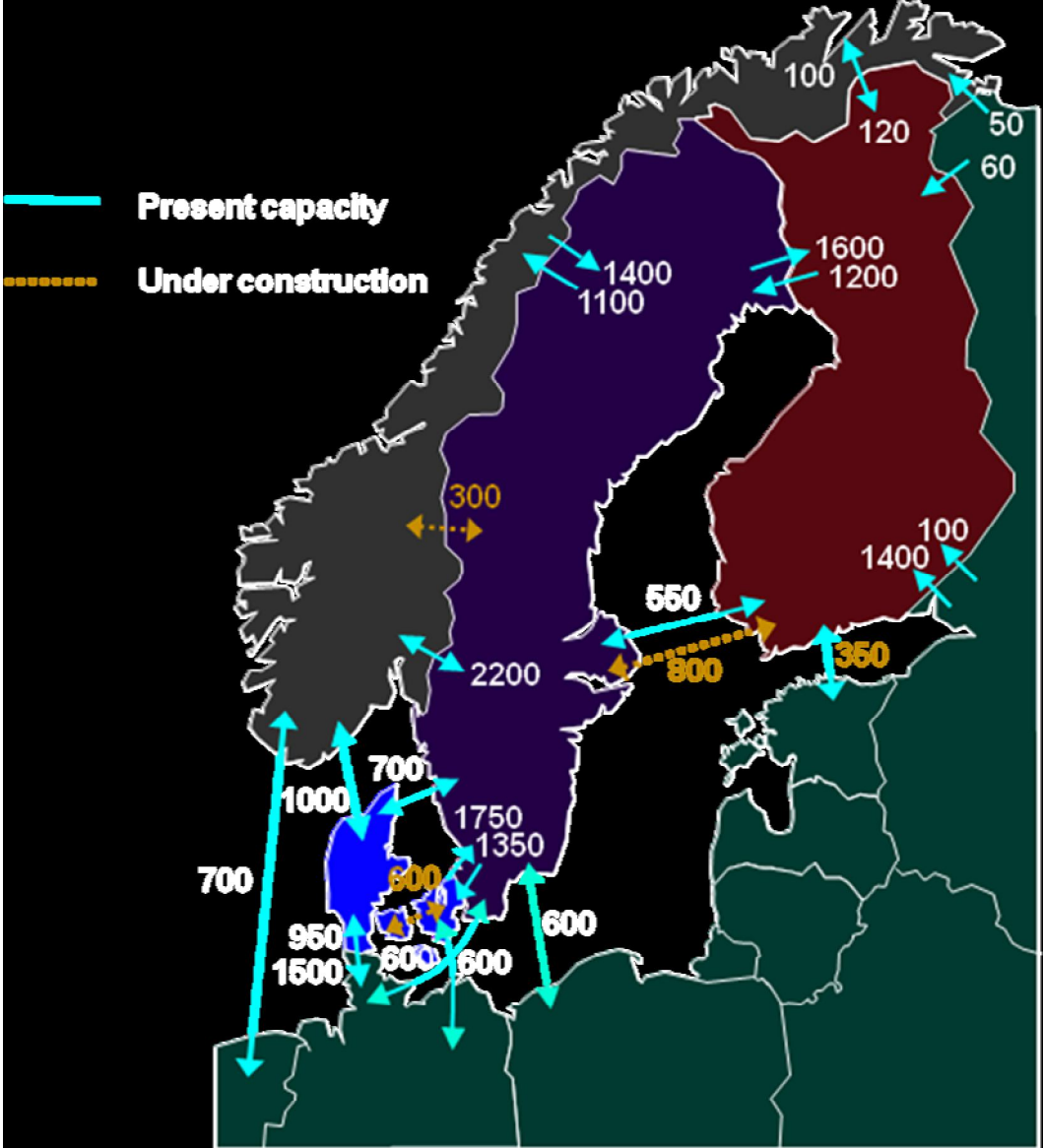


Figure 1. Transmission capacities on interconnectors between Nordic countries year in 2008 (Source: Fin-grid Plc).

Finland belongs to the Nordic electricity market and congestions across the borders (from Finland to Sweden and Norway) are managed by implicit auctions (market splitting) in the day-ahead market (spot market) in power exchange Nord Pool. Implicit auctions imply that market-based methods are applied in capacity allocation, and thus congestion management is wholly integrated to the functioning of the Nordic wholesale market. Finland is considered as a single bidding area within Nordic market and congestions within Finland and after spot market closure are managed by counter-trade.

There exist no priority transmission rights for cross-border trade from Finland to Sweden and from Finland to Norway or vice versa. However, priority transmission rights are used to allocate capacity between Finland and Russia. Actors can buy rights in auctions arranged by TSO for one or more years. Furthermore, interconnection between Finland and Estonia has exemption according to the Article 7 of the Regulation, where owners of the interconnection have priority transmission rights until day-ahead market has been cleared. Transmission capacity on this interconnector is available through auctions to all market participants only on intra-day timeframe.

In implicit auctions (market splitting) price areas exist when there is not enough capacity between these areas and the price of electricity will vary between these areas depending on the amount of congestions. When no congestions exist prices are equal within the price areas.

The Nordic market is normally split into six price areas: Finland (Helsinki), Sweden (Stockholm), West Denmark (Jutland), East Denmark (Zealand), South Norway (Oslo) and North Norway (Tromsø). Moreover, Norway can sometimes be split into more than two price areas. Figure 2 presents amount of hours in percent during the year 2007 when same day-ahead area price existed. Finland and Sweden had most of the time (95 %) same day-ahead market price, whereas the whole Nordic market had same day-ahead price only 29 percent of time in year 2007. Figure 2 shows that most severe congestions exist in the southern part of the Nordic market.

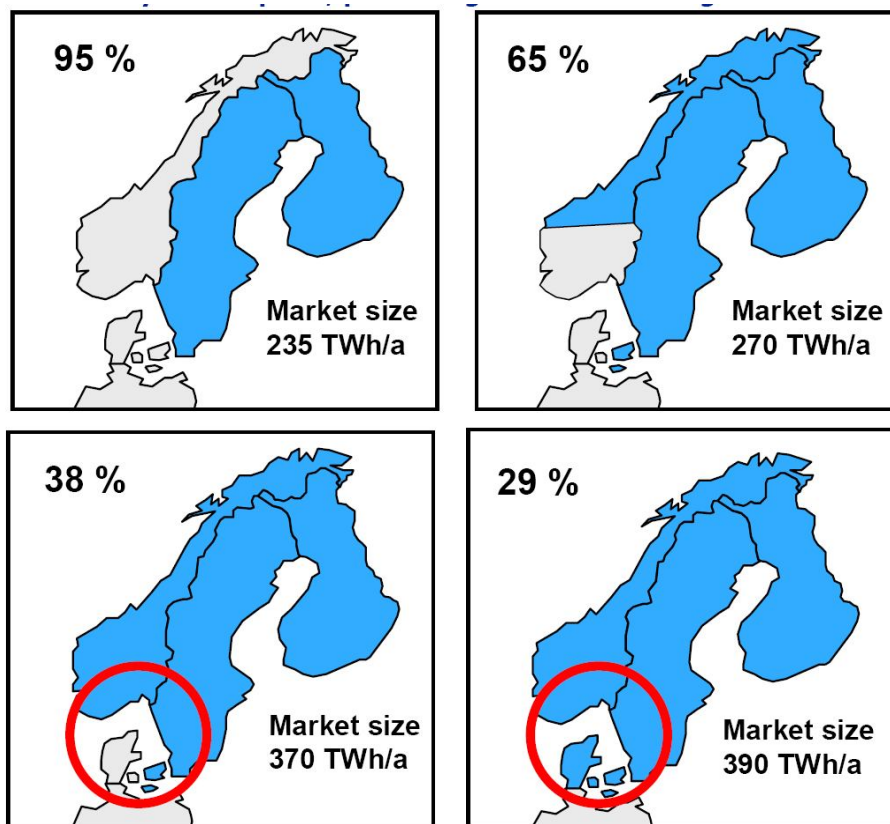


Figure 2. Time in per cent in year 2007 describing when the same day-ahead price has existed in the various price areas of the Nordic Market (Source: Fingrid Plc, Nordel).

Finland may form own price area, especially during relatively dry water years in other Nordic countries. This leads to increased export from Finland to other Nordic countries, (e.g. in years 2000 and 2003). Finland may form a common price area with Sweden especially when hydro power is abundant in other Nordic countries.

Counter trade is used to relieve both national and inter-regional congestions during the daily network operation. Costs of the counter trade are paid by TSO. Table 2 shows the costs of the counter trade paid by the Finnish TSO during the years 2000 - 2007.

Table 2. Costs of counter trade in Finland during the years 2000 - 2007 in million euros.

	2000	2001	2002	2003	2004	2005	2006	2007
Costs	1.0	0.8	1.4	0.3	0.07	0.86	0.48	0.244

Source Nordel, Fingrid Plc.

To decrease the congestions on interconnectors between Finland and Sweden the TSOs (Fingrid and Svenska Kraftnät) have launched an investment project to build the DC interconnection Fenno-Skan 2 between Finland and Sweden. The investment decision is part of the five prioritised Nordic cross-section reinforcements set by Nordel in June 2004. The capacity of the interconnection will be 800 MW and it will be commissioned in the year 2011.

Implementation of the Regulation 1228/2003 and congestion management guidelines

The amendment to the Electricity Market Act, which was enacted at the end of the year 2004, implemented the Regulation 1228/2003 through mandating the Energy Market Authority to act as the regulatory authority mentioned in the Regulation and to supervise the compliance with the Regulation in Finland (Section 38 of the Electricity Market Act). The supervisory powers of the Energy Market Authority are ex-post by their nature as stated in the Section 39 of the Electricity Market Act. Furthermore, according to the Section 38a of the said Act, the Energy Market Authority shall take the Regulation into account while issuing the confirmation decisions on the network pricing methodology to the network operators.

Congestion management guidelines under the Regulation 1228/2003 (hereafter CM guidelines) were amended from the 1st of December 2006. These CM guidelines set up requirements for TSOs on managing congestions, co-ordination, transparency and use of congestion income. Furthermore, the CM guidelines require that competent regulatory authorities oversee TSOs' actions. Obligations to market participants are also included in topics having relevance to congestion management.

Congestion management method applied to allocate all interconnector capacity in Nordic market, i.e. implicit auction, fulfils the requirements set in the CM guidelines. Remaining transmission capacity after day-ahead allocation is set for intra-day and balancing markets. Generally the current procedures applied meet the requirements for co-ordination and timetable for market operations set in the CM guidelines if only Nordic market is considered. However, there is a question, whether the requirements for co-ordination and information exchange between TSOs should be more advanced to ensure security of Nordic power system and enhance the efficient functioning of the Nordic market. On the other hand, Nordic TSOs exchange already power system data to enable load flow calculations. However, it might be advisable to enhance the data exchange procedures and make it more regular (e.g. daily) and automated to ensure maximising the transmission capacity.

According to the CM guidelines the national regulatory authorities shall regularly evaluate CM methods. This kind of evaluation has to be realised at least together between national regulators on both sides of the interconnector, preferably together with all Nordic regulators. A common process for this regular evaluation should be further developed by the regulators.

Nordic TSOs have published general information on CM methods, calculation of interconnector transmission capacity, and operational and planning security standards as required in the CM guidelines. Furthermore, Nordic TSOs publish transparently most of the cross-border information both ex-ante and ex-post. Recently ex-ante information on planned outages and ex-post information of outages (planned and unplanned) of generators has been expanded to include units larger than 100 MW to comply with the CM guidelines. Moreover, Nordic TSOs have published realised actual values soon after the real time and at the latest on the following day.

Nordic TSOs publish information either on their own website (e.g. www.fingrid.fi) or Nord Pool's website (www.nordpool.com). However, the minimum requirement of two years is not yet fulfilled at Nord Pool's public website although same information may already exist for two past years on the TSO's website. The roles of various information publishing platforms (including in the future TSO's website, Nord Pool's website and ETSOVista website) and data consistency among these platforms should be further developed.

Nordic regulators have not yet reviewed fully the transparency requirements and their compliance with the CM guidelines. These reviews shall be conducted during the further work among Nordic regulators. Furthermore, more harmonised requirements as regards transparency within Northern Europe region are also studied within ERGEG's Northern Europe Regional Initiative Implementation Group on transparency.

Congestion management guidelines require under Article 6.5 that *“On annual basis, and by 31 July each year, the Regulatory Authorities shall publish a report setting out the amount of revenue collected for 12-month period up to 30 June of the same year and the use made of these revenues in question, together with verification that this use complies with the present Regulation and Guidelines and that the total amount of congestion income is devoted to one or more of the three prescribed purposes.”*

In year 2005 Nordic TSOs decided to use congestion income to five prioritised cross-section reinforcement investments in Nordic countries. In their recent agreement TSOs have agreed on criteria for sharing the congestion income in longer time perspective (until the end of 2011).

During the year 2007 congestion management income for the Finnish TSO (Fingrid Plc) totalled 22.59 million Euros. During the period 1.7 – 31.12.2007 congestion management revenues amounted to 16.86 million Euros and during the period 1.1 – 30.6.2008 congestion management revenues totalled 13.5 million Euros respectively.

Nordic regulators published in November 2007 the first compliance report evaluating the current status of compliance and further work in the Northern Europe region will ensure compliance with the CM guidelines.

Transmission capacity calculation

The Nordic TSOs have agreed within Nordel on common principles for determining the transfer capacity in the Nordic power market. These principles for determining the capacities and margins are described in the System Operation Agreement between the Nordic TSOs and a separate Nordel document¹. The Nordic TSOs use definitions for transfer capacity, which are in line with the definitions used in the association of European Transmission System Operators (www.ets-net.org).

The TTC (Total Transfer Capacity) between two subsystems (e.g. between Finland and Sweden) is jointly determined by the TSOs on both sides of the interconnection. When determining the capacity on the interconnection between two subsystems, the capacity is calculated by the TSOs on each side of the connection by using computer programs based on coordinated network models. If the values differ, the lowest value is used.

The objective is to give the market as high capacity for energy trade as possible taking into account outages and faults in the network. Here the security criterion n-1 shall be applied.

¹ Nordel document “Principles for determining the transfer capacity in the Nordic power market” dated 5 July 2006, available at www.nordel.org

The ability to transmit power shall be calculated for each state of operation. This applies both to transmissions within each subsystem and to exchanges between subsystems. Most frequently, this is achieved by means of a transmission corridor being defined, and static and dynamic simulations determine how much power can be transmitted in any direction through the corridor before thermal overloads, voltage collapse and/or instability arise following a dimensioning fault. In the corridor, an arbitrary number of lines on different levels of voltage can be included.

The TTC is the maximum transmission of active power, which is permitted in transmission corridors between the subsystems or individual installations. If the transfer capacity is exceeded, measures must be taken. The transfer capacity is set, using a certain safety margin (stability, voltage etc), at the transmission levels, which will entail network collapse in the event of dimensioning faults.

The NTC (Net Transfer Capacity, trading capacity)² values between all the subsystems are given to Nord Pool Spot for day-ahead trading (Elspot) in its entirety. The TSOs guarantee the NTC value given for Elspot trading. The available transfer capacity (ATC), which remains available after day-ahead trading, is used for further commercial activities, i.e. the Elbas-market and the regulation power market.

On the HVDC-connections, the thermal capacity (TTC) is normally used as NTC value in both directions and there is no need for any margin (TRM, Transmission Reliability Margin).

Transmission capacity to/from Finland is calculated in practice using simulation models, which represent typical seasonal base load flow cases in the Nordic power system (winter, summer):

- winter day load representing high loading
- summer night load representing light loading

These base cases are defined from measurements and forecasts. The operational situation in neighbouring countries is normally based on the worst case load flow scenarios. The base cases are updated with production, loads, transmission capacity and outages when monthly, weekly and daily capacities are calculated. In the future the real time data from SCADA system will be used more effectively to build simulation cases.

The transmission capacity is estimated a year, a month (six weeks) and a week (every Tuesday the end of week and the following week) ahead. The capacity for a year ahead is calculated with the intact grid. Capacities a month and a week ahead are calculated taking into account planned outages in the system (both grid and production). The daily capacity is announced at 9.30 (EET) in the morning for the next day. As stated above this capacity is binding to the TSO and in case of congestion the TSO has to counter-trade to relieve congestion.

² The Net Transfer Capacity NTC (trading capacity) is defined as: $NTC = TTC - TRM$, where NTC is the maximum exchange programme between two areas compatible with security standards applicable in both areas and taking into account the technical uncertainties on future network conditions. TRM (Transfer Reliability Margin) is a security margin that copes with uncertainties on the computed TTC values arising from: a) unintended deviations of physical flows during operations due to physical functioning of load-frequency regulation, b) emergency exchanges between TSOs to cope with unexpected unbalanced situations in real time, c) inaccuracies, e.g. in data collection and measurements. Between Finland and Sweden TRM is 100 MW.

The transmission capacity is calculated with variable transmission situations in Finland (realised by modifying production and load) using a contingency list consisting of credible line and production outages with allowed consequences according to the Nordic dimensioning criteria.

