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National report 2012 to the Agency for the Cooperation of Energy Regulators and to the European Commission

Finland

CONTENT

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1. Foreword

This is a national report prepared by the Energy Market Authority to the Agency for the Co-operation of Energy Regulators and to the European Commission on the state of the Finnish electricity and natural gas markets in 2011 as required by Article 37(1)(e) in the Directive for the Internal Market in Electricity (2009/72/EC) and Article 41(1)(e) in the Directive for the Internal Market in Natural Gas (2009/73/EC). Although this is the first national report after the entry into force of the above-mentioned directives, the report continues the series of annual national reports published since 2004. The document covers the steps the Energy Market Authority has taken and the results obtained as regards each of the tasks listed in the Article 37 of the Electricity Market Directive and the Article 41 of Natural Gas Market Directive. It 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.

Internal Electricity Natural Gas Market Directives should have been implemented into national legislation by March 3, 2011. However, this process has been delayed in Finland and according to the latest information received from the Ministry of Employment and the Economy, the Government Bill will be sent to the Finnish Parliament for approval late summer 2012. New amended legislation will come into force from the beginning of 2013. Despite of this delay the present electricity and natural gas market legislation already covers most of the requirements set in the Directives.

As a part of the implementation process ownership structure of the Finnish electricity transmission system operator, Fingrid Oyj was changed in April 2011. Two electricity generating companies, Fortum Oyj and Pohjolan Voima Oy sold their shares to the State of Finland and Ilmarinen Mutual Pension Insurance Company. After the acquisition the State of Finland owns the majority of shares of Finland. Certification of Fingrid has been delayed due to delays in national legislation process.

The year 2011 saw a decrease in domestic electricity production in Finland, which was in part compensated for by an increase in the net imports of electricity. Finnish electricity production amounted to a total of 68 TWh in 2011, down about 9 per cent on the year before. In 2011 the net imports of electricity from Russia, Estonia, Sweden and Norway increased by 18 per cent. Net imports covered about 16 per cent of total electricity consumption during the year under review. This increase in net imports was particularly due to the improvements seen in the Norwegian and Swedish hydro situation since spring 2011 and partly also to the improved capacity utilisation rates of Swedish nuclear power plants in comparison with the year before.

Finnish electricity consumption was reduced in 2011 particularly due to warm weather during the latter part of the year and the slowdown seen in industrial production. The nation's total electricity consumption was 84 TWh, down about 4 per cent year-on-year.

Total installed generation capacity in Finland was about 16,545 MW in the end of 2011. However, all installed capacity is not available during the peak load situation. The Energy Market Authority has estimated that available domestic electricity production capacity will not be able to cover the need for capacity during winter consumption peak periods until 2016. The resulting capacity deficit must be covered by importing electricity from other countries.

The import capacity of electricity at the end of the year 2011 from neighbouring countries to Finland was about 4,650 MW. During the year 2011 transmission capacity was increased by 800 MW when the Fenno-Skan 2 line between Sweden and Finland was commissioned in November.

The new Capacity Reserve Act assigned the Energy Market Authority with the obligation to take care of the procurement of the capacity reserves needed to ensure the balance between supply and demand. Following a competitive tendering process, in May 2011 the Energy Market Authority selected three power plants for the capacity reserve system until summer 2013. The combined capacity of these plants totals 600 MW.

The market prices of electricity took a downturn in the Nordic wholesale market during 2011 as the Nordic hydro situation improved over the year. There was also a reduction in emission allowance prices over the year, which also had a lowering effect on the electricity market price. There was substantial variation in the market price of electricity over the year under review. In January 2011 the Finnish regional price at the Nord Pool Spot Elspot market averaged €68.92/MWh, while the corresponding price in December was only €33.34/MWh. Overall in 2011 the Finnish regional price averaged €49.31MWh, down 13.0% on the year before. In 2011 electricity bought from the Nord Pool Sport covered 56.9 per cent of the Finnish electricity consumption.

In January 2012 Finnish household consumers paid a total of 2.9% more for their electricity than a year earlier. The price of electrical energy available to households on the basis of competitive tendering increased in 2011 until late summer, but in the autumn there was a downturn due to drops in electricity wholesale prices. The household energy prices paid increased by an average of 3.8%. The electricity transmission prices exclusive of tax paid by households increased by 2.8% on average.

Roll-out of smart meters continued in 2011 and by the end of 2011 above 50% of consumption points were already equipped with a smart meter. According to the Degree from the Council of State at least 80 per cent of customers per each DSO network area shall have remotely readable smart meter by the end of 2013.

The rate of supplier switching among electricity consumers remained at the previous year's level in 2011. In all 7.6% of electricity consumers switched supplier during the year. The switching rate in Finland seems to have been settled on the level of 7-8 per cent. The household customers used actively the Internet-based price comparison service provided by the Energy Market Authority.

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 a derogation from the Natural Gas Directive that allows it not to open its natural gas market. However, a secondary gas market is in operation so that the users of natural gas are able to trade with each other in the natural gas they have acquired for their own use from the wholesale market to adjust their purchase and use of gas. Natural gas has become less competitive due to the increase of taxes in the beginning of 2011. Thus the development opportunities for natural gas have been weakened.

One of the key regulatory tasks for the Energy Market Authority is the regulation of electricity and natural gas network system operators covering both economic and technical aspects.

The second regulatory period for electricity network regulation started in the beginning of 2012. A project - Roadmap 2020 - to prepare a vision and define the needed strategies and actions to develop network regulation of both distribution and transmission system operators by 2020 was launched in 2009 with a deadline in late autumn 2011.

At the beginning of 2011 a new legislation regarding the production subsidies for renewables came into force. In this system the Energy Market Authority has the responsibility to approve power plants using renewable energy sources in electricity generation into this feed-in tariff system and to pay subsidies to these power plants.

The Energy Market Authority carried out the regulatory and supervisory tasks of electricity and gas market, production subsidies and emissions trading - the specificity of the Finnish energy regulatory authority - with a staff of 45 employees at the end of 2011. This was made possible thanks to efficient processes, dedicated people and an extensive use of tailor-made IT systems that the Authority has developed together with the service providers for all the major areas of regulation and supervision.

Riku Huttunen
Director General
Energy Market Authority

2. Main developments in the gas and electricity markets

2.1 Legal framework

2.1.1 Implementation of the 3rd package

The 3rd package on the Liberalization of the Energy Markets and its implementation will imply certain needs for changes in the Finnish electricity and natural gas market legislation. These changes relate to the unbundling of the TSO and the tasks and the independence of the national regulatory authority.

The 3rd package requires that electricity transmission network operators are separated from production and supply activities. The fact that two generating companies Fortum and Pohjolan Voima were shareholders of Fingrid required Finland to take steps to implement the new unbundling requirements. On 19th April 2011 it was announced that the ownership rearrangements of Fingrid Oyj, have been brought to conclusion. Pohjolan Voima Oy and Fortum Power and Heat Oy divested their holding in Fingrid to the State of Finland and Mutual Pension Insurance Company Ilmarinen. After the share transaction, the holding of the State of Finland in Fingrid is approx. 53 per cent and that of Ilmarinen approx. 20 per cent. The other shareholders, which are mainly Finnish pension insurance and insurance companies, have a holding of approx. 27 per cent.

Both the amended electricity and gas directives introduce some general objectives as well as such duties and powers for the regulatory authority that currently are not included in the Finnish legislation. This requires the clarification of the roles and responsibilities of the Energy Market Authority vis-à-vis other authorities like the competition and consumer authorities and financial supervision authorities. The 3rd package also contains new monitoring duties related to markets and competition. So far, the Energy Market Authority or any other authority has not had an explicit and clear requirement to monitor the electricity and gas markets and to collect information on the functioning of the markets.