3.1.3 The regulation of the tasks of transmission and distribution companies

According to the Electricity Market Act the electricity network operation calls for a licence issued by the Energy Market Authority (electricity network licence). The licence is granted for the time being or, on special grounds, for a specified period of time.

In the Finnish legislation the electricity network operation has been defined as placing the electricity system against payment at the disposal of anyone needing transmission and similar system services. Electricity network operation also includes any such design, construction, maintenance and use of electricity network, connection of customers' electric equipment to the network, metering of power, and other measures necessary to transmission of electricity and for similar system services.

The network operators have various obligations:

- obligation to develop the electricity network;
- obligation to connect; and
- obligation to transmit electricity

The electricity network licence granted to a distribution network operator specifies the operator's geographical area of responsibility. According to the legislation the distribution network operator has an exclusive right to construct a distribution network within its area of responsibility. A third party is entitled to construct a distribution network within the distribution network operator's area of responsibility only if:

1. the network to be built is an electricity consumer's service line with which the consumption site is connected to the electricity network of the distribution network operator of the area of responsibility;
2. the network to be built is an electricity consumer's service line with which an electricity generating plant is connected to the electricity network of the distribution network operator or other network operator of the area of responsibility;
3. the network to be built is an internal network for a property or, respectively, a group of properties; or
4. the network operator allows another network operator to construct a network.

The Energy Market Authority has issued electricity distribution network licenses with geographical area of responsibility to 89 distribution network operators. At the Finnish electricity market legislation electricity distribution network have been defined as network below 110 kV level. Some of the electricity distribution network operators have also 110 kV lines. There were in June 2008 also 13 regional network companies having only 110 kV lines.

Fingrid Plc, the electricity transmission system operator, is responsible for the main transmission grid. It owns and operates electricity transmission lines of 400 kV and 220 kV and additionally some 110 kV lines. Based on the Electricity Market Act, the Energy Market Author-

ity has granted the company an electricity network license, in which the Authority has ordered the company to be responsible for the functioning of the power system at a national level (system responsibility). As the transmission system operator Fingrid's tasks include the responsibility for electricity transmission in the main grid, the development of the main transmission grid, maintenance of instantaneous balance between demand and supply, balance settlement at a national level and promoting the functioning of the electricity market.

Length of electricity network in Finland at the end of 2007 in km divided into different voltage levels is shown in Table 3.

Table 3. Length of electricity network at the end of 2007.

	Length of network, km			
	110 kV or above	1-70 kV	0,4 kV	Sum
Distribution	6 248	136 579	227 212	370 039
Regional	1 715			1 715
Transmission	13 980			13 980
Sum	21 943	136 579	227 212	385 734

The electricity market legislation does not require that the network operators shall own the network. However, almost every network operator in Finland owns the network it is operating. Many network operators in Finland have outsourced a part of their activities, for instance construction and maintenance of lines.

Network Tariffs

According to the Electricity Market Act, the network operators are able to set the actual network tariffs and charges by themselves. There is no ex-ante approval of tariffs or prices of network services by authorities. The network operators have to notice their customers about the changes in charges at least one month prior to entering into force.

The Energy Market Authority confirms ex-ante the methodology to be used in setting both transmission and distribution network tariffs and connection charges. The Energy Market Authority has to approve ex-ante also the terms and conditions of transmission and connection services before the network operators are able to apply them.

The methodology of setting network tariffs will be confirmed prior to a regulatory period of four years. As an exception, the first regulatory period covered years 2005 - 2007. Prior to confirming the methodology, the regulator publishes the guidelines on the details of the methodology and organises a public consultation on the guidelines with the stakeholders. The second regulatory period of price regulation in electricity network operation covers the years 2008 - 2011. The Energy Market Authority confirmed in December 2007 the methods concerning the rate of return in electricity network operation to be followed in the next regulatory period³.

³ Unofficial English translations of the methodology of setting network tariffs in 2008-2011 will be available in autumn 2008 on the Energy Market Authority's website at www.energiainvirosto.fi.

According to the Section 38a of the Electricity Market Act, the methodology confirmed by the regulator may include the following items:

- method for the valuation of regulated asset value
- method for determining approved rate of return on capital
- method for determining realised profit of network operations
- method for setting efficiency targets for network operations

The confirmed methodology for setting network tariffs during the years 2008 - 2011 includes all the items mentioned above.

The network will be included into the regulated asset value as the net present value instead of book value. Ever since the first regulatory period, the Energy Market Authority has encouraged system operators to make investments in the electricity network. In the regulation model, all investments in the network will annually be taken into account in the asset base which is used to determine the reasonable rate of return. The net present value of the network will be updated annually by taking into account depreciation and investments. Approved rate of return on capital is determined using a WACC-model (Weighted Average Cost of Capital) and will be updated annually.

During the second regulatory period in 2008 – 2011 the network operators are also encouraged to increase the efficiency of their operations and to maintain a high security of electricity supply.

In the first regulatory period, the Energy Market Authority set an efficiency-improvement target for the operative costs of the operators of electricity distribution and regional networks, which did not, however, take into account any company-specific differences in efficiency. The general efficiency-improvement target was based on improvement of the industry's productivity. As of 2008, company-specific efficiency differences have also been taken into consideration, which means that the requirements set for efficient system operators are lighter than those set for inefficient operators. For the second regulatory period in 2008 - 2011 the Energy Market Authority has set both the general efficiency target and the company-specific efficiency goals for the DSOs. The company-specific efficiency goals are based on the benchmarking of DSOs by using both the DEA-model (Data Envelopment Analysis) and the SFA-model (Stochastic Frontier Analysis). The confirmed methodology includes incentives to improve the cost efficiency also for the regional and transmission system operators.

In addition to the price, high-quality electricity is also important to electricity users. The regulation model for the second regulatory period encourages system operators also to improve the quality of electricity in two ways: by taking into account network investments in the capital base and by treating the losses caused to customers by interruptions as items comparable with costs.

The losses caused to customers by an interruption in electricity supply are taken into account as an item comparable to costs, i.e. price tags are developed for different type of interruptions. The Energy Market Authority has not set specific targets for electricity quality improvement. The outturns required of system operators must be equal to the average outturns of previous years. However, the regulation model encourages system operators to improve the quality of electricity supply, because the fewer the interruptions, the higher the system operator's rate of

return. Similarly, electricity quality impairment lowers the permitted rate of return for the system operator.

According to the Finnish regulatory model the network operator may, during individual years within the regulatory period, gain earnings from its network operation that are higher than the earnings considered reasonable in line with the confirmed methodology without intervention by the regulator. The pricing shall be reasonable when viewed over the regulatory period as a whole.

After the regulatory period has come to an end, the Energy Market Authority will confirm the earnings of each network operator in its supervision decisions for the regulatory period, and will confirm the amount of any accrued earnings that exceed or fall short of reasonable earnings for the regulatory period. Where necessary, the supervision decisions will include an obligation to return to the customers any windfall profit for the completed regulatory period through lower network charges for the new regulatory period. The supervision decisions will correspondingly confirm that the network operator may allow raise network charges for the new regulatory period, with the amount by which the earnings accruing to the network operator from the previous regulatory period fell below the reasonable earnings level.

In autumn 2008, the Energy Market Authority will confirm with its decisions the realised returns that have accrued to each electricity system operator during regulatory period 2005 - 2007, along with a reasonable rate of return. If a surplus has accrued to a system operator during the period, the Energy Market Authority will oblige the company to return it to customers in the form of lower distribution tariffs in the course of the regulatory period 2008 – 2011.

The Energy Market Authority has already calculated and published preliminary results of the actual profit and reasonable earnings from electricity network operations on the basis of financial statements and other information from 2005 and 2006. According to the preliminary results, the combined two-year returns of 89 of 103 electricity system operators have remained below the reasonable rate of return calculated on the capital invested in electricity system operation. Thus only a total of 14 electricity system operators had made higher actual profit during these years than what was deemed reasonable.

The Energy Market Authority collects annually from the network operators several kinds of information on network operations, like tariffs of network services, financial information, technical and economical key figures and data assessing efficiency of network operations. The technical key figures collected annually include for instance information on quality of supply. The Energy Market Authority has also powers to ask additional information from the transmission and distribution system operators on network operations for the supervision purposes.

According to the Electricity Market Act, charges of transmission and distribution services shall be public. The transmission and distribution system operators shall have public charges and terms and conditions for network services. The pricing of network services must not present any unfounded terms or restrictions obviously limiting competition within the electricity trade. According to the legislation, at the request of the customer (either generator or load), the transmission and distribution system operators shall give him/her a comprehensive and sufficiently detailed estimate on the costs of connection.

The network operators may appeal against the methodology confirmed by the Energy Market Authority to the Market Court and, furthermore, both the Energy Market Authority and the

network operators are able to appeal against the decisions of the Market Court to the Supreme Administrative Court. A total of 91 electricity system operators filed appeals with the Market Court in January 2008 against the methods for the second regulatory period confirmed by the Energy Market Authority. The Market Court has not issued decisions on the appeals yet.

Estimated national average network access charges during period 1.7.-31.12.2007 for different consumption bands are shown in Table 4. Prices are excluding all taxes and VAT. During 2007 network access charges without taxes rose on average 3.7 per cent. At the beginning of 2008 the electricity taxes were raised by 0.03 cent/kWh for industrial customers and by 0.14 cent/kWh for other customers.

Table 4. Estimated national average network charges during period 1.7-31.12.2008 excluding taxes and VAT.⁴

	Number of regulated companies	Approx network access charge (euro/MWh)		
		Band le	Band lb	Band Dc
Transmission	1	1.87 (average)		
Distribution	89 (+ 13 regional)	4.15	23.33	39.21

At the 1st of February, 2008 the new amendment to the Electricity Market Act came into force. According to this amendment, the connection fees for small-scale electricity generation (maximum 2 MVA) do not include the costs caused by strengthening the existing electricity network but only include the direct costs of connection. The new regulation also sets the maximum level of the network charges for the electricity generation connected to the distribution network. The annual network charges collected from an electricity generator may not exceed 0.07 cent/kWh.

Interruptions of delivery and compensations from non-delivery

Table 5 shows interruptions in transmission and distribution networks during the years 1999-2007. The numbers include both planned and unplanned interruptions. In Finland storms and other circumstances caused by weather or animals have a remarkable influence on interruptions because about 90 per cent of MV distribution network are overhead lines. Thus annual variations in interruption times may be significant.

⁴ Prices are based on the new methodology by Eurostat for collecting electricity prices from 2007 onwards. Prices are average of the 6 months. Definitions for reference customer bands are:
 - Band Dc: household customers with annual consumption of 2 500-5 000 kWh/year,
 - Band Ib: commercial customers with annual consumption of 20-500 MWh/year and
 - Band Ie: commercial customers with annual consumption of 20-70 GWh/year.

Table 5. Interruptions in transmission and distribution networks in 1999-2007.⁵

	Interruptions minutes lost per customer per year								
	1999	2000	2001	2002	2003	2004	2005	2006	2007
Transmission	6.27	1.62	2.28	5.54	2.12	2.10	2.02	2.10	1.50
Distribution	167	114	256	136	123	103	174	180	105

According to the Amendment to the Electricity Market Act, which came into force in September 1st, 2003, the electricity network operators have to pay fixed compensations to the customers if the interruption time is 12 hours or more. If the interruption time is at least 12 hours the fixed compensation is 10 per cent of the customer's annual network access charges. The compensation increases stepwise with the interruption time. The maximum compensation is 100 per cent of the annual network charges when the interruption time has exceeded 5 days. In 2007 electricity distribution system operators paid fixed compensation payments because of long interruptions a total sum of 0.36 million Euros compared with 2.6 million Euros in 2006.

Transmission tariffication according to Regulation 1228/2003

The Regulation 1228/2003 warrants the Commission to adopt and amend Guidelines on Transmission Tarification. Furthermore, the Regulation requires parallel adoption of ITC and Transmission Tarification Guidelines, but the difficulties with deciding on the appropriate ITC scheme have postponed the process. ITC Guidelines and Guidelines on Transmission Tarification have not been adopted so far. ERGEG has advised Commission on draft guidelines and also made a proposal for reporting on charging structure and G-values⁶.

General description of the transmission tariff structure

The transmission grid charges cover costs of infrastructure, operation and maintenance, losses, ancillary services, operating costs, congestion management (counter trading), ITC costs and return on capital (approved through tariffication methodology set by Energy Market Authority as described above in chapter 3.1.3).

Transmission pricing in Finland is based on postage stamp tariff, i.e. same tariffs all across the country independent of location. Tariffs consist of only variable charges without any fixed charge, i.e. charge for the use of the transmission network and charge for market utilisation ("consumption fee"). Consumption fee consists of two time periods for which a different charge is applied: (i) wintertime from the 1st November to the 31st of March and (ii) other time periods. Besides these variable components connection point fee is charged. Thus the trans-

⁵Distribution data for interruptions has been corrected after cross-checking.

⁶ ERGEG advice to the European Commission "Guidelines on Transmission Tarification" July 2005, available at ERGEG website: www.ergeg.org; ERGEG report, "Reporting to the European Commission on TSO charging structure and values of 'annual national G'", December 2006, available at ERGEG website: www.ergeg.org

mission tariff structure is made up of three components each covering a specific part of the costs as follows:

- Consumption fee concerns the consumption of electric energy beyond the connection point between the customer and TSO. This fee remunerates the cost related to the possibility given to the consumer to obtain his supply from a national market.
- Use of grid fee concerns the volume of electric energy transmitted through the customer's connection point, specified separately for output from the grid and for input into the grid. This network utilisation component remunerates the cost related to the physical utilisation of the network.
- Connection point fee concerns charges for all the connections defined in the connection agreement between a customer and TSO. This fee remunerates the measurement and operational costs of the connection.

The energy based fees (consumption and use of grid fee) are based on physical measurements across the connection point and they are independent of electricity trade between market participants. TSO is responsible for arranging and maintaining the measurements of electricity transmitted through the connection point. The grid service fees are invoiced monthly by the TSO.

Charges are mainly passed to the consumers (“consumption fee” and “use of grid fee”), where tariff for grid input (“production fee”) is defined according to Nordic tariff harmonisation and draft Guidelines on Transmission Tarification under Regulation 1228/2003. Fees for the year 2007 were as follows:

- Consumption fee / consumption: 2.16 € MWh, winter period
1.08 €MWh, other times
- Use of grid fee: 0.66 €MWh, output from grid
0.30 €MWh, input to grid
- Connection point fee: 1000 € connection point / month

Connection charges paid by generators and/or loads

TSO maintains, operates and develops the network which is under its responsibility, as well as connections to the other networks, in order to meet the users' reasonable needs. TSO is obliged according to the Electricity Market Act to connect customers to its network, under conditions complying with TSO's general connection rules. The customer and TSO agree in a separate agreement on financial compensation and the other conditions related to the connection. According to the amended Electricity Market Act (at end of year 2004) terms and conditions and charging principles for connection set by TSO shall be approved ex-ante by the Energy Market Authority. Generally the connection charges in Finland can be seen as 'shallow' because the customer pays usually the costs of connection to the transmission network at the connection point. The connection line from customer site to the TSO substation is generally paid and owned by the customer. TSO has an obligation according to the Electricity Market Act to overall development of the transmission grid. Thus reinforcements of the main transmission grid caused by new connections are paid by TSO.

Other charges

There are no separate charges for ancillary services; costs of ancillary services are largely included in use of grid fee component. In addition, charges based on location are not applied in Finnish transmission tariffication. Furthermore, no additional charges for generators and/or loads existed in the year 2007.

Average G charge for year 2007

According to the draft Guidelines on Transmission Tarification the value of 'annual national average G' is set to a maximum of 0.7 €/MWh within the Nordel system. The G-value describes amount of money generators have to pay for their injection to the transmission grid. The G-value is calculated by using the total annual transmission tariff charges paid by generators connected to the transmission grid, divided by the total measured energy injected annually by these generators to the transmission grid. The G-value includes only charges from generators directly connected to the transmission grid and injected energy to the grid.

G-charge includes use of the grid fee (input to grid component) and connection point fee. Individual G-charge for small generators is higher compared to large generators due to effect of connection point fee. The average G charge for year 2007 in Finland was around 0.325 €/MWh. This average G-charge complies with ranges set in draft Guidelines on Transmission Tarification.

Balancing

Balancing is managed by market based methods in the synchronously connected Nordic countries (Finland, Sweden, Norway and Denmark). The Nordic countries have established common regulation market in the year 2002 to handle balancing. Imbalances will be handled and settled according to common rules defined in System Operation Agreement between the Nordic TSOs. Balancing is managed within the Nordic control areas as one system consisting of all four Nordic TSOs. The balance regulation is based on the Nordel frequency requirements agreed on the System Operation Agreement. However, imbalances within a country are settled according to principles that vary from one country to another.

Figure 3 presents the balance management in the context of the Nordic electricity market model. Besides the regulation power market for actions during the specific operating hour, Elbas-market can be used for the intra-day trading and revisions of nominations after the day-ahead spot market (Elsport) has closed.