The 3rd package will also introduce changes in the sanction regime of electricity and gas market legislation. The current regime with decisions boosted with conditional fines where needed, needs to undergo a change to enable the use of administrative fines.

To ensure the independence of the regulatory authority the members of the board or the regulatory authority's top management are restricted to be appointed for a fixed term of five up to seven years and renewable once. Currently there are no limitations on the term of the top management of the Finnish regulatory authority and the appointment is for an indefinite period of time, which is a common practice in the Finnish public administration.

Ministry of Employment and the Economy set up in November 2009 an ad-hoc working group to prepare a proposal for the implementation of the 3rd package into national legislation. The working group published its final report on 17 September 2010. Due to the general elections held in spring 2011 the Government bill on new legislation was postponed and it is expected to be given to the Parliament in late summer 2012. The Ministry has planned that the new legislation would come into force in the beginning of 2013.

2.1.2 Development in related legislation

The new Production Subsidy Act came into force in the beginning of 2011. The new system of production subsidies introduces a feed-in tariff scheme for wind power and biogas, a feed-in tariff scheme for small wood-fuelled CHP plants, a variable production subsidy for electricity generated using forest chip fuel, and a fixed production subsidy for hydropower. In this system the Energy Market Authority has responsibilities of planning, introduction and administration. The new duties of the Energy Market Authority include the approval of producers and verifiers for the production subsidy schemes, payment operation of production subsidies to producers, and supervision of producers and verifiers included in the scheme. In the Finnish system the production subsidies are financed by the state budget.

The new Act of peak load reserves to ensure balance between supply and demand in electricity markets came in to effect in March 2011. According to the new legislation the Energy Market Authority is in charge of arranging an auction for the reserves. The reserve acquisition was carried out in May 2011 and the power plants selected as a result of the auction were commissioned to provide the reserve power services from October 2011 until June 2013.

2.2 The electricity market

2.1.1 Unbundling

Development in TSO unbundling

Fingrid was established in November 1996 by joining two previously existing transmission network operators. It started its operations in September 1997. Fingrid owns the Finnish main grid and all significant cross-border connections. At the setup of the company, Fingrid was 12 per cent owned by the State of Finland, 25 per cent by Fortum Power and Heat Oy, 25 per cent by Pohjolan Voima Oy and 38 per cent by insurance companies. Both Fortum Power and Heat Oy and Pohjolan Voima Oy are major Finnish electricity generators.

The 3rd internal energy market directive package requires that electricity transmission network operators shall be ownership unbundled from production and supply activities. The holdings of Fortum and Pohjolan Voima in Fingrid required that Finland took steps to implement this obligation. Fortum and Pohjolan Voima sold their Fingrid shares to the State of Finland and Ilmarinen Mutual Pension Insurance Company in April 2011.

Via voluntary deals Fingrid was transformed into a transmission network company factually unbundled from electricity production, operating in compliance with the Internal Electricity Market Directive. After the acquisition Fingrid is 53.1 per cent owned by the State of Finland, 19.9 per cent by Ilmarinen Mutual Pension Insurance Company and 27.5 per cent by other shareholders, which are mainly Finnish insurance companies.

The aim of Finnish state has been to secure the strategic interests and security of supply in the electricity system and transmission network by majority shareholding of Fingrid shares and holding a majority of votes in the annual general meeting

As the implementation of the Directive 2009/72/EC into national Finnish legislation has not been completed out the Energy Market Authority has not been able to officially start the certification process in 2011. However, some unofficial steps were already taken.

Development in DSO 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 July 2012 a total of 53 distribution system operators of 87 operators were legally unbundled in Finland.

2.2.2 Wholesale market

Development in market integration

The Finnish electricity wholesale market is part of the North European power market. For more than a decade, Finland has formed an integrated wholesale electricity market with Denmark, Norway, Sweden, and since 2010, Estonia. The Nordic market is connected also to the Central Western European electricity market, by the European Market Coupling company (EMCC) initiative.

Physical day-ahead and intra-day trading takes place in the Nordic power exchange Nord Pool Spot. The formulation of area prices and the allocation of cross-border capacity and the congestion management between Finland and the other Nordic countries are managed by implicit auctions (market splitting) in the day-ahead market of the Nordic power exchange. The price differentials emerge as a function of insufficient transfer capacity between areas. In year 2011, about 74 per cent of the time Finland and Sweden belonged to the same price area – a decrease of 20 percentage points compared with the previous year. For 26 per cent of the time the day-ahead price in the whole Nordic market was the same.

In November 2011 Sweden was divided into four different price areas. So far this event has not had any major impacts on the Finnish market. In November 2011 a new DC cable between Finland and Sweden, Fenno-Skan2 was commissioned. New cable increased the import/export transmission capacity between Finland and neighbouring countries with 800 MW up to 4,650 MW. An investment decision on a new DC interconnection between Finland and Estonia, Estlink2 was made in May 2010. According to the plans the new connection would be in operation in early 2014.

Development in market concentration

In 2011, there were no significant changes in the structure of the Finnish electricity wholesale market and in the development of market concentration. The Finnish electricity generation sector is characterized by a large number of actors. The total number of companies producing electricity stayed at some 120 and the number of production plants was circa 550. The share of the three biggest companies of the total installed capacity was estimated to be in the range of 45 - 50 per cent.

In 2011, the Finnish electricity production decreased 6.5 TWh from previous year to 68 TWh (75 TWh in 2010). The amount of hydro and nuclear power generated were 12 TWh and 22

TWh respectively, which is almost the same as in 2010. The thermal power generation was 35 TWh, which is 6.5 TWh, or 15 per cent, less than in 2010. The wind power production increased notable 64 per cent, but constituted only 0.5 TWh.

Consumption amounted to approximately 82 TWh, down about 4 per cent when compared to 2010. The main reasons for the decreased demand were the relatively warm weather and the depression in the overall economy resulting in decline in the industrial activity.

Of the total demand net imports covered about 16 per cent, about 3 percentage points up when compared to the level of previous year. Finland has interconnections to Sweden, Norway, Russia and Estonia. The direction of flow to and from Sweden varied during the year, resulting in almost zero net export. After the division of Sweden to four price areas, there was mainly import from Northern Sweden and export to Stockholm area. The net import from Estonia was also close to zero. Import from Russia remained almost at the same 11 TWh/y level as in previous year, but the new capacity market system in Russia and decreased Finnish wholesale price led to a downward trend of the flow at the end of the year.

Allocation of capacity

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 Spot. This fulfils the requirements set in the Congestion Management Guidelines annexed to the Regulation (EC) No 714/2009 (previously 1228/2003). Remaining transmission capacity after day-ahead allocation is set for intraday market and balancing. Finland is considered as a single price area within Nordic market and congestions within Finland and after the day-ahead market closure are managed by countertrade.

Development of the power exchanges

In 2011 traded volumes through Nord Pool Spot amounted to 316 TWh, a slight increase from 2010 when the traded volume was 310 TWh. The traded volume corresponds to about 76 per cent of the total Nordic power demand. The turnover in the intra-day market, Elbas was 2.7 TWh (2.2 TWh in 2010). The share of electricity consumed in Finland and sourced through the Elspot exceeded for the first time the 50 per cent mark in 2008. In the year 2011 the share of power sourced through Nord Pool Spot was 57 per cent (56 per cent in 2010).

In 2011 the average day-ahead area price for Finland in Nord Pool Spot was 49.30 EUR/MWh, down 13% from the year 2010 (56.64 EUR/MWh in 2010). The average day-ahead system prices amounted to 47.05 EUR/MWh in 2011, down 11% from the previous year (53.06 EUR/MWh in 2010). The prices in Nord Pool Spot were substantially lower than a year before. The key explanation for this was extremely high inflow to hydro reservoirs in Norway and Sweden, warm temperature in all Nordic countries and decline of industrial activity. The inflow was on annual level 242 TWh, which is almost 20% higher than long term average and the reservoir levels were exceptionally high at the end of the year.