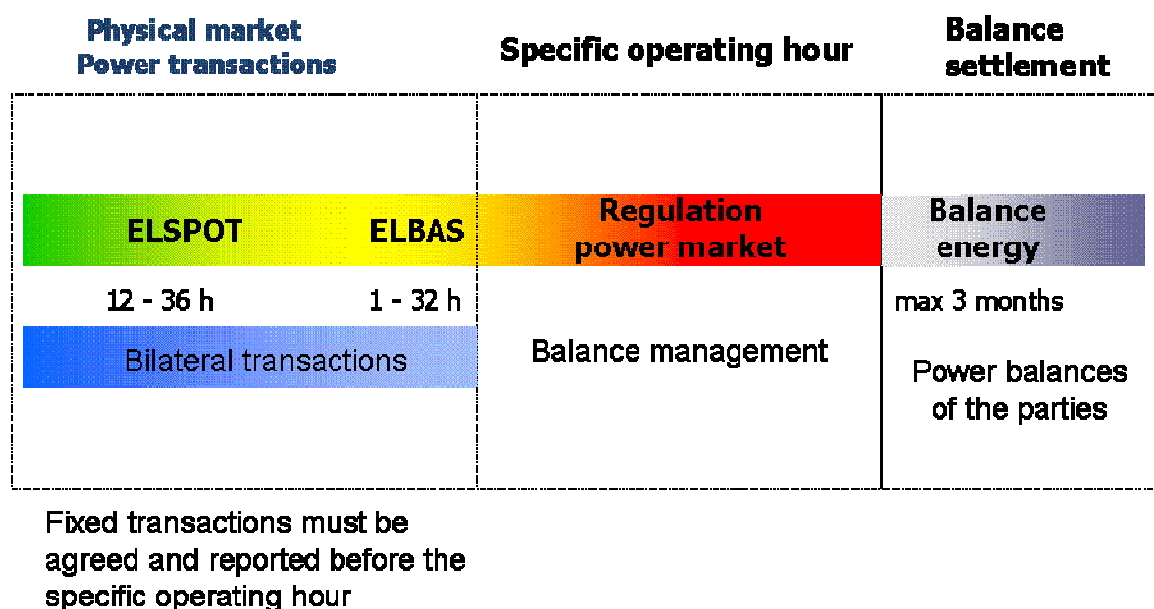


Figure 3. Balance management in the Nordic electricity market model (Source: Fingrid Plc).

In the Nordic regulation market all bids are collected in the joint Nordic merit order list and according to this list the production increases and decreases are carried out where they are most advantageous in the price order, however, taking into account congestions between control areas. This leads to the effective utilisation of the Nordic balance resources.

The balance between production and consumption within a specific operating hour is created through the regulation market by the upward and downward regulation of production and consumption to handle physical imbalances taking into account the effects on congestions.⁷

The price of the regulation power during the specified operating hour (the balancing interval 60 minutes) is determined on the basis of ordered up- or down-regulations. This implies that the price of the regulating power is known only after the end of the specific operating hour. It has been agreed that the price of up-regulation is the most expensive up-regulation bid ordered by the TSO during the specific operating hour. All those who have participated in the up-regulation during the specific operating hour receive the same compensation per MWh. Respectively the price of down-regulation is the cheapest down-regulation bid ordered by the TSO during the specific operating hour. All those who have participated in the down-regulation during the specific operating hour receive the same compensation per MWh. The average regulating power prices for up-regulation was 53.93 €/MWh (year 2006: 51.5 €/MWh) and down-regulation was 21.00 €/MWh (year 2006: 45.6 €/MWh) in Finland in year 2007. The volumes traded in regulation market were for up-regulation 121.0 GWh (year 2006: 148.6 GWh) and for down-regulation 167.3 GWh (year 2006: 123.5 GWh) in Finland during the year 2007 (Source: Fingrid Plc.).

⁷ More information in Nordel Annual report 2002 and Annual Report 2005 – Energy Market Authority, Finland

Requirements set by the TSO for Finnish bidders to act in the Nordic regulation power market are as follows:

- The minimum capacity of a single bid is 10 MW
- Full power should be delivered by the bidder in 10 minutes after the bid,
- The bid must include power (up/down regulated MW), price (euro/MWh) and location (north/south of Finland)
- The bids are to be submitted electronically to TSO no later than 30 minutes before the beginning of the operation hour, bids can be given within “rolling window” where gate is closed 30 minutes before the specific operating hour and bids can be given from beginning of operating day until 30 minutes before the specific operating hour
- The bid applies to a whole hour and it can be activated immediately from the beginning of the hour or later during the hour
- There may exist several power plants behind one regulation bid

According to the Electricity Market Act, the Energy Market Authority sets the pricing methodology for balancing services provided by the TSO. During the first and second regulatory period (years 2005 – 2007 and 2008 - 2011) the Energy Market Authority shall execute joint supervision of both network and system operation (including balancing services) in the price regulation of the TSO. Furthermore, the Energy Market Authority shall accept terms and conditions of TSO’s balancing services (i.e. standard balance agreement) when they are to be renewed. The Energy Market Authority approved terms and conditions for TSO balancing services in February 2007.

The balance service costs related to the national energy consumption were in Finland 23 euro/GWh in year 2007 when costs of regulation power and costs of reserves are excluded. The total annual income for TSO from the balance fees in year 2007 was 1.9 million euros. Fees are charged from every balance responsible party (about 20 balance responsible parties exist in Finland).

The TSO provides information on forecasts and values for the reserves before, during and after the operating hour; also regulation prices after operating hour. Most of this information is given only to the market participants and to Nord Pool. Publicly available information can be found on Fingrid’s website www.fingrid.fi and Nord Pool’s website www.nordpool.com.

Further development of integrating balancing management has continued during 2007 for aiming at a common Nordic balance settlement and harmonised principles for the balance management within TSOs by the beginning of 2009. A common Nordic balance settlement is one important part of the integrated end-user electricity market to be developed so all end-users are able to take part in the Nordic market. A common Nordic balance settlement will make it possible for a supplier to sell to the whole Nordic market from one legal entity and using only one system for customer management and reporting. A common balance settlement means, for example, that it will be attractive even for small suppliers and some end-users to be balance responsible parties.

Nordel has agreed on harmonised principles for the balance management in February 2007 and made update in November 2007. The harmonised principles are planned to be implemented by the 1st of January 2009 across the Nordic countries. The harmonisation within the Nordel decision applies to cost base, calculation and pricing of the imbalances and fee structure. Cost base of the balancing activity will be defined according to the equal principles.

Same cost elements are included although absolute cost levels may vary between countries. Calculation of imbalances will be based on two balances: one production balance and one consumption balance. The first one is settled according to two price system while the consumption balance is based on one price settlement. Objective of harmonised fee structure is that market players in competitive situation pay same fees for their imbalances. As these fees are not sufficient to cover TSOs' all balancing costs, additional flat fees for producers and consumers are needed.

The implementation of harmonised principles is subject to approval by the national regulators during year 2008. The approval process will include a national consultation of relevant stakeholders in each country, and additionally, a consultation of the other regulatory authorities to ensure a harmonised approach in all the four countries. Depending on the receipt of the applications the approval of the draft balance agreements should be finalised in late fall of 2008 to allow the TSOs to enter into new balance agreements with their balance responsible parties which should be in force by the first of January 2009.

3.1.4 Effective unbundling

In Finland the transmission system operator, Fingrid Plc, is legally and functionally unbundled from electricity supply and generation. However, the company is not fully ownership unbundled because two generating companies, Fortum Power and Heat Oy and Pohjolan Voima Oy own both 25 per cent of the shares. The other owners of Fingrid Plc are State of Finland (12 per cent) and insurance companies (38 per cent). Fingrid Plc owns almost fully its network assets. Only a few lines have been leased out.

Since the beginning of 2007 the legal unbundling of network operations from electricity supply and generation activities has been required also from the distribution system operators in whose 400 V electricity network the annually transmitted quantity of electricity has been at least 200 GWh during the last three calendar years. When looking at the number of customers, the threshold value corresponds to about 20 000 customers. The threshold value is thus significantly lower than what the directive requires.

If the vertically integrated distribution system operator had reached the threshold value before the amendment to the Electricity Market Act became effective at the end of 2004, a change in the corporate structure had to be implemented by the first of January 2007. The transition period was shorter than the directive allows. Totally, 34 distribution system operators of 89 were at the beginning of 2008 over the threshold value. Also some distribution system operators under this threshold value have voluntarily legally unbundled network activities from electricity supply and generation activities. In June 2008 a total of 50 distribution system operators were legally unbundled.

The legally unbundled distribution system operators are not required to be structured any special legal form. The only limitation is that the separated companies cannot both be public utilities because then these companies would be part of the same legal entity.

Many of the distribution system operators are either municipal utilities or companies in which the majority of the shares are owned by municipalities. There are about 15-20 DSOs who are private or state owned. In Finland there are no requirements for ownership unbundling of the DSOs. Most of the legally unbundled distribution system operators still belong to same group

of companies as electricity retailers and/or generators. In many cases the parent company of a legally unbundled distribution system operator is a generating or retailing company. On the other hand, some electricity retailers are owned by a group of distribution system operators. In most cases the legally unbundled distribution system operators belonging to a group of companies share their operational, managerial, and financial responsibilities. Part of the strategic and operational tasks of distribution system operators are done in collaboration with other parts of the concern or outsourced to them. Usually, the distribution system operator and the retailer have at least a common customer service.

There are also available independent service providers for the construction and maintenance of the network. Some electricity system operators have outsourced part of their operational tasks to these service providers.

The majority of the electricity system operators have the economic ownership of the assets. However, there are some electricity system operators who are operating with leased out network assets and thus they don't have the economic ownership of their network assets. At the end of 2007 there were 9 distribution system operators who were operating with a distribution network leased out from their parent company. In addition to these there are some other DSOs whose network assets are partially leased, like some substations.

Regardless of whether the electricity system operator has or doesn't have the economic ownership of the assets, it needs to fulfil the technical, economic and organisational preconditions for the electricity system license:

- The organisation of the applicant corresponds to the scope and nature of its system operations;
- The applicant has a sufficient staff in its service;
- The applicant has in its service an operating manager and, if the applicant carries out electrical works, a manager of electrical works, that meets the eligibility requirements laid down in or by virtue of the Electrical Safety Act (410/1996);
- The applicant has the economic conditions for profitable electricity system operations;
- The applicant has the right to decide on the resources needed for the operation, upkeep and development of an electricity system; and
- The grid operator to be placed under the systems responsibility has delegated the functions related to the national balance responsibility to its separate operational entity or a subsidiary wholly owned by it.

The fifth point is comparable to the Article 15(2)(c) in the Directive 2003/54/EC and thus relevant for all distribution system operators. The corresponding principle has been de facto applied in Finland established practise of granting an electricity system license since year 1995. Besides these requirements, any additional rules that would provide the electricity system operators with more financial independence are not required. There isn't for example any formal restriction preventing that cash flow (e.g. in the form of dividends or transactions) of electricity system operator can be used by the holdings.

The functional unbundling requirements are applied to legally unbundled distribution system operators with some limitations, with the exception of the requirement in the article 15(2)(c), which is applied to all distribution system operators (see above). The functional unbundling requirements are restricted to legally unbundled distribution system operators because the requirements are related to the legal organs of the company (the board of directors and the managing director) and are not therefore applicable to vertically integrated company. The transi-

tion period related to legal unbundling does not extend to functional unbundling requirements but in practice the distribution system operators need to be first legally unbundled before the functional unbundling requirements can be applied.

The requirement for separate management for the electricity network company is limited to legally unbundled system operators with 50 000 customers or more and it covers 15 distribution system operators in Finland. According to Electricity Market Act a person managing a network operator engaged in a legally unbundled electricity network operation with 50 000 customers or more may not act as the managing director of a utility in charge of electricity generation or electricity supply or as a member of its board of directors or a corresponding organ, if the network operator and the utility are under the control of the same party. The threshold of 50 000 customers is lower than the directive requires.

The requirements for professional interests and compliance programmes are limited to legally unbundled electricity system operators with 100 000 customers or more and it covers six distribution system operators in Finland. The ministerial degree, which sets the detailed content of the requirements, was given in October 2006. It entered into force at the January 1st, 2007. The Energy Market Authority has prepared and published a recommendation for compliance programme. According to the ministerial degree the distribution system operators had to prepare a compliance programme and send it to the Energy Market Authority in 2007. The first reports from the implementation of the programme should have been published by the end of May 2008.

Figure 4 shows the requirements for unbundling of electricity business activities in Finland.

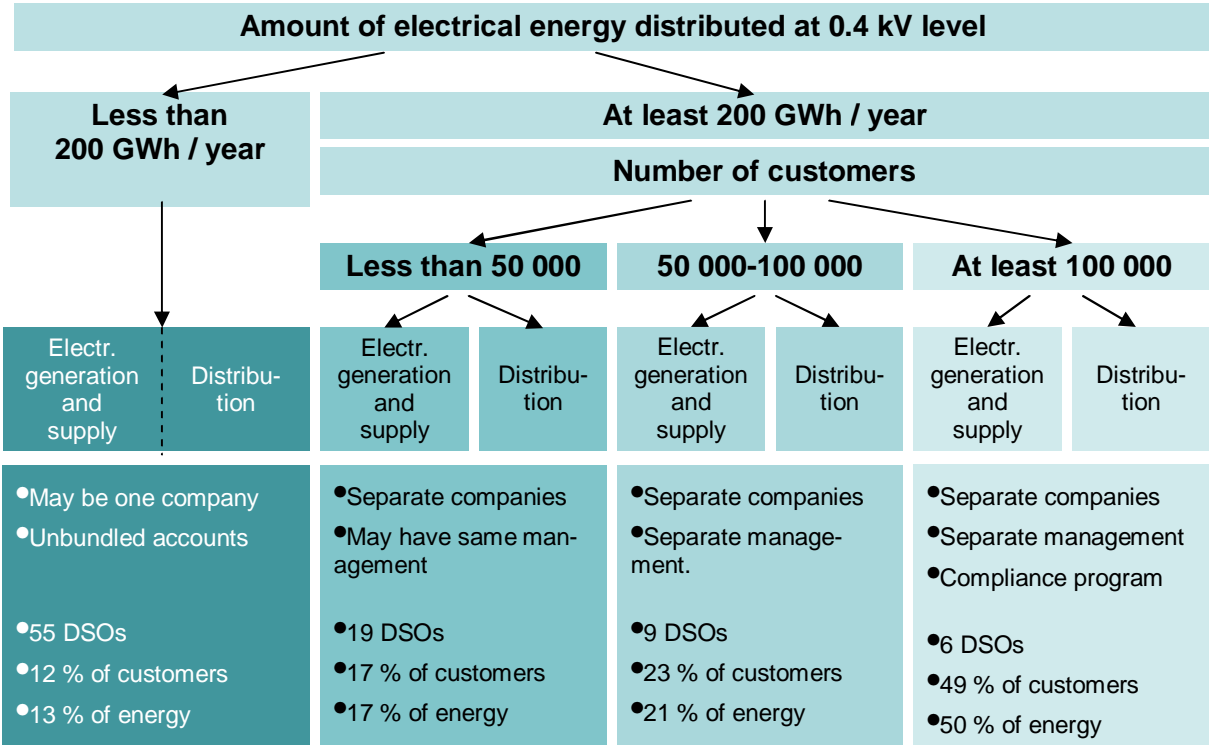


Figure 4. Requirements for unbundling of electricity business activities.

The accounting unbundling applies to the rest of electricity system operators, which are not required to be legally unbundled. The accounting unbundling is also required in the legally unbundled companies, which have other activities besides network business if these activities are not relatively small. As a relatively small activity has been considered business activities whose annual revenue is less than 500 000 Euros and less than 10 per cent of the company's total revenue. Accounting unbundling requirements are specified with the ministerial decree and the Energy Market Authority has issued the guidelines on the compilation of unbundled financial statements in 2005. These guidelines are not legally binding but they show the procedure the Energy Market Authority considers fulfil the requirements of the legislation. Both the distribution system operators and the transmission system operator are under the obligation to publish unbundled accounts with certain formula. They shall publish the unbundled financial statements as a part of the statutory financial statement, annual report or corresponding other public document available to the stakeholders.

The unbundled income statements, balance sheets and any supplementary information of unbundled operations are audited as part of the statutory auditing. The Energy Market Authority has issued the guidelines in co-operation with chartered accountant on the auditing of unbundled financial statements in 2006. These guidelines aim to help the audit of unbundled financial statements in different electricity system operators and inform the auditors about the unbundling requirements.

The Energy Market Authority supervises that the network companies are fulfilling the unbundling requirements. The Authority has also powers to oblige the companies to correct mistakes or omissions. A conditional fine may be imposed to make decisions effective. As a final mean the Energy Market Authority may also withdraw the electricity network licence from the company.

Even if there are legally unbundled distribution system operators, many of them still have the same corporate presentation with the electricity supply and generation activities. In most cases, for example, the customer service or web-pages are shared, but only a few distribution system operators have separate headquarters. The electricity transmission system operator doesn't have electricity supply or generation activities in the same corporation and thus has its own corporate presentation.