2.2.3 Retail market

Development in market concentration

In 2011, there were no major changes in the number of retail suppliers. To serve Finland's circa 3.1 million electricity customers, there are currently 73 retail suppliers of which more than one third is marketing electricity actively outside their traditional supply area.

In the Finnish electricity retail market there are about 4 electricity retailers with a larger than 5 per cent share of market. However, the exact market shares of individual retailers are not available. The market share of the three largest suppliers in the retail market for small and medium-sized customers has been 35-40 per cent.

Only a few electricity retailers are ownership unbundled from electricity distribution network activities. Many of the electricity retailers are part of companies involved in the network business. On July, 2012 there were 36 electricity retailers who had both the obligation to supply and who were legally unbundled from electricity network activities. There were 4 independent suppliers without close connection to any DSO. One of them had obligation to supply within one DSO area.

Development in supplier switching

In 2011, the number of customers that switched their supplier was 232,700. The overall switching rate in 2011 was 7.6 per cent, which is the same as in 2010. In general, enterprises and households living in flats and row houses have been more active in switching than others.

Development of retail electricity prices

The retail prices are not regulated in Finland. In 2011 the average price of electrical energy excluding taxes for a residential customer with 5,000 kWh/a consumption increased by 3.8 per cent. For small houses with electric heating (consumption 18,000 kWh/a) the increase was 2.7 per cent. The decrease of the prices in the Nordic wholesale power market did not affect the retail prices until the end of the year.

During 2011 distribution network charges including taxes and VAT increased on average 2.0 per cent and transmission network charges by approximately 4.5 per cent. This rise of distribution network charges is based on the increased network investments, required by aging electricity grid, the improvements in network supply and the smart metering roll-out according to new acts. Also the first regulatory period that ended in 2007 and the first three years of the second period left most distribution system operators with accumulated deferred deficits, which in turn made distribution network price increases possible for these companies in 2011.

The total price of electricity price for a Eurostat Dc consumer (3500 kWh/a) was 16.1 cnt/kWh which is ca. 17% higher than in 2010. The increase of the price can be largely explained by the change in electricity tax. The taxation of electricity consumed by households increased by roughly 1 cnt/kWh in the beginning of 2011 (electricity tax including security of supply cost and VAT is 2.09469 cnt/kWh and VAT 23%).

Promotion of retail competition

To promote competition in the electricity retail market the Energy Market Authority has maintained since 2006 a web-based tariff calculator designated to facilitate price comparisons and supplier switching. The system is also developed to inform private consumers better about the origin of the electricity. All retail suppliers are obligated to maintain up-to-date information on their public electricity price offers on this website. In 2011 about 2 million price comparisons were made within the IT system.

Retail market integration

Since 2005 Nordic energy regulators have been working to promote and facilitate a common end-user market for electricity in Finland, Denmark, Sweden and Norway. In October 2009 Nordic ministers for energy expressed their political support to the initiative to establish a common Nordic end user market by 2015. The Energy Market Authority has actively continued working towards that target during 2011.

2.2.4 Public Service Obligations and Consumer Protection

In 2011 the Energy Market Authority made 55 decisions on complaints related to electricity market operators. Out of these 42 were cases regarding pricing of distribution services and 13 were cases regarding practices of suppliers. The average processing time was 1.5 months. There are no statistics about the number of other inquiries than complaints. The complaints submitted fell into the following categories: connection charges, the network access charges, quality of supply, metering, inconsistencies in invoicing and general complaints regarding practices of the supplier.

2.2.5 Infrastructure

Development in transmission network investments

In March 2008, the Nordic TSOs agreed on a second Nordic Grid Master Plan identifying new Nordic grid enforcements to be implemented by 2025. The Plan proposes to initiate planning process to reinforce three internal Nordic grid areas. In line with this plan a new DC cable between Finland and Sweden, Fenno-Skan2 has been built. This cable with capacity of 800 MW was commissioned in November 2011.