3.2 Competition Issues

3.2.1 Description of the wholesale market

Market structure and integration to Nordic wholesale market

Finland consumed 90.4 TWh of electricity in 2007, about 0.3 per cent up on the previous year. Condensing power declined due to good hydro power year. Cogeneration of heat and power covered 30 per cent of the consumption of electricity, nuclear power nearly 25 per cent, hydro power 15 per cent and coal-based and other conventional condensing power about 16 per cent. Wind power accounted for 0.2 per. Electricity import from Russia to Finland was 10.2 TWh and declined by 1.4 TWh but import from Estonia was almost 2 TWh via new connection. Electricity net imports from the Nordic market were about 0.5 TWh. Total net imports of electricity covered close to 14 per cent of electricity consumption. Carbon dioxide

emissions from energy generation from coal, natural gas, peat and oil were some 17.6 million tonnes, declined by 2.4 million tonnes from the previous year. The peak demand amounted to 14 914 MW in 2007. Table 6 shows electricity net production, imports and exports in Finland in 2000 – 2007.

Table 6. Electricity net production, imports and exports (TWh) in Finland.

TWh	2000	2001	2002	2003	2004	2005	2006	2007
GROSS PRODUCTION	70,0	74,3	74,9	84,3	85,8	70,5	81,9	81,2
Consumpt. in power plants	2,7	3,1	3,3	3,9	3,6	2,7	3,3	3,4
PRODUCTION	67,3	71,2	71,6	80,4	82,2	67,9	78,6	77,8
Hydro power	14,5	13,0	10,6	9,5	14,9	13,6	11,3	14,0
Wind power	0,1	0,1	0,1	0,1	0,1	0,2	0,1	0,2
Nuclear power	21,6	21,9	21,4	21,8	21,8	22,3	22,0	22,5
Conv. thermal power	31,2	36,3	39,5	49,0	45,4	31,8	45,1	41,1
Co-generation, CHP	24,5	25,7	27,2	28,0	28,2	26,1	27,6	26,8
district heating	12,7	14,1	14,9	15,3	15,1	14,4	14,5	14,4
industry	11,7	11,6	12,3	12,7	13,0	11,6	13,1	12,3
Condense etc.	6,7	10,6	12,4	21,0	17,2	5,7	17,5	14,4
conventional	6,7	10,6	12,3	21,0	17,2	5,7	17,5	14,4
gasturbine etc.	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
IMPORTS from	12,2	11,8	13,5	11,9	11,7	17,9	15,4	15,4
Sweden	7,6	4,1	5,4	0,5	0,4	6,4	3,7	3,1
Norway	0,1	0,0	0,1	0,1	0,1	0,2	0,2	0,2
Russia	4,5	7,7	7,9	11,3	11,1	11,3	11,6	10,2
Estonia								1,9
TOTAL SUPPLY	79,5	83,0	85,1	92,3	93,8	85,8	94,0	93,2
EXPORTS to	0,3	1,8	1,5	7,0	6,8	0,9	3,8	2,9
Sweden	0,2	1,6	1,4	6,9	6,6	0,8	3,7	2,7
Norway	0,2	0,2	0,2	0,2	0,2	0,1	0,1	0,1
Russia	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Estonia								0,0
GROSS CONSUMPTION	79,2	81,2	83,5	85,2	87,0	84,9	90,1	90,4
Incl. electric boilers	0,1	0,1	0,1	0,1	0,1	0,1	0,1	-

Source: Adato Energia Ltd, Statistics Finland, Nordel

The Finnish electricity generation sector is characterized by a large number of actors. The total number companies producing electricity amounts to some 120 and the number of production plants is circa 550.

The total installed capacity⁸ at the end of 2007 was 16,900 MW consisting of fossil fuels (8,417 MW), nuclear power (2,651 MW), hydro power (3,031 MW) and capacity based on renewable energy sources like bio fuels, waste and wind (2,801 MW).

⁸ Source: Nordel annual statistics 2007, S1 Installerad effekt den 31 december 2007, MW and Energy Market Authority's power plant registry.

In Finland there were four companies with at least 5 per cent share of installed capacity. The share of the three biggest companies of the total installed capacity was estimated to be in the range of 45 – 50 per cent.

Due to the Nordic electricity market integration, there is no separate Finnish wholesale electricity market any more. Finland together with Sweden, Norway and Denmark make up a single Nordic electricity market. Electricity generation differs considerably among the Nordic countries. In Norway nearly all electricity generation is based on hydro power. Sweden and Finland produce electricity from hydro power, nuclear power and thermal power whereas in Denmark electricity generation is mainly based on conventional thermal power with an increasing amount of wind power. Figure 5 shows the marginal cost of production in the Nordic countries.

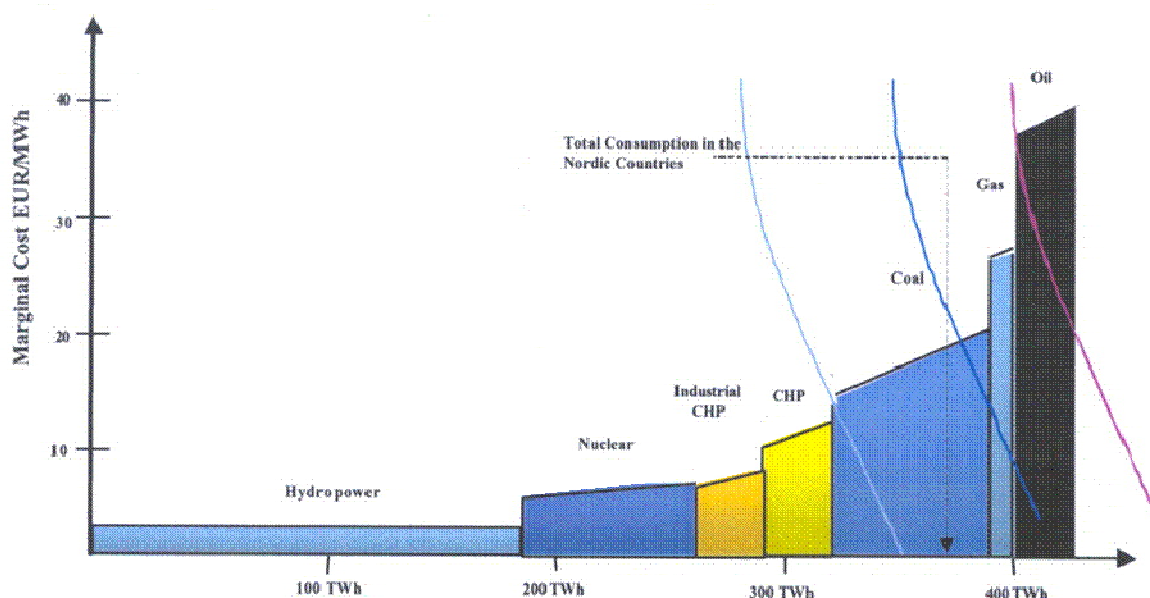


Figure 5. Marginal cost of production in the Nordic countries. (Source: Keskkilä, Lindholm: The Nordic Electric Power market. Ministry of Trade and Industry Finland report 11/2003).

The interconnections between the four Nordic countries are relatively strong although new cross-border transmission lines are needed and already planned or decided to decrease the amount of congestions and to improve the overall functioning of the market. In June 2004 the co-operation body of the Nordic TSOs – Nordel – published a Nordic investment plan drawn up with the intention to strengthen the Nordic transmission grid. The plan included the five prioritised cross section reinforcements within Nordic countries. As a first concrete step of fulfilling the plan, the Finnish and Swedish TSOs are building a new DC interconnector between Finland and Sweden (Fenno-Skan 2). Second Nordic Grid Plan was published in spring 2008, where investment plans until 2015 have been presented.

As regards the Nordic countries, Finland is physically connected to Sweden and Norway. The transmission capacity from Finland to Sweden is 1,750 MW and from Sweden to Finland 2,150 MW. The transmission capacity between Finland and Norway is 100 MW to both directions. Outside the Nordel area, Finland has an interconnector capacity of 1,500 MW on the Russian border and at the beginning of year 2007 commissioned 350 MW DC interconnector Estlink between Finland and Estonia. The total import capacity of the interconnectors between

Finland and the Nordel countries as well as Russia and Estonia is 4,100 MW. The import capacity as a percentage of the total installed capacity is nearly 25 per cent. Taking only the interconnectors between Finland and the Nordel area (Sweden and Norway) into consideration the corresponding percentage amounts to nearly 14 per cent.

In the Nordic electricity market electricity trading takes the form of bilateral trade – i.e. direct trading among the market actors – and trading via the power exchange. There is the Nordic electricity exchange Nord Pool Spot AS for the physical electricity trade and Nord Pool ASA for the financial electricity trade.

Approximately 70 percent the electricity used in the Nordic market area is traded through power exchange whereas remaining 30 percent is traded via bilateral transactions or internal procurement. For Finland, Sweden, Denmark and Kontek interconnector an additional element to the physical electricity market is the Elbas exchange market where trade continues up to one hour before the delivery.

The Nordic TSOs and Nord Pool ASA are the owners of the Nord Pool Spot AS each owning 20 per cent of it. Nord Pool ASA is owned 50-50 by the Norwegian and Swedish TSOs. Nord Pool is headquartered in Oslo, Norway, with offices in Denmark, Finland and Sweden.

The total number of companies having direct trading at Nord Pool Spot AS – sellers and buyers – is 130 at the end of June 2008.

In 2007, the volume of electricity traded in Nord Pool Spot AS amounted to 290.6 TWh with a significant increase from the previous year (251 TWh in 2006). The market share of Nord Pool Spot AS rose to 68.9 per cent compared to 61 per cent in 2006. The market share of Nord Pool Spot AS is more than 40 per cent in all the Nordic countries, which can be considered as a sign of a truly integrated Nordic marketplace.

The share of electricity bought from the power exchange in relation to the Finnish electricity consumption has increased considerably since Finland joined the Nordic power market area in June 1998. From the share of 5 per cent the share of electricity bought from the Nordic power exchange has increased to cover 45.8 per cent of the Finnish consumption (42 per cent in 2006). Figure 6 presents the share of electricity bought from Nord Pool Spot AS in relation to the electricity consumption in Finland during the years 1998-2007.

The basis of the price formation in the Nordic power market is the spot market. Trade is organised as an implicit auction and is by the hour for a day at a time. The prices are determined by summarising all purchases into a purchase curve and all sales into a sales curve. Bids in the electricity spot market are given in the same way regardless of the player, and accordingly, a bid for the following day has to be given before noon every day indicating the amounts one wishes to purchase or sell at the relevant hour at different price levels. When the price has been determined for each operating hour, the sales and purchases of individual players are determined. In case there are no grid restrictions between the Nordic countries or internally in Norway, the spot price is the common price for the whole Nordic market area.

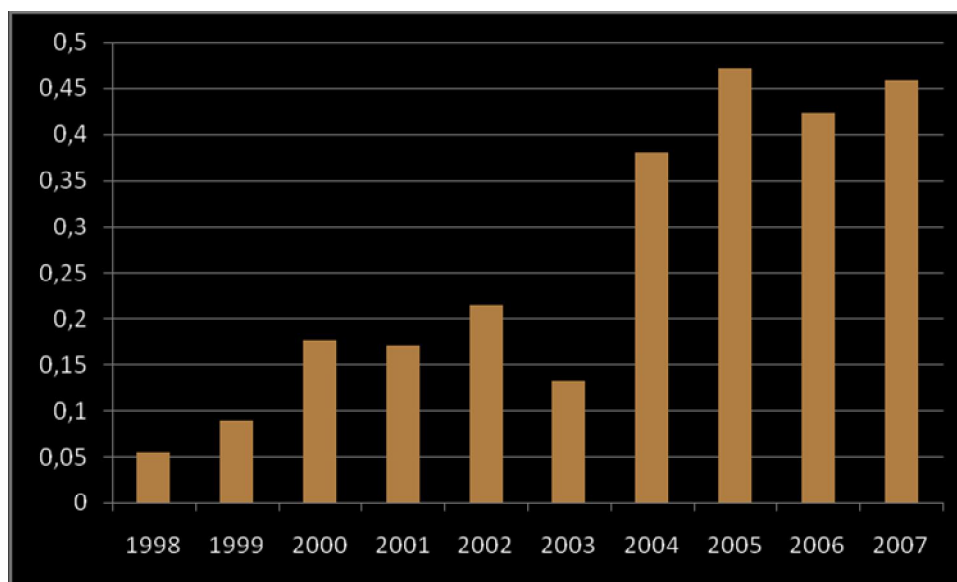


Figure 6. The share of electricity bought from power exchange in relation to the electricity consumption in Finland. (Source: Nord Pool Finland Ltd)

The users of electricity, especially the large users, are able to join the power exchange and purchase their electricity from there. Furthermore, it is possible for end-users to join forces and to form joint purchasing enterprises.

Ancillary services

The TSO provides system services (ancillary services) in Finland. Technical properties of system services are presented in more detail in Chapter 5.1 (TSO and security of supply issues).

As far as the power reserves are concerned, the TSO's goal is to make sure that sufficient volume of reserves is maintained continuously in Finland in cost-efficient manner and in accordance with the system operation agreement signed between the Nordic transmission system operators.

The TSO produces only part of the system services (TSO owns 515 MW gas turbines used as fast disturbance reserve) and the maintenance of reserves is primarily arranged as a service purchased from electricity producers and reserve holders. Agreements of this kind exist specially in three first categories of system services.

The participation of electricity producers and others in the maintenance of the reserves as a service provider is fully voluntary. The TSO has established a "reserve bank" where companies owning controllable capacity can register their resources. The resource owners maintain the agreed and measured properties at their power plants in the agreed manner and receive the compensation from the TSO.

As far as the agreements concerning the maintenance of primary reserves (frequency controlled normal operation reserve and frequency controlled disturbance reserve) are concerned,

the terms, contents and compensations specified in the agreements are identical for all service providers.

The agreements to provide instantaneous reactive power reserves have been established with all generators over 10 MVA when they are connected to the network and the terms, contents and compensations specified in the agreements are identical for all generators within a voltage level.

The load shedding serving as primary and secondary reserve (frequency control and fast disturbance reserve) have been agreed upon with companies in the pulp and paper, chemical, and metal industries. The agreements provide for a total power of around 1000 MW and will be in effect from 2005 to 2015.

Balancing service is provided with market based methods using the Nordic regulation market as described in Section 3.1.3.

Acquisitions and mergers

The Finnish Competition Authority (FCA) approved conditionally in June 2006 the acquisition between Fortum Power and Heat Oy and E.ON Finland Oyj. The approval was conditional on Fortum renouncing some of its production capacity.

According to the FCA the competitive problems resulting from the deal were related to the electricity production and wholesale market. Due to the congestions in the electricity transmission capacity the FCA took the view that the electricity production and wholesale market is national at least part of the time. Fortum holds a dominant position in these markets, particularly when Finland is one price area in Nord Pool Spot. The demand and competing supply of electricity met by Fortum do not effectively reduce Fortum's opportunities to affect the wholesale price level of electricity in these times in particular.

Fortum lodged an appeal with Market Court against the conditions imposed by the Finnish Competition Authority. In its decision of 14th March 2008 the Market Court found that the relevant geographical market comprises of at least Finland and Sweden and Fortum is not dominant in that market, therefore annulling the FCA's decision as far as remedies were imposed.

The Court's decision is founded on *inter alia* that a) there is a Nordic electricity transmission grid and the trading mechanism offered by Nord Pool; b) the prices in Finland and Sweden correlate; c) the number of congestion hours between Finland and Sweden is not significant; d) it is not feasible to build a transmission grid that would never be congested; e) there will be more transmission capacity between Sweden and Finland in 2011. Furthermore the Court did not accept the FCA's findings that one doesn't have to be able to predict the congestion precisely in order to take advantage of the separation of the price areas and some market parties can with the use of simulation models and the knowledge and experience gained through operating a wide variety of production capacity predict the separation of the markets.

The FCA has appealed the decision to the Supreme Administrative Court.

3.2.2 Description of the retail market

In Finland electricity retail supply does not require any license or registration at the Energy Market Authority. There are no regulated tariffs for retail supply that have to be approved by the Energy Market Authority or any other authorities.

However, according to the Section 21 of the Electricity Market Act an electricity retailer in a dominant position within the area of responsibility of a distribution system operator shall deliver electricity at reasonable prices to consumers and other users of electricity whose place of use is equipped with main fuses of 3x63 amperes at maximum or whose site of electricity use receives annually no more than 100 000 kWh of electricity (obligation to deliver). If an electricity retailer referred to above does not exist, the obligations of an electricity retailer in a dominant position shall be applied to an electricity retailer whose market share is the highest in the area of responsibility concerned (distribution network area). An electricity retailer in a dominant position shall have terms of retail sale and prices, and the criteria underlying these that are publicly available to consumers and to the customers encompassed by the retailer's obligation to deliver. They shall not include any unreasonable conditions or limitations that would restrict competition within electricity trade. The Energy Market Authority may order the retailer referred to here to deliver electricity to the customers within the obligation to deliver.

The prices of electricity offered within the obligation to supply system do not have to be approved by the regulator before the supplier takes them into use. On the basis of the Electricity Market Act (Section 21) the Energy Market Authority may investigate either on the basis of a complaint received from a customer or at its own initiative the pricing of electricity.

There are today 69 electricity retailers having the obligation to supply within at least one distribution network area of responsibility. Many of the electricity retailers are part of companies involved in the network business. On July 1st, 2008 there were 32 electricity retailers who had the obligation to supply and who were legally unbundled from electricity network activities. Only a few electricity retailers are ownership unbundled from electricity network activities. Most of the legally unbundled electricity retailers still belong to same group of companies as a distribution system operator. Some electricity retailers are owned by distribution system operators.

In the Finnish electricity retail market there are about 4 electricity retailers with a larger than 5 per cent share of market. The exact numbers are not available. The market share of the three largest companies in the retail market for small and medium-sized customers has been 35-40 per cent (Table 7).

Some large foreign players have entered the Finnish retail supply market by acquiring local electricity companies. Those companies are active both in electricity retail supply and distribution businesses. These companies also own electricity generation in Finland. In the electricity retail supply market the share of those companies amount to some 10-20 per cent.

In addition to the 69 electricity retail suppliers with an obligation to supply, there are a few electricity retailers in the Finnish electricity retailer market acting only in the competitive part of the retail supply market. These retailers are fully independent from network companies. The market share of these companies is quite small.

Table 7. The largest companies in the electricity retail market (market shares according to energy sold to end users connected to the distribution network).

	Total retail consumption (TWh)	No. of companies with >5% retail market	Number of fully independent suppliers (1)	Market share of three largest retail companies (%)		
				large and very large industrial	small-medium industrial and business	very small business and household
2001	43.6	4	< 5	N/A	35-40	
2002	45.0	4	< 5	N/A	35-40	
2003	45.5	4	< 5	N/A	35-40	
2004	45.9	5	< 5	N/A	35-40	
2005	46.3	5	< 5	N/A	35-40	
2006	47.9	4	< 5	N/A	35-40	
2007	48.2	4	< 5	N/A	35-40	

According to the electricity market legislation, the network operator may not charge a customer for the change of supplier unless the time elapsed from the previous change of supplier is less than 12 months. In that case the network operator may charge only for the cost of extra meter reading if the customer will not read the meter by himself/herself. Instead of reading the meter, the network operator may also estimate the meter values during the change of supplier.

There are no exact rules for the maximum delay for switching in the electricity market legislation. However, the branch organization has given the procedure recommendations regarding the exchange of information in connection with the supplier switching. According to these recommendations the new supplier shall notify the network operator about the new contract. This notification shall be done at the earliest three months and at the latest 21 days before the contract enters into force. If metering changes are needed in the consumption site, a notification shall be available to a network operator at the latest 30 days before. The Energy Market Authority has not collected statistical information on actual time delays for switching.

The Energy Market Authority prepared in 2007 a proposal for a decree of the Ministry of Employment and the Economy on information exchange during supplier switching. The decree will include binding rules for information exchange during supplier switching: what kind of information and in which timetable the new supplier and the DSO have to send to the other market actors and also what are the conditions for the present supplier to reject the supplier switching process. In 2007 the Energy Market Authority also gave some decisions in which the Energy Market Authority clarified the roles and responsibilities of DSOs and suppliers in connection with the supplier switching.

The Energy Market Authority has started in 2007 to collect information on supplier switching activity. Table 8 shows the share of customers who have changed the supplier in 2006 and

2007. Approximately 4 per cent of the Finnish electricity customers have switched supplier in 2007. The switching rate was in 2007 lower than in 2006.

Table 8. The share of customers who have changed the supplier.

	Households and other permanent dwellings		Other customers		Total
	< 10000 kWh/a	>10000 kWh/a	Max 3x63 A	>3x63 A	
2006	3.1 %	7.7 %	3.8 %	7.7 %	4.2 %
2007	3.0 %	6.8 %	3.3 %	8.0 %	4.0 %

The estimated national average electricity prices during the second half of 2007 for three reference customer bands defined by Eurostat are shown in Table 9. Energy costs and supply margin for household customer at the table are based on public energy tariffs. Negotiated and actual energy prices might be different. During the first half of the year 2007, the prices fell by 3.3 per cent, but rose sharply towards the end of the year, as retailers were waiting for the Kyoto period to start. The fact that the water situation remained good and the market price of emission allowances was low curbed the rise in the electricity price on the power exchange, however, and the changes in the retail prices remained relatively small. At the beginning of 2008 energy costs and supply margin was on average 4.9 per cent higher than a year before. Energy costs and supply margin have increased by 7.5 per cent on average during the first half of 2008.

During 2007 total electricity prices for consumers, including network charges and energy costs have increased by 5.8 per cent on average.

Electricity tax for industrial end-users was increased at the beginning of 2008.

Table 9. Electricity prices for reference customer bands during period 1.7-31.12.2008. ⁹

Euro/MWh	Band Ie	Band Ib	Band Dc
Network charges (excl. levies)	4.1	23.3	39.2
Levies included in network charges	-	-	-
Energy costs and supply margin	36.3	42.0	47.5
Taxes (incl. Electricity tax and VAT)	11.8	17.2	28.2
Total (including all taxes)	52.2	82.5	114.9

⁹ Prices are based on the new methodology by Eurostat for collecting electricity prices from 2007 onwards. Prices are average of the 6 months. Definitions for reference customer bands are:

- Band Dc: household customers with annual consumption of 2 500-5 000 kWh/year,
- Band Ib: commercial customers with annual consumption of 20-500 MWh/year and
- Band Ie: commercial customers with annual consumption of 20-70 GWh/year.

3.2.3 Measures to avoid abuses of dominance

Competition supervision

The responsibility of supervising the electricity generation, wholesale supply and retail supply falls primarily to the Finnish Competition Authority. The Electricity Market Act in Finland does not include any rules governing the generation and supply of electricity except supervision of retail supply under obligation to supply (the kind of “regulated market”), the monitoring of security of supply and unbundling. On the basis of the Act on Competition Restrictions (No. 480/1992, last amended in 2003), the Finnish Competition Authority has powers to investigate and give decisions on cases amounting to abuse of a dominant position.

The Finnish Competition Authority’s Monopolies Unit is responsible for cases concerning the abuse of dominant position and merger control. The rules governing the abuse of dominant position are equivalent to the article 82 of the EC treaty. The following are considered as abuse of dominant position under Article 6 of the Finnish Competition Act:

1. directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;
2. limiting production, markets or technical development to the prejudice of consumers;
3. applying dissimilar conditions to equivalent transactions with other trading partners, thereby placing them at a competitive disadvantage;
4. making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connections with the subject of such contracts

The Finnish Competition Authority works, among other industries, also in the electricity sector to promote healthy competition and to investigate antitrust and merger cases. In the Finnish Competition Act there are no special provisions related to the abuse of dominant position in the electricity market. The Finnish Competition Authority’s analysis is always case-specific and there are no universally applicable criteria which could be used in the decision making. The Finnish Competition Authority’s view is that energy sector cases should be assessed on equal standard with cases in other industries. Nor has the Finnish Competition Authority gathered up any special information of the electricity markets. However there is a one special provision related to merger control on the electricity sector. Market Court may, upon the proposal of the Finnish Competition Authority, prohibit a concentration in the electricity market as a result of which the combined share of the transmission operations of the parties to the concentration and the entities or facilities in such a relation to them of the amount of electricity transmitted at 400 V in the transmission grid exceeds 25 per cent on a national level. So far the Finnish Competition Authority has not investigated a merger where this provision could have put into practise.

In the recent years the Finnish Competition Authority has not investigated any significant cases considering abuse of dominant position except the Fortum acquiring E.ON Finland (see 3.2.1) in the electricity sector. The role of the Energy Market Authority in avoiding abuses and harmful dominance in electricity and gas market is based on maintaining equality and transparency in terms and pricing of transmission and distribution activity. The competitive sector of electricity sales is supposed to be self-conducting as long as the transmission and distribution work neutrally.

In gas sector there is not yet an independent sales activity, as the sole importer is also the sole gross seller and transmission net owner in Finland.

Transparency and provision of information

Transparency and market surveillance have been organised in two ways within the Nordic energy market. There are arrangements that are based on legislation and authority surveillance, and additionally, there are voluntary contract-based arrangements between the Nordic power exchange and the market actors.

The surveillance responsibility over the Nordic power exchange lies in Norway where the headquarters of Nord Pool Group is situated. As regards the spot market, Nord Pool Spot AS operates on the basis of a licence from the Norwegian energy regulator Norges vassdrag- og energidirektorat (NVE) and the market supervision is the responsibility of the Norwegian competition authority. The financial market is operated by Nord Pool ASA on the basis of a license from the Norwegian Financial Supervisory Authority.

The Forum of Nordic energy regulators (NordREG) has agreed to co-operate regarding the issues of the Nordic power exchange despite the fact that excluding the Norwegian regulator NVE the others have no legal mandate over the Nordic power exchange. Similarly, the Nordic financial supervision authorities co-operate regarding the issues of the financial power market.

As required by the Norwegian Stock Exchange Act and the related regulations on market surveillance, Nord Pool has established its own market surveillance department. The department is responsible for monitoring trading activities and the conduct of participants both in the physical and the financial power market. The market surveillance is intended to ensure that the activities of the market actors are in line with the prevailing statutes and regulations as well as with the power exchange's own rules.¹⁰

All members in Nord Pool Spot have a contractual obligation to release information to Nord Pool Spot and general public on events which have a relevant effect to price formation in the Nord Pool Spot or in the financial market. Members have to report on any plans or changes of plans for maintenances or limitations of their production units. The same applies to any outage or failure concerning more than 100 MW, as soon as possible after the event has occurred.

Market participants have to report relevant information within 60 minutes to Nord Pool. National information has to be reported to the TSOs as well. More information is available on Nord Pool Spot's website under Disclosure rules.

Nord Pool has its insider trading rules for the spot and the financial market. Furthermore, Nord Pool has rules for handling market sensitive information and guidelines for ethics in trading.

In June 2005, Nord Pool ASA decided to introduce further measures to deter and penalise breaches of the trading rules at the power exchange – including the establishment of a disciplinary committee. The committee will contribute to ensure that safer and more appropriate

¹⁰ Source: Nord Pool ASA Annual Report 2004, p. 10.

reactions are applied against a market participant or participants involved in possible contraventions of the exchange rules.¹¹

Furthermore, the maximum violation charge for breaching the rules will increase from 1 million Norwegian crowns to 10 million (approx. 1.2 million euros). By establishing a disciplinary committee and substantially increasing the maximum violation charge, Nord Pool intends to ensure that no market participant is tempted to break the trading rules at the expense of the market and its other participants.

The disciplinary committee will be presented with cases which the market surveillance department believes to involve breaches of the trading rules and regulations, and will make recommendations to the board of directors. The board of directors will remain the final arbiter on breaches of the regulations. The aim is to clarify borderline cases and lay a stronger basis for responding to possible breaches of the regulations.

In Finland there are national rules on disclosure of information. In the Electricity Market Act in Section 36 it is stated that: "A power plant operator shall notify the electricity market authority of a plan for constructing a power plant, of commissioning of a power plant and of long-term or permanent decommissioning of a power plant." Further provisions on the contents of the notification obligation and notification procedure are given by Government decree.

Furthermore, on the basis of Section 36a of the Electricity Market Act, the power plant operator is obliged to notify the Energy Market Authority of a planned maintenance outage of its power plant practising separate electricity generation, with an output of 100 mega-volt-amperes, which would take place between the 1st of December and the 28th of February. The notification shall be made at least six months before the planned starting date of the maintenance outage. The Energy Market Authority may order that the date of a maintenance outage of a power plant be rescheduled outside the period of the 1st of December and the 28th of February.

The Section included in the Electricity Market Act concerning the notifications of planned maintenance outages has at least two objectives. Firstly, it is aimed at improving the knowledge on security of supply, and secondly, it is aimed at increasing the efficiency of the electricity price mechanism. Thus, the objective is to guarantee that the price of electricity is determined on the basis of supply and demand also in those situations when the supply of electricity is constrained – for instance due to low hydro reservoirs and/or increased demand – in the Nordic electricity market. The Section intends to make it more difficult to manipulate the market price and to enhance the possibilities to utilize the generation plants.

¹¹ Source: Nord Pool press release No. 12/05.07.05. Nord Pool establishes own disciplinary committee and increases violation charge. http://www.nordpool.com/information/press_releases/2006-003.html

4. Regulation and Performance of the Natural Gas market

4.1 Regulatory Issues

4.1.1 General

The Finnish natural gas market has been under sector-specific regulatory supervision since the assertion of the Natural Gas Market Act in August 2000. The Natural Gas Market Act was amended at the beginning of the year 2005 to implement the Natural Gas Market Directive (2003/55/EC). The Natural Gas Market Act aims to improve the functioning of the natural gas market and to prepare the natural gas sector for the integrating European natural gas market. The Act provides large-scale consumers, buying at least 5 million cubic metres of natural gas per year, with the possibility of mutual secondary market trading in natural gas they have purchased from an importer operating in Finland. A separate market place, operated by Gas Exchange Ltd, has been established for trading on the secondary market.

The Finnish natural gas market is relatively isolated with a pipeline connection only to the importing country Russia. There is only one importer and wholesale supplier – Gasum Ltd – which also owns and operates the natural gas transmission network and is the TSO.

Accordingly, Finland has availed itself of the possibility of an exemption allowed by the previous and present Natural Gas Market Directives. Following this, the natural gas market has not been opened in the manner specified in the directives. This exemption is effective as long as Finland does not have a direct connection to the natural gas network of any other EU Member State and as long as Finland has only one main natural gas supplier.

No major changes have taken place in the operating environment of the Finnish natural gas market in the recent years and no major changes are expected to place in the near future. In a European comparison, the Finnish natural gas market is highly exceptional.

There were 32 local natural gas distribution network operators at the beginning of the year 2007. As can be seen from the Figure 7, all the Finnish DSO's and the consumption sites of natural gas are situated in the southern part of the country along the main transmission pipeline.

Due to the limited extent of the Finnish natural gas network the development of the Finnish natural gas market will require further extension of the pipeline system. There are plans to extend the gas pipeline to the western coast of Finland. Increasing the volume of the gas market would be important in making additional import connections economically viable. Furthermore, it would be important for Finland to be connected to the Baltic States gas network as well. When implemented, the Baltic connector linking the networks of Finland and Estonia would offer the possibility to optimise the transmission of natural gas to Finland and the Baltic States. In addition to forming a connection to Latvia's gas storages, the new pipeline would open up the possibility to subsequently begin the importation of LNG as a joint venture carried out among the region's gas companies.

4.1.2 Management and allocation of interconnection capacity and mechanisms to deal with congestion

The Finnish natural gas transmission network is only connected to the Russian natural gas pipeline, which provides for the whole supply of natural gas to Finland. In Finland there is only one natural gas wholesale company, Gasum Ltd. The company imports natural gas and transmits it through its own transmission network to large-scale consumers and distribution companies. Gasum Ltd is also the owner of the Finnish side of the natural gas interconnection between Finland and Russia.

Due to the fact that there is only one undertaking acting at the same time as an importer, a wholesale supplier and a transmission system operator, there is no need for specific management of interconnection capacity or congestion.

4.1.3 The regulation of the tasks of transmission and distribution companies

In the natural gas sector, there are 32 local distribution network operators and one transmission system operator. The transmission system operator is also the sole importer and wholesale supplier of natural gas. Its ownership is divided between the State of Finland, Fortum Heat and Gas Ltd, E.ON Ruhrgas International AG and OAO Gazprom. Approximately 80 per cent of Finnish DSOs are wholly or mainly owned by municipalities. The rest 20 per cent of DSOs are owned by other companies from the industry.

Network Tariffs

According to the Natural Gas Market Act, the network operators are able to set the actual network tariffs and charges by themselves. There is no ex-ante approval of tariffs or prices of network services by authorities.

The Energy Market Authority confirms ex-ante the methodology to be used in setting both transmission and distribution network tariffs and connection charges. The Energy Market Authority has to approve ex-ante also the terms and conditions of network and connection services before the network operators are able to implement them.

The methodology of setting network tariffs will be confirmed prior to a regulatory period of four years. The first regulatory period will cover the years 2006 – 2009. Prior to confirming the methodology the regulator publishes the guidelines on details of the methodology and organises public consultation on the guidelines with the stakeholders. The Energy Market Authority has confirmed the methodology of setting network tariffs in 2006 – 2009 for the DSOs in May and for the TSO in June 2005.