Besides the Nordic grid investment feasibility studies, a Nordic-Baltic study was conducted jointly by the Nordic and Baltic TSOs. According to the study, a connection between Finland and Estonia (Estlink 2) together with a connection between Sweden and the Baltic area would yield the best socio-economic benefits.

Baltic Energy Market Interconnection Plan, a project launched by the Commission, identified the construction of the second DC line between Finland and Estonia as one of the most urgent infrastructure projects to allow for effective integration of the Baltic and the Nordic power markets.

The investment decision regarding the second undersea cable interconnection with capacity of 650 MW between Estonia and Finland (EstLink 2) was been achieved in 2010. Seabed survey and environmental studies and the permitting processes were completed in 2010. EstLink 2 cable is expected to be commissioned by the beginning of 2014.

The multiregional planning co-operation with the Baltic TSOs and with the continental TSOs to investigate further HVDC interconnections between Nordic and those areas are foreseen within the newly established ENTSO-E organisation.

Roll-out of smart meters

In March 2009 came into force a Degree of the Council of State which requires that by the end of 2013 at least 80 per cent of the consumption places per each DSO shall be equipped with a smart meter capable for registering hourly metering and remote reading. By the end of 2011 above 50% of 3.1 million consumption places in Finland were already equipped with a smart meter.

2.2.6 Security of Supply

Development in competences of NRA for security of supply

A new Capacity Reserve Act came in to effect on 1.3.2011 and replaced the previous act. Peak load reserve capacity will be used to ensure that the balance between supply and demand is achieved if the balance will not be achieved in commercial market.

New act increases the role of national regulator. According to the new act the Energy Market Authority evaluates and decides the required size of peak load reserve capacity, arranges the tendering process and makes the procurement decisions. The Energy Market Authority also supervises the profit of the peak load power plants.

Development in generation investments

In May 2010 the Government made two decisions-in-principle in favour of additional construction of nuclear power. Teollisuuden Voima Oyj's application for constructing a new nuclear power plant unit, Olkiluoto 4, in Eurajoki, and Fennovoima Oy's application for constructing a new nuclear power plant in Simo or Pyhäjoki were both approved. The entry into force of each positive decision-in-principle was approved by the Parliament on the 1st of July 2010. These new nuclear power plants would be in operation in 2020's. In October 2011 Fennovoima announced that the new plant will be constructed to Pyhäjoki and that the supplier of the plant will be chosen by 2013.

Development in supply/demand balance

The all-time high peak load in Finland is 14,808 MW and this occurred in February 2007. The winter 2010-2011 was relatively cold and the peak load that occurred in February 2011 was 14,800 MW (14,320 MW in 2010). During the peak, power generation in Finland was about 12,200 MW and import to Finland was 2,600 MW.

The Energy Market Authority has estimated that Finland had 13,155 MW of generation capacity available in winter season 2011 - 2012. The power reserves related to system disturbances in Finland were 1,240 MW. At the end of 2011, the installed nominal capacity of power plants was 16,545 MW. A total of approx. 1,892 MW of new power plant capacity is expected be completed in 2011 - 2015 At the same time, a few old power plants will be decommissioned.

In May 2010 the Government made two decisions-in-principle in favour of additional construction of two new nuclear power plants. These new nuclear power plants would be in operation in 2020's.

2.2.7 Regulation

Network regulation

In the field of electricity, the Energy Market Authority is responsible for regulating 87 distribution network operators, 12 regional network operators and one transmission system operator.

Since the end of 2004, Finland has applied the ex-ante regulation of network pricing as required by the current Electricity Directive. The first regulatory period conforming to the new regulation model commenced at the beginning of 2005 and expired at the end of 2007. The second regulatory period of price regulation in electricity network operation covered the years 2008 - 2011. The third regulatory period covers the years from 2012 to 2015.