According to Section 1a of Chapter 7 of the Natural Gas Market Act the methodology confirmed by the regulator may include the following items:

- method for the valuation of regulated asset value
- method for determining approved rate of return on capital
- method for determining realised profit of network operations

- method for setting efficiency targets for network operations

The confirmed methodology of setting network tariffs in 2006 – 2009 includes all items mentioned above, besides efficiency targets for network operations. The network will be included into the regulated asset value as the net present value instead of a book value. The net present value of network will be updated annually by taking into account depreciation and investments. The approved rate of return on capital is determined by using a WACC-model (Weighted Average Cost of Capital) and will be updated annually.

The network operator may, during individual years within the regulatory period, gain earnings from its operations that are higher than the earnings considered reasonable in line with the confirmed methodology without intervention by the regulator. The pricing shall be reasonable when viewed over the regulatory period as a whole.

After the regulatory period has ended the Energy Market Authority will validate the earnings of each network operator in its supervision decisions for the regulatory period, and will confirm the amount of any accrued earnings that exceed or fall short of reasonable earnings for the regulatory period. Where necessary, the supervision decisions will include an obligation to return to the customers any windfall profit for the completed regulatory period through pricing for the new regulatory period. The supervision decisions will correspondingly confirm that the network operator may allow in its pricing for the new regulatory period, for the amount by which the earnings accruing to the network operator from the previous regulatory period fell below the reasonable earnings level.

The Energy Market Authority collects annually from the network operators several kinds of data of network operations, like tariffs of network services, financial information and technical key figures. Annually collected technical key figures include i.e. information on quality of supply. The Energy Market Authority has also powers to ask additional information from the TSO and DSOs on network operations for the supervision purposes.

According to the natural gas market legislation, charges of transmission and distribution services shall be public. TSO and DSOs shall have public charges and terms and conditions for network services.

As an example Table 9 shows the transmission tariffs of Gasum Ltd for reference customers from the year 2001 to the spring of 2008; the entity is Euros per MW, and the customers are supposed to have a yearly consumption of 50 – 1,000 GWh, during 4,000 – 6,000 hours and peak power of 12.5-166.7 MW. Transmission tariffs have been unchanged since the year 2002 to 2005. Gasum Ltd's tariff system is based on so called post-stamp model.

Table 9. Natural gas transmission charges for reference customers (Euro/MWh).

GWh	50	50	150	150	500	500	1 000	1 000
	4 000	6 000	4 000	6 000	4 000	6 000	4 000	6 000
h								
MW	12,5	8,3	37,5	25,0	125,0	83,3	250,0	166,7
2001	6,25	4,78	6,19	4,72	4,26	4,67	4,22	3,04
2002-2005	5,70	4,41	5,32	4,05	4,12	2,98	4,08	2,95
2006	7,06	5,64	6,48	5,1	4,66	3,43	4,62	3,39
2007	7,43	5,94	6,83	5,37	4,92	3,62	4,87	3,58
2008	8,07	6,46	7,41	5,83	5,33	3,92	5,28	3,88

On the basis of statistics in year 2007 delivered by the distribution system operators to the Energy Market Authority it can be concluded that interruptions of supply on the distribution level were minimal during the year 2007. In the Finnish transmission network there were no unplanned service interruptions in year 2007, but there was 6 hours interruption in gas supply to the transmission pipeline on 27 July.

Balancing

Deliveries of natural gas in excess of the annual transfer capacity are possible as additional transfers within the constraints of the transfer capacity of the network as maintained by the network operator. The buyers of natural gas will be charged an additional transfer charge for additional transfers. These additional transfers are used to balance demand. Secondary market can also be used to balance gas demand in a day-ahead market.

Additional transfer charges are used to cover the average costs of stepped-up transfer pipe network use and supervision caused by deliveries in excess of the annually confirmed delivery capacities. The additional transfer charge is of the same magnitude for all buyers resorting to additional transfers. Where necessary, the price of the additional transfer of natural gas can be changed if the transfer capacity maintained by the network system operator requires such a change.

Changes in the price of additional transfer shall be informed of at least two hours before the commencement of balance clarification period. The announcements concerning the changes in the price of additional transfer contain a point in time when the change took place, and additionally, closing and new prices of additional transfer. The price of the additional transfer during the computation period is computed as the arithmetic average of the prices of the balance clarification periods. The balancing interval is one hour. Imbalances are defined on contractual level.

The balancing period applied to natural gas trading on the Gas Exchange Ltd – the natural gas exchange – was changed from six hours to one hour as of 1 January 2007. The reform was

based on an amendment to decree 974/2000 of the Ministry of Trade and Industry, aimed at enhancing the flexibility of secondary market trading.

Practically all customers in the wholesale market are connected via the SCADA system to on-line metering reading. The settlement of imbalances is available on-line.

Capacity allocation mechanism

There is no need for capacity allocation mechanism because there is only one wholesale supplier (Gasum Ltd) in the market.

4.1.4 Effective Unbundling

Finland has availed itself of the possibility of an exemption allowed by the Natural Gas Market Directives and thus there is neither legal nor operational unbundling of natural gas transmission network operation. Furthermore, Finland has not applied legal and operative unbundling in distribution network operations because Member States are free to decide that the unbundling provisions are not applied to network operators with fewer than 100 000 customers. All Finnish distribution network operators fall below the limit set by the Directive.

Approximately 80 per cent of the Finnish DSOs are wholly or mainly owned by municipalities. The rest 20 per cent of the DSOs are owned by industrial users of natural gas. The TSO Gasum Ltd is owned by E.ON Ruhrgas (20 per cent), State of Finland (24 per cent), OAO Gazprom (25 per cent) and Fortum Heat and Gas Oy (31 per cent).

In Finland the retail supply of natural gas is operated in all the DSOs within the same company as distribution. There is no natural gas production in Finland. Also in the case of the TSO, both supply and transmission operations are managed in the same company.

Unbundled accounts are published for both DSOs and TSO. DSOs and TSO are obliged to publish the unbundled financial statements as a part of statutory financial statement, annual report or correspondingly other public document available to the stakeholders.

The Energy Market Authority has issued guidelines on the compilation of unbundled financial statements in June 2005. These guidelines are not legally binding but they show the procedure the Energy Market Authority considers fulfil the requirements of the legislation.

The unbundled income statements, balance sheets and any supplementary information of separated operations are audited as part of the statutory auditing. The accounts are not subject of a separate audit and this audit is not addressed to the requirements of the regulator in any extent. Auditors are required to give their opinion in the auditor's report on whether the income statements and balance sheets and the supplementary information conform to Natural Gas Market Act and any rules and regulations related to it.

The proportion of the costs of the network operators that are typically shared with other business units of the company varies between 15 per cent and 30 per cent. Proportion of the costs is based on the estimation.

The Energy Market Authority supervises that the network companies are fulfilling the unbundling requirements. The Authority has also powers to oblige the companies to correct mistakes or omissions. A conditional fine may be imposed to make the decisions effective. As a final measure the Energy Market Authority may also withdraw the natural gas network licence from the company.

4.2 Competition Issues

4.2.1 Description of the wholesale market¹²

In the year 2007, the size of the Finnish natural gas market was 4.5 bcm (at 15 °C / 3.7 Mtoe), which was all imported from Russia by Gasum Ltd, which is the sole wholesale supplier in Finland. Only propane is produced indigenously as it is the only gas to be stocked in small amounts by Gasum Ltd for immediate substitute for the possible lack of natural gas. The importing capacity of Gasum Ltd is estimated to be about 8 000 MW, so the maximum transmission capacity is often at use in cold winter days. Maximum 24-hour use was 19,8 million m³ (on 7 February).

The Russian natural gas exporter Gazprom and Gasum Ltd entered into an agreement to extend the contract for Russian natural gas exports to Finland until the 31st of December 2025. The agreement marks a substantial increase of more than 15 per cent in gas sales to Finland, with an annual level of 6 cbm to be reached by 2008.

Pricing of the energy sales of natural gas is based on the natural gas supply contract between Gasum and Gazprom's subsidiary company Gazprom Export. The supply contract is based on the special structure of Finland's natural gas market, which reflected in the fact that the price of natural gas follows not just changes in oil prices, but also fluctuations in the price of coal and domestic market energy prices.

The wholesale supply of natural gas to the large Finnish end-users and retailers is based on customer group-specific contracts between Gasum Ltd and the customers. A majority of the customers by natural gas from Gasum Ltd based on a public tariff, which Gasum Ltd renews at the intervals of 4 years. A small number of contracts have been concluded before the year 1992, when the new type of competition legislation came into force prohibiting the previously used non-public pricing methods as an example of abuse of a dominant position.

In the year 2007, the share of wholesale supply sold under public tariffs increased to some 75 per cent. The whole contract-based trading covers some 90 per cent of the wholesale market. Additionally, Gasum Ltd offers short term products that are sold on the Gas Exchange Ltd. Since 2002 there has existed a secondary market operated by Gas Exchange Ltd, which is a subsidiary of Gasum Ltd. As many as 28 companies currently trade on the Gas Exchange Ltd. Monthly volumes in secondary market have varied from 2 GWh to 34 GWh during the year 2007. At the same time the system price has varied from 15 to 19 euro/MWh. The volume of day-ahead products in the secondary market was 219 GWh in the year 2007. Total volume in the secondary market covered about 0.50 per cent of natural gas consumption in Finland.

¹² Defined as covering any transaction of gas between market participants other than final end-use customers.

4.2.2 Description of the retail market

The size of the natural gas retail market in Finland in relation to the total consumption of natural gas is small. The retail supply of natural gas covers only about 5 per cent of the total amount of natural gas used in Finland.

In Finland there are only about 36,000 customers in the natural gas market. Less than 150 customers - heavy industrial users as well as power and district heating plants - use more than 95 per cent of the total natural gas consumption in Finland. The largest customer segment (31,000 customers) consists of households who buy natural gas for cooking. However, the total natural gas consumption of this segment amounts to only 1 mcm (0.02 per cent of total consumption).

The share of the top three retail suppliers is about 50 per cent of the total volume. The retail supply of natural gas has grown with an annual rate of 2 per cent. In addition to the original domestic retail suppliers, there are also retail suppliers owned by foreign-based companies. The market entrance of the foreign-based companies has occurred through acquisitions.

No new retail suppliers without any affiliate connection to either TSO or DSOs in Finland have entered the market since the introduction of natural gas markets. As regards vertical integration in the natural gas retail market, the wholesale supplier and TSO Gasum Ltd is downward vertically integrated into natural gas retail supply and distribution network operation through its ownership in Gasum Local Distribution Ltd.

Estimated national average natural gas prices in February 2007 for one reference customer are shown in Table 11. In smaller reference customer groups there are only few customers within distribution companies leading into problems when representative prices are to be defined. These prices are defined from regulated end-user prices.

Table 10. Natural gas price for the reference customer in February 2007.¹³

Cent/kWh	I4-1
Network charges (excl. levies)	0.68
Energy costs and supply margin	1.65
Taxes	0.74
Total (excluding VAT)	3.07

In the secondary market, consisting only about 0.5 percent of gas demand, the prices are market based. In the secondary market the price of natural gas has varied 15 – 19 euro/MWh during 2007.

¹³ Reference customer: annual consumption 150,000 MWh, 4,000 hours.

4.2.3 Measures to avoid abuses of dominance

According to Natural Gas Market Act, all gas supply is under obligation to supply and its pricing should be reasonable. At the end of 2005 11 customers of wholesale supply company Gasum Ltd made a collective complaint to the Energy Market Authority concerning Gasum's pricing after Gasum had published their tariff renewal covering the years 2006 - 2009. The complaint concerned the level of pricing of both the transmission network tariffs and the gas wholesale supply tariffs.

The natural gas network pricing is covered by ex ante regulation and the Energy Market Authority had made a decision on the pricing methodology for the natural gas transmission network pricing in summer 2005 to be applied during the 4-year regulatory period (2006 – 2009). On the basis of the previous decision, the Energy Market Authority made a decision in March 2006 which stated that network pricing of the new tariff scheme was in accordance with Natural Gas Market Act and that at the end of the regulatory period the Energy Market Authority will ex officio make a decision on whether the pricing of transmission network services provided by Gasum Ltd has been reasonable during the regulatory period. This is a normal procedure required by the Natural Gas Market Act and it is based on the financial information covering the whole regulatory period.

As regards the supervision of natural gas wholesale or retail pricing, the powers of the Energy Market Act are ex post by their nature. To be able to assess whether the pricing of natural gas to the wholesale customers was reasonable or not within the framework of the new tariff scheme that Gasum Ltd had introduced at the beginning of 2006, the Energy Market Authority had to wait to get the financial information from the year 2006. That information became available in summer 2007.

In March 2008 the Energy Market Authority made a decision on whether the pricing of wholesale supply of natural gas had been reasonable. The decision dealt with the pricing during financial years 2006 and 2007. According to the decision the pricing of Gasum Ltd's gas supply was not at the reasonable level during these years and Gasum was ordered to change their pricing policy starting from financial year 2008.

Due to the fact that the gas supply business is not capital intensive but resembles any other trading business, the Energy Market Authority opted for using the gas supply margin as the measure for assessing the reasonable level of pricing. EBIT-% (earnings before tax and interests %) was selected as an indicator of reasonable pricing and the reasonable level (2.5 %) was entered at by using benchmarking studies in the field.

Gasum Ltd has appealed the decision to the Market Court. The final stage of appeal is the Supreme Administrative Court.

5. Security of supply

5.1 Electricity

5.1.1 Supply-demand situation during the peak load

The last winter in Finland was quite mild and also electricity consumption during the last 12 months in Finland in May 2008 was 89.4 TWh that was 0.4 percent lower than year ago. Electricity consumption for example in February 2008 was eight percent lower than year ago. The maximum level of peak load demand in Finland measured on the 4th of January 2008 amounted to 13 762 MW. Power generation in Finland was about 10 700 MW and import to Finland 3 000 MW during the peak demand. Power generation capacity in Finland during the peak load period in winter 2007 - 2008 was estimated to be about 13 300 MW. The power reserves related to system disturbances in Finland were 1 180 MW.

Based on estimates given by the Ministry of Employment and the Economy the peak load demand in the next winter season 2008 - 2009 is 15 300 MW. The peak load demand is estimated to increase to 15 400 MW in winter 2009 - 2010. For winters 2010 - 2011 and 2011 - 2012 the forecast for the peak load demand is 15 500 MW. Total demand for electricity in Finland in 2012 is estimated to be 93.4 TWh and the forecast for the peak load for the winter 2012 - 2013 is 15 600 MW. In year 2022 total demand for electricity is estimated to be 96.2 TWh and peak load demand in winter 2022 - 2023 16 100 MW.

Figure 7 presents the peak load demand and generation capacity balance during wintertime (actual and forecasts) for the years 2004/2005 – 2012/2013.

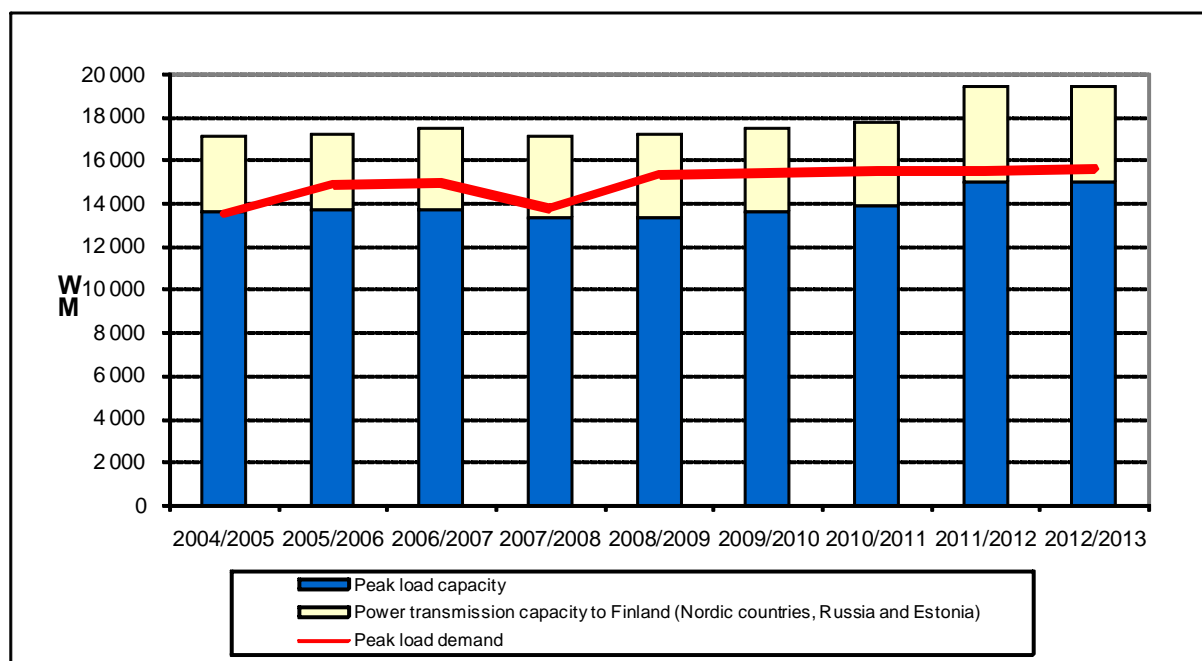


Figure 7. Peak load demand and generation capacity balance during winter seasons based on presented forecasts and forthcoming generation investment.

The import capacity of electricity in year 2008 from neighbouring countries to Finland was about 3 850 MW. At the beginning of year 2007, transmission capacity increased by 350 MW when the Estlink DC line between Estonia and Finland was completed.

5.1.2 Generation capacity

The total available generation capacity in the winter season 2007 - 2008 was about 13 300 MW in Finland. The capacity included in about 600 MW of condensing power capacity that was not available for Nordic spot market in 2006. Total installed generation capacity in Finland was about 17 GW in 2007. Installed wind generation capacity was 128 MW in March 2008. However, the available amount of wind generation in peak load period in winter is assumed to be negligible. Estimated available generation capacity in the winter season 2008 - 2009 is about 13 300 MW. Table 13 presents the generation capacities in peak loading by production type during the years 2000 - 2008.

Table 11. Electricity Generation Capacities in Peak Load Period, MW.¹⁴

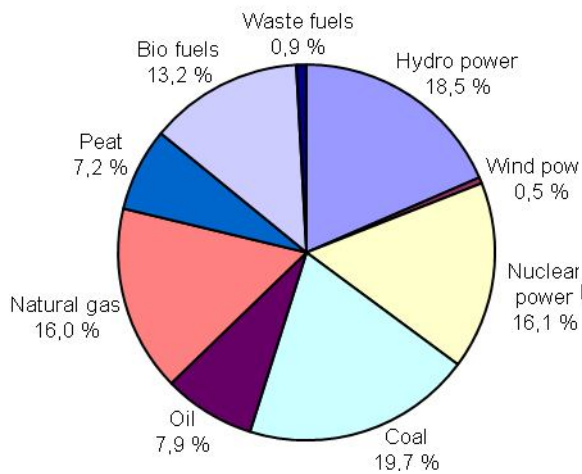
	Separate Electricity Generation			Gas turbines and engines	Combined Heat and Power		Capacity of power stations	Power system reserves
	Hydro power	Nuclear power	Condensing power		Industry	District heat		
2000	2430	2640	4000	800	1570	3320	14760	..
2001	2460	2640	4000	800	1610	3400	14910	..
2002	2480	2640	3990	800	1780	3420	15110	..
2003	2490	2680	3200	20	2180	2910	13480	1030
2004	2500	2680	3200	20	2200	2900	13500	1080
2005	2520	2680	3200	10	2290	2900	13600	1080
2006	2550	2680	3200	10	2290	2920	13650	1060
2007	2350	2720	2800	10	2450	2790	13120	1046
2008*	2350	2700	2650	-	2450	3150	13300	1180

Source: Statistics Finland

Generation fuel mix for capacity and energy from the year 2007 is presented in Figure 8. During the next three years (2008-2010) it is not expected to be any significant changes in fuel mix for power generation in Finland. The main fuels for new CHP capacity in 2008-2010 will be natural gas, biomass and peat.

¹⁴ The simultaneously available capacity (net) of power plants during extreme cold and dry water situations, which can be produced during one hour in Finland. The calculation method was amended in 2003, when the reserve capacities related to system maintenance were placed into a separate column. Numbers for 2008 are at beginning of year.

Generation fuel mix at beginning of 2007, MW



Generation fuel mix in 2007, TWh

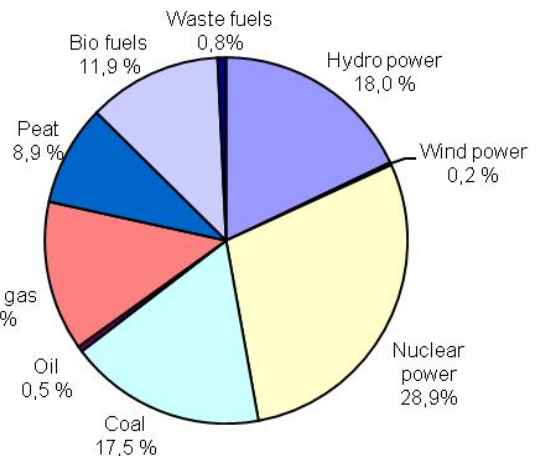


Figure 8. Generation fuel mix for capacity at beginning of 2007 (MW)¹⁵ and for energy (TWh) in 2007.

Increase of power generation capacity (commissioned new capacity minus decommissioned capacity) in 2007 is presented in Table 12.

Table 12. Net new generation capacity in 2007 (in peak load period)¹⁶.

	Plant completed minus plant closed in the year (MW)				
	Coal and oil	Natural gas	RES	CHP	Other
2007	104	-	31	-	

Electricity production capacities under planning or construction at the moment are presented in Table 15. Construction project for the fifth nuclear power plant unit (Olkiluoto 3) is going ahead. The new plant is planned to be in production in summer 2011 with total electricity generation capacity (about 1 600 MW).

Table 13. Forthcoming new generation capacity in 2008-2010 (in peak load period).

	Forthcoming new capacity (MW)			
	Hydro	CHP		Nuclear power
		District heat	Industry	
2008	31	-	89	-
2009	17	259	1	-
2010	21	170	104	30
2011	6			1630
2012				

¹⁵ Generation fuel mix for 2007 is based on data available for the moment by Statistics Finland.

¹⁶ Availability 100%

5.1.3 Role of regulatory authorities

The investment decision to build new generation capacity will depend on market based criteria and mechanism. However, according to the Electricity Market Act in very extreme balance situation the Government can take actions to acquire more generation capacity or to organise some balance options to avoid expected difficult problems in case of power and energy shortage.

On the basis of the amended Electricity Market Act, which entered into force at the end of 2004, the monitoring of the balance between electricity demand and supply will be intensified and the monitoring will be carried out in a more detailed manner, where electricity producers will provide data on power plants. Also the division of tasks between the Ministry of Trade and Industry and the Energy Market Authority underwent a change, as the monitoring of issues related to security of supply was transferred to the Energy Market Authority, along with the tasks related to the rules and regulations concerning the monitoring of electricity generation. The Ministry of Trade and Industry continues to be responsible for the forecasts of electricity consumption and strategic long-term planning of supply and demand.

In cooperation with other authorities, the Energy Market Authority monitors the development of the balance between the supply and demand for electricity in Finland. To be able to estimate the generation capacity, the Energy Market Authority is establishing a register of the generation capacity available in Finland, consisting of all production units with an output of more than 1 MVA.

The Electricity Market Act includes provisions on maintenance outages of power plants scheduled for the period 1 December – 28 February. The Energy Market Authority may order that the date of a maintenance outage of an electricity-only power plant with an output above 100 MVA be rescheduled outside the winter season due to a tight generation situation, provided that there are no technical or safety-related obstacles that would prevent this. The Energy Market Authority shall consult the Safety Technology Authority and, if the maintenance outage concerns a nuclear power plant, the Radiation and Nuclear Safety Authority, before making the rescheduling decision. However, maintenance outages resulting from unplanned maintenance needs do not fall within the scope of the notification procedure and the related rescheduling possibility.

The above-mentioned provision on the notification procedure does not, however, oblige the power plant to generate electricity at the time concerned.

In Finland the State can grant investment subsidy for power plant construction project if the new production is based on renewables, including wind power. Power producer can also get subsidy for produced electricity generated by wind power or low capacity hydro power and also for electricity generated by certain fuels (for example wood and biogas). Large peat condensing power plants can get limited feed in tariff during years 2007 – 2010. System is limited for total capacity of about 400 MW and maximum for 3900 hours per year. Tariff depends on prices of coal and CO₂-emission. Temporary (2007-2011) power reserve tendering system was introduced at the beginning of 2007. In this system condensing power plant can get compensation for fast start up time (in 12 hours).

5.1.4 Major infrastructure projects on interconnections

Fenno-Skan 2

Fingrid Plc and Svenska Kraftnät, the transmission system operators in Finland and Sweden respectively, will construct a new cross-border transmission connection between the countries. The submarine DC cable of 800 MW is due to be ready in 2011. The companies will share the ownership and investment of the submarine cable in equal proportions. The new Fenno-Skan 2 connection is the first concrete investment decision in the implementation of the prioritised cross sections reinforcement measures within the Nordic countries introduced by Nordic transmission system operators (TSOs) in the year 2004. Fenno-Skan 2 will be carried out as a direct current connection with a total length of almost 300 kilometres. Power converter stations will be built at each end of the connection. ABB AB has been selected to deliver the HVDC converter stations. The contract price is approximately 110 million Euros. In Finland, the new cable will be connected to the main grid at the Rauma substation. In Sweden the cable will be connected to the main grid at the Finnböle substation located north of Stockholm. Nexans Norway AS will manufacture the new HVDC submarine cable. The contract price is approximately 150 million Euros.

5.1.5 TSO and security of supply issues

The TSO secures the system operation in Finland by delivering the following services:

- Maintenance of operational security
- Maintenance of frequency (by power reserves)
- Maintenance of voltage
- Data exchange to maintain operational security

Maintenance of operational security implies that power system is planned and operated in a way that the impacts of disturbances are minimised. Here the grid planning, transmission limits, disturbance management and reserves (frequency controlled and fast disturbance reserves, black start reserves) are considered.

The power system in Finland is planned in accordance with principles agreed jointly between Nordic TSOs in Nordic Grid Code¹⁷. The main planning principle is that the power system has to withstand any single fault (n-1 criteria). A dimensioning fault (worst possible fault) varies on the basis of the operational situation of the Finnish grid, but is often the tripping of the largest production unit or an extensive busbar fault.

Electricity transmissions in the main grid are kept during real time operation within the predefined limits given by operational reliability calculations, which take into account potential faults and planned outages in the power system. The transmission limits are defined for each probable fault and network situation. Short-term congestion problems in the main grid are managed commercially through counter trade, and long-term congestions are managed by applying price areas or by investments in the grid.

¹⁷ Available on website www.nordel.org.

The Nordic electricity grid is synchronously interconnected and the frequency is allowed to vary in normal state between 49.9 and 50.1 Hz. The frequency controlled normal operation reserve and frequency controlled disturbance reserve are power reserves which are activated automatically by frequency changes. Within the Nordic power system, it has been agreed that the Nordel countries maintain continuously a total frequency controlled normal operation reserve of 600 MW for frequency control in a normal state. Of this volume, Finland's share is presently 145 MW.

For disturbance management purposes, both power and transmission reserves are maintained in the Finnish power system. TSO is responsible for the maintenance of reserves that are needed in the Finnish power system. For this, TSO uses its own resources and also purchases reserve maintenance from other resource owners. Restoration of the power system from severe disturbance incidents is headed by TSO's Power System Control Centre.

The frequency controlled disturbance reserve begins to activate when frequency goes below 49.9 Hz, and the full reserve has been activated at a frequency of 49.5 Hz. The frequency controlled disturbance reserve used includes both active power reserves of power plants and load shedding. During a normal operational situation, the interconnected Nordic system is required to have approximately 1 000 MW of frequency controlled disturbance reserves, of which Finland's obligation is approximately 240 MW.

The fast disturbance reserve consists of active and reactive power reserves that can be activated manually within 15 minutes. After activating this reserve, the power system has been restored to such a state that it can withstand another potential disturbance. In the Nordic grid, each country must have a volume of fast disturbance reserve that equals the country's dimensioning fault. In Finland, this volume is normally 850 MW. Table 14 presents summary of reserves for securing system operation in Finland.

Table 14. Summary of reserves for securing system operation in Finland (Source: Fingrid Plc).

Type of reserve	Contractual capacity	Obligation
Frequency controlled normal operation reserve	- Power plants - Vyborg DC link, 10% of transmission power	145 MW
Frequency controlled disturbance reserve	- Power plants - Load shedding	220 – 240 MW
Fast disturbance reserve	- Gas turbines - Load shedding	865 MW

The voltages in the power system are maintained at a technically and commercially optimal level during both normal and disturbance situations. The objective of voltage level and reactive power adjustment is to prevent overvoltage and undervoltage, to achieve nominal voltages specified in agreements (110 kV network) and to minimise the grid losses. The voltage level in the Finnish transmission grid is adjusted by using reactors and capacitors. The voltage ratio between different voltage steps is controlled with on-load tap changers of transformers.

Instantaneous reactive power reserve is also needed in order to secure the technical functioning of the Finnish power system during the disturbances. The reactive power reserves of the main transmission grid are located in synchronised generators. Reactors and capacitors also serve as reserves. Reactive power reserves are activated automatically when the voltage in the

grid decreases as a result of a disturbance. Compensation is paid to power producers for reactive power reserves reserved in generators.

TSO takes care of data exchange required by the maintenance of operational reliability in the power system. TSO and parties connected to the grid supply each other with planning and measurement data needed in the maintenance of operational reliability. Such data includes production plans, generator power measurements, and status data on generator circuit breakers and connecting stations. If necessary, the amount of data exchanged and the technical details of data exchange are agreed upon between TSO and the other party through a separate data exchange agreement.

5.2 Gas

All natural gas supplied in Finland is imported from Russia. There are no natural gas production or storage facilities in Finland. The natural gas consumption in 2007 was 4.5 bcm (at 15 °C/3.7 Mtoe). Based on estimates given by the Ministry of Employment and the Economy natural gas consumption will increase to 5.2 bcm (4.2 Mtoe) in year 2010 and 5.3 bcm (4.3 Mtoe) in year 2017. The currently available import capacity from Russia is about 8 000 MW. Natural gas supply contract with Gazprom is valid until the end of 2025. Annual contract volume is up to about 6 bcm (5.2 Mtoe).

In natural gas shortage situation substitute fuels and a special propane gas installation of 350 MW can be used. If the natural gas supply is prevented obligatory storages can be used too. National Emergency Supply Agency controls for use of obligatory storages in Finland. Total volume of stockpile fuels and obligatory storages must be at least equal to cover normal consumption of imported fuels for five months.

According to the amendments to Natural Gas Market Act, the role of the regulator in security of supply issues is to monitor the balance between supply and demand in natural gas, the quality and maintenance of networks and measures to cover the peak demand and avoid the supply shortages.

The TSO, Gasum Ltd, has plans to expand its natural gas transmission pipeline to the western part of Finland. Total of 23 km parallel new gas transmission pipeline was completed in 2007. At the moment new parallel gas transmission pipeline is under construction in Espoo (4 km) and between Hämeenlinna and Lempäälä (43 km). Gasum has also decided to build new pipeline from Mäntsälä to Siuntio (89 km).

Additionally, the TSO has launched together with Gazprom, Eesti Gaas and Latvijas Gaze a project to examine the feasibility of constructing a pipeline to link Finnish, Estonian and Latvian natural gas networks. This new pipeline would enable that the Latvian natural gas storage facilities could be used to improve reliability in natural gas transmission to Finland. The study project continues with environmental focus until end the 2009. A full scale environmental impact assessment (EIA) procedure will be carried out, concentrating in to the offshore section of the project. The present gas transmission network and the planned projects are shown in figure 9.

NATURAL GAS TRANSMISSION NETWORK AND EXPANSION PLANS

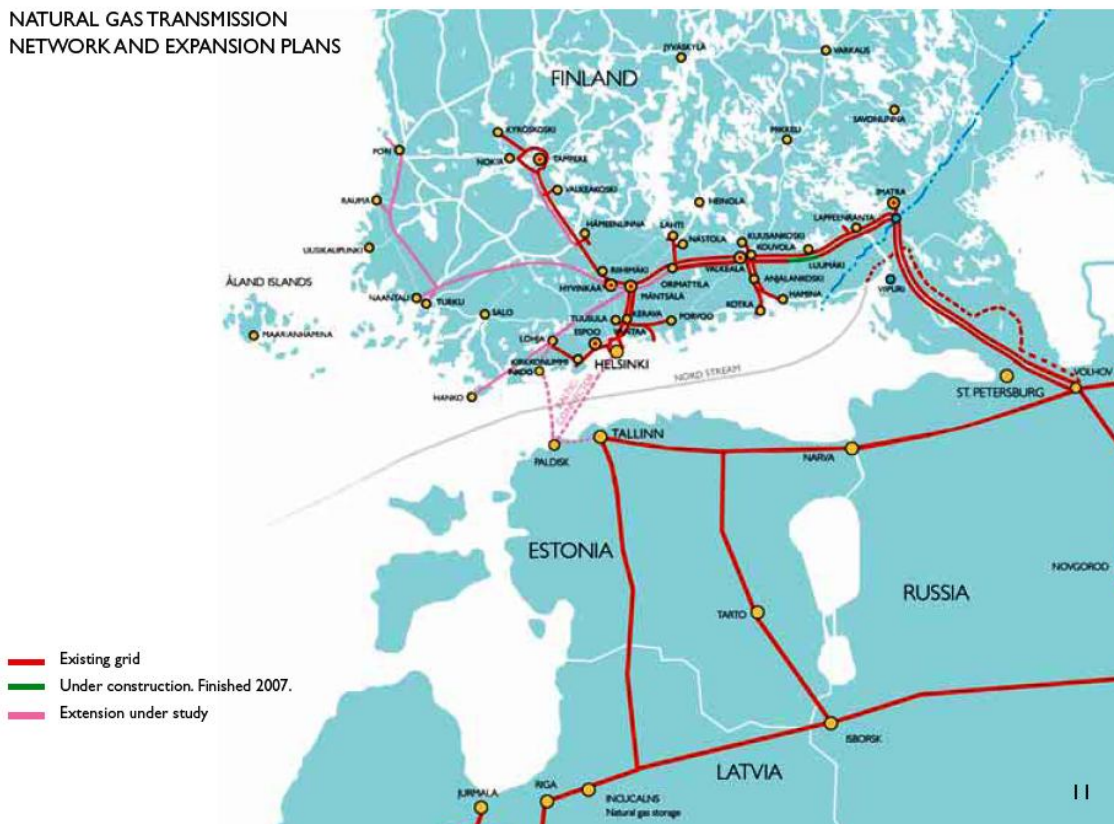


Figure 9: Natural gas transmission network and planned reinforcements.

6. Public Service Issues

6.1 Electricity

6.1.1 Obligations of market participants

To operate an electricity network, a licence is required from the Energy Market Authority. An electricity network licence is granted if the applicant has the technical, economic and organisational capabilities needed for conducting its electricity network operations. There are several requirements placed on the network operator related to public service issues. The network operator shall maintain, operate and develop its electricity network and the connections to other networks in accordance with its customers' reasonable needs, and to secure, for its part, the supply of sufficiently high-standard electricity to its customers (obligation to develop the electricity network). On request and against reasonable compensation, the network operator shall connect to its network electricity consumption sites and power generating installations meeting the required technical specifications within its area of operation (obligation to connect). The network operator shall sell electricity transmission services against reasonable compensation to those that need them within the limits of its network transmission capacity (obligation to transmit).

The generation, foreign trade, wholesale supply, and in principle the whole of retail supply of electricity are carried out in the competitive market. No licence is required from the Energy Market Authority to be active in any of these businesses. However, for every licensed distribution network area there is one electricity supplier who is responsible for supplying electricity to a restricted group of customers. An electricity supplier who has the dominant market position or a supplier with the highest market share within the area of responsibility of a distribution network operator shall deliver electricity at reasonable prices to consumers and other electricity users whose place of use is equipped with main fuses of 3 x 63 amperes at maximum or whose place of electricity use receives annually no more than 100,000 kWh of electricity (obligation to supply).

6.1.2 The implementation of labelling for primary energy source

The Act concerning certification and notification of the origin of electricity (1129/2003) states that electricity suppliers shall specify in or with the bills and in promotional materials made available to electricity users:

- the proportions of the energy sources used to generate the electricity that the supplier sold during the previous calendar year in relation to the total volume of electricity sold; as well as
- a reference to public sources of information concerning the carbon dioxide emissions and the radioactive waste resulting from the energy sources used to generate the electricity that the supplier sold during the previous calendar year.

The electricity supplier shall ensure that the reliability of the above-mentioned information can be demonstrated for at least six years following the end of the calendar year to which the information relates.

Producers, importers and suppliers of electricity shall provide purchasers, on request, with the information on the electricity being purchased, which they need to meet the mentioned notification requirement.

More detailed provisions are laid down in the Governmental Decree on notification of the origin of electricity. According to the Decree, the supplier shall include information on the origin of electricity in or with the bills at least once a year. Information on the origin shall be included also in all promotional materials directly distributed or sent to electricity users. Information must include at least following three categories: 1) fossil energy sources and peat; 2) renewable energy sources; and 3) nuclear power. Information may be more detailed.

6.1.3 The implementation of Directive Annex A criteria

Information to be given before concluding a contract

According to the Section 25c of the Electricity Market Act (386/1995) the distribution network operator and the supplier shall provide the connecting party and the electricity user with information on the principal conditions to be applied to the contract and on the alternatives available with respect to the contents of the contract, such as various pricing alternatives before concluding the contract. At least the following information shall be provided:

- 1) name and contact information of the service provider;
- 2) the performance or service offered and its quality, as well as the period of delivery of the connection in the case of a connection contract;
- 3) possible maintenance services related to contract-based performance or service;
- 4) methods by which the connecting party or electricity user receives information on the charges applied to the contract or the related maintenance services;
- 5) period of validity of the contract and the conditions to be applied to renewal and termination of the contract;
- 6) compensations of damage and other compensations to be applied if the quality of the performance or service does not correspond to the standard agreed upon;
- 7) information on the available procedures of settling disputes and their institution.

No information on an electricity network contract or an electricity supply contract needs to be given if the contract is concluded orally and the electricity user does not want this information. The above mentioned information shall be entered in its agreed form in the contract or confirmation notification.

Publicising the terms and fairness of the terms

According to the Section 21 subsection 3 an electricity supplier who has the dominant market position power shall have terms of retail sale and prices, and the criteria underlying these that are publicly available to consumers and to the customers encompassed by the supplier's obligation to supply. They shall not include any unreasonable conditions or limitations that would restrict competition within electricity trade.

Regarding networks services the Section 12 of the Electricity Market Act states that the network operator shall publish the general terms of sale and the prices of its network services as well as the underlying criteria. Furthermore, Section 14 states that the sale prices and terms of

the network services and the criteria according to which they are determined shall be equitable and non-discriminatory to all network users. Exceptions to them may only be on special grounds. The pricing of network services shall be reasonable and must not present any unfounded terms or restrictions obviously limiting competition within the electricity trade.

According to the Section 9 of the Electricity Market Act the connection conditions and technical requirements shall be impartial and non-discriminatory and they shall take note of the conditions of the reliability and efficiency of the electricity system. At the request of the subscriber, the network operator shall give him a comprehensive and sufficiently detailed estimate on the subscription costs.

The distribution network operator shall have publicly available general terms of contract (terms of connection) for customers that connect to the electricity network at a nominal voltage of 20 kilovolts at maximum and that are not electricity generating installations.

Amending the terms of contract

According to the Section 26 of the Electricity Market Act the distribution network operator and the supplier may change the prices and other terms of the contract in the following cases only:

- 1) on the grounds specified in the contract, provided that the content of the contract does not change materially; however, a supplier may not on these grounds change a fixed-term electricity supply contract concluded outside the obligation to deliver;
- 2) if the change is based on an amendment to legislation, or on a decision made by the authorities, which the distribution system operator or the supplier has not been able to take into account when concluding the contract; or
- 3) if there is a special reason for the change, owing to an essential change in the circumstances, revision of outdated contractual or pricing arrangements, or implementation of measures necessary for energy saving; however, a supplier may not on these grounds change a contract concluded outside the obligation to deliver.

In addition, the distribution network operator and the supplier shall be entitled to make minor amendments to the contractual terms, provided that these amendments do not affect the principal content of the contract. If the distribution network operator's area of responsibility changes, the distribution network operator is entitled to change the price of distribution services in order to implement the uniform pricing within the network operator's area of responsibility. Price changes causing considerable changes in the fees of individual customers shall be carried out during the transition period approved by the Energy Market Authority before the introduction of the new pricing.

The distribution network operator and the supplier shall provide their contracting party with information on how the prices or other contractual terms will change, when the change will come into effect, and what the grounds for the change are. The contracting party must be informed whether he has the right to terminate the contract. If the reason for the change is not a legislative amendment or a decision by the authorities, the change may come into effect, at the earliest, one month after the notification of the change has been given.

Marketing

The Consumer Protection Act includes sections regarding the regulation of marketing and information conveyed to the consumers in marketing.

Changing the electricity supplier

According to the Section 15a of the Electricity Market Act the network operator shall not collect a separate fee on registration and balance determination services and other corresponding services related to changing the electricity supplier. Furthermore, the network operator shall not collect a separate fee on the reading of a metering device in connection with changing the supplier, if at least one year has elapsed from the customer's previous change of supplier.

Dispute settlement

The disputes between consumers and entrepreneurs may be solved in the Consumer Disputes Board, which is an impartial body of experts for solving disputes between the parties. The Consumer Disputes Board does not charge any fees for handling disputes. The Board's written decision is a recommendation and the parties are not obliged to follow it. A dispute handled by the Board can always be taken to a court of law.

The Act on Class Actions came into force in October 2007. The Consumer Ombudsman may bring the class action, for instance, against a network operator or electricity supplier and act as the representative of the class in a general court of law.

6.1.4 Appropriate treatment of vulnerable customers

According to the Section 21 subsection 1 and 2 of the Electricity Market Act an electricity supplier who has the dominant position or a supplier with the highest market share within the area of responsibility of a distribution network operator shall deliver electricity at reasonable prices to consumers and other electricity users whose place of use is equipped with main fuses of 3 x 63 amperes at maximum or whose place of electricity use receives annually no more than 100,000 kWh of electricity (obligation to supply). The Energy Market Authority may order the above mentioned supplier to deliver electricity on its public terms and conditions of supply to the customers within the obligation to deliver.

The supplier's right to interrupt electricity supply is restricted according to the Electricity Market Act. According to the Section 27i the supply of electricity can be interrupted if the electricity user has materially defaulted on the payments to be made to the supplier or to the distribution network operator, or has otherwise materially infringed against the obligations based on the contract. Before interrupting the supply of electricity, the electricity user must be sent a written notification of the default on payment or of the breach of contract, and a separate warning of disconnecting the supply of electricity, which is sent at the earliest two weeks after sending the notification. The supply of electricity may be disconnected at the earliest five weeks after the payment has fallen due or after the electricity user has been informed of some other breach of contract for the first time, and the breach of contract has not been rectified in time before disconnecting the supply of electricity.

If the default on payment is caused by the user's financial difficulties that he has run into because of serious illness, unemployment or some other special cause, principally through no fault of his own, the supply of electricity may be disconnected at the earliest two months after the due date of the payment. The supply of electricity may not be disconnected, because of default on payment, between the beginning of October and the end of April in a building or in a part of a building that is used as a permanent residence, if the building is heated by means of electricity, until four months have elapsed since the due date of the outstanding payment.

As it regards interrupting electricity supply for a reason attributable to the supplier the distribution network operator may not interrupt electricity supply to an electricity user encompassed by the obligation to supply until the Energy Market Authority has designated a new supplier.

Social assistance is a form of last resort of economic assistance available when an individual's or a family's income is not enough to manage on a daily basis. The payment of the benefit is stipulated by the Act on Social Assistance and is handled by the municipalities.

6.1.5 Disconnections for non-payment in 2007

Data about the disconnections for non-payment are not available.

6.1.6 End-user price supervision of electricity

According to the Section 21 subsection 1 and 2 of the Electricity Market Act an electricity supplier who has the dominant position or a supplier with the highest market share within the area of responsibility of a distribution network operator shall deliver electricity at reasonable prices to consumers and other electricity users whose place of use is equipped with main fuses of 3 x 63 amperes at maximum or whose place of electricity use receives annually no more than 100,000 kWh of electricity (obligation to supply).

There are no price caps in use. The designated supplier is entitled to obtain reasonable price for fulfilling his obligation to supply. The suppliers are able to change their retail tariffs when they see it necessary. However, the pricing have to be reasonable.

Information on supplier switching rates is presented in chapter 3.2.2.

The branch organisation the Finnish Energy Industries has prepared the standard contracts including general terms of electricity supply. These standard contracts are widely used by the suppliers. In view of consumer protection, the Consumer Ombudsman supervises the legality of the terms of the supply contracts.

The Energy Market Authority supervises that a supplier who has the dominant position has terms of retail sale and prices, and the criteria underlying these that are publicly available to consumers and to the customers encompassed by the supplier's obligation to supply. The Energy Market Authority also supervises that the terms not include any unreasonable conditions or limitations that would restrict competition within electricity trade. Furthermore, an electric-

ity supplier who has the dominant position shall deliver the above mentioned public terms and the criteria underlying these, to the Energy Market Authority prior to their introduction.

An electricity supplier shall notify the Energy Market Authority of the terms of retail sale and prices of electricity that the supplier in general applies when supplying electricity to consumers and other electricity users whose place of use is equipped with main fuses of 3 x 63 amperes at maximum or whose place of electricity use receives annually no more than 100 000 kWh of electricity. The Energy Market Authority may issue further regulations on what information related to the terms of retail sale and prices and pricing criteria should be delivered to it, how the information should be itemised and how the information should be delivered.

6.2 Gas

6.2.1 The implementation of Directive Annex A criteria

According to the Natural Gas Market Act (Chapter 4 Section 7), the following rules are applied when providing natural gas services to consumers:

- (1) Customers have a right to a contract with their gas service provider that specifies:
 - a) the identity and address of the supplier;
 - b) the services provided, the service quality levels offered, as well as the time for the initial connection;
 - c) if offered, the types of maintenance service offered;
 - d) the means by which up to date information on all applicable tariffs and maintenance charges may be obtained;
 - e) the duration of the contract, the conditions for renewal and termination of services and of the contract, the existence of any right of withdrawal;
 - f) the alternative procedures for dispute resolution.
- (2) Conditions shall be fair and those should be provided prior to the conclusion or confirmation of the contract.
- (3) Customers must be given adequate notice of any intention to modify contractual conditions.
- (4) Gas service provider shall inform customers about their right of withdrawal when the contractual conditions are modified.
- (5) Gas service providers shall notify their subscribers of any increase in charges, at an appropriate time no later than 30 days before the increase comes into effect.
- (6) Customers are free to withdraw from contracts if they do not accept the new conditions, notified to them by their gas service provider.

According to the Natural Gas Market Act the gas service provider shall keep his terms of sale, prices and pricing principles publicly available and notify the Energy Market Authority of them.

According to the Natural Gas Market Act only customers whose consumption is over 5 million cubic meters are considered as an eligible customer. Thus there are no special provisions concerning consumers' right to change the supplier.

The disputes between consumers and entrepreneurs may be solved in the Consumer Disputes Board, which is an impartial body of experts for solving disputes between the parties. The

Consumer Disputes Board does not charge any fees handling disputes. The Board's written decision is a recommendation and the parties are not obliged to follow it. A dispute handled by the Board can always be taken to a court of law.

The Act on Class Actions came into force in October 2007. The Consumer Ombudsman may bring the class action, for instance, against a network operator or gas supplier and act as the representative of the class in a general court of law.

6.2.2 Appropriate treatment of vulnerable customers

According to the Natural Gas Market Act (Chapter 4 Section 1) the supplier in a dominant market position in a natural gas network shall supply natural gas at a reasonable price upon the request of a customer connected to the network, if the customer has no other economically competitive options to purchase natural gas through a natural gas network (obligation to supply). The Energy Market Authority may order the natural gas retailer to supply natural gas to the natural gas consumer, if the latter has no other possibility to obtain natural gas.

According to the Natural Gas Market Act (Chapter 4 Section 5) the supply of natural gas may be interrupted if the consumer fails, despite a reminder, to pay the natural gas retailer or distribution network operator the fees due for them, or otherwise essentially infringes the terms of the contract on natural gas sales or network services. However, supplying natural gas to a property used as a permanent residence, or to any part thereof, shall not be interrupted, on account of failure to pay, between the beginning of October and the end of April, if the heating of the property is dependent on the delivery of natural gas, unless four months have elapsed from the due date of payment.

Data on the number of disconnections for non payment in the year 2007 is not available.

6.2.3 End-user price supervision of gas

As mentioned above the supplier in a dominant market position in a natural gas network shall supply natural gas at a reasonable price upon the request of a customer connected to the network, if the customer has no other economically competitive options to purchase natural gas through a natural gas network (obligation to supply). Since the Finnish gas market has not been fully opened to competition and there is only one importer/wholesaler, the obligation to supply applies to all gas suppliers practically in every case. So customers in every customer category have the same right to purchase natural gas at a reasonable price. In other words the proportion of customers in each segment (household, commercial, industrial) still supplied by the last resort supplier is practically 100 per cent in every segment.

The designated supplier is entitled to charge reasonable price when he fulfils his obligation to supply. So there is no need for any other compensation.

There are no price caps. Prices have to be reasonable. Regulation of transmission and distribution tariffs is based on rate of return approach.

In March 2008 the Energy Market Authority made a decision on whether the pricing of wholesale supply of natural gas had been reasonable. The decision dealt with the pricing dur-

ing financial years 2006 and 2007. According to the decision the pricing of Gasum Ltd's gas supply was not at the reasonable level during these years and Gasum was ordered to change their pricing policy starting from financial year 2008.

Due to the fact that the gas supply business is not capital intensive but resembles any other trading business, the Energy Market Authority opted for using the gas supply margin as the measure for assessing the reasonable level of pricing. EBIT-% (earnings before tax and interests %) was selected as an indicator of reasonable pricing and the reasonable level (2.5 %) was entered at by using benchmarking studies in the field.

Gasum Ltd has appealed the decision to the Market Court. The final stage of appeal is the Supreme Administrative Court.

6.2.4 The activities of regulators in ensuring transparency of the terms and conditions of supply

The Finnish Natural Gas Association (the branch organisation of the natural gas industry) has issued standard contracts, including general terms and conditions for natural gas supply. The Energy Market Authority was consulted before the standard contracts were published.

The TSO which is also the sole gas importer (Gasum Ltd) has consulted the Energy Market Authority about their tariff structure.