In November 2011 the Energy Market Authority confirmed with its decisions the methods concerning the rate of return in electricity network operation to be followed during the third regulatory period in 2012 – 2015. There were no major changes in the basic structure of the regulatory methods. Instead, regulation remains based on the revenue cap model used during the preceding periods. Method details were developed with a view to achieving a regulatory model that is incentivizing more innovations and investments in the networks in order to ensure viability of the networks.

A project - Roadmap 2020 - went ahead during the years 2009-2011. This project aims to prepare a vision and define the needed strategies and actions to develop network regulation of both distribution and transmission system operators. The Project Roadmap 2020 will be concluded by September 2011.

In January 2011 the Energy Market Authority confirmed by its decisions the methodology for pricing of grid connections in distribution networks.

2.3 The gas market

2.3.1 Unbundling

In 2011 there were no changes in the unbundling regime of natural gas operations.

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 functional 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 system operators fall below the limit set by the Directive. Thus there are no requirements for legal or ownership unbundling of natural gas transmission and distribution system operators. However, the accounting unbundling applies to all natural gas system operators.

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.

The TSO Gasum Oy is owned by Fortum Heat and Gas Oy (31 per cent), OAO Gazprom (25 per cent), State of Finland (24 per cent) and E.ON Ruhrgas (20 per cent). 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.

2.3.2 Wholesale market

Development in market integration

The natural gas market in Finland is relatively isolated and small. Finland has natural gas pipeline connection only to the Russian Federation. There is only one importer and wholesale supplier – Gasum Oy – which also owns and operates the natural gas transmission network and is the TSO.

Increasing the volume of the gas market would be important in making additional import connections economically viable. Furthermore, the Commission has proposed a concept called the Baltic Energy Market Integration Plan, BEMIP where Finland would be connected to the Baltic States gas network, and via the Baltics to the interconnected European gas network. 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 natural gas companies.

In 2011 discussions related to BEMIP project continued, but any decisions to build up a gas interconnector between Finland and Estonia or LNG terminals were not made.

Development in market concentration

In 2011, natural gas consumption in Finland totalled 3.9 Bcm (at 15 ^{o}C / 3.7 Mtoe, in 2010 it was 4.7 Bcm), which was imported from Russia by Gasum Oy acting as the sole wholesale supplier in Finland. In the Finnish natural gas wholesale market there is only one supplier and in 2011 there were no changes in this situation.

Large users account for the bulk of natural gas consumption in Finland. Energy and power companies, which use the bulk of natural gas to co-generate heat and power, used ca. 55% with industry consuming 45%. The key industrial sectors were pulp and paper and chemical industries whose consumption corresponded to 40 % of Finland's total gas consumption. Natural gas accounts for approximately 10 per cent of Finland's total energy consumption.

The natural gas market is characterized by vertical integration. The wholesale supplier of natural gas – Gasum Oy – is the sole importer and operator of the transmission system. Furthermore, it is downward vertically integrated into retail supply and distribution network operation by owning one natural gas distribution system operator and retail supplier. In Finland there are total of 23 natural gas DSOs and 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.

The importing capacity has been estimated to be about 9,500 MW, so the maximum transmission capacity is often at use in cold winter days. An all-time high in hourly consumption 0.96 million m3 was reached on 8 January 2010. Maximum 24-hour use was 20.5 million m3 (on 27 January 2010).

The Russian natural gas exporter Gazprom and Gasum Oy has entered into an agreement for Russian natural gas exports to Finland until the 31st of December 2026.

Development in natural gas pricing

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 cost based contracts between Gasum Oy and the customers. A majority of the customers by natural gas from Gasum Oy based on a public tariff, which Gasum Oy 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 2011, the share of wholesale supply sold under public tariffs was roughly 75 per cent. The whole contract-based trading covers some 90 per cent of the wholesale market. Additionally, Gasum Oy offers short term products that are sold on the Kaasupörssi (Gas exchange) Oy. Since 2002 there has existed a secondary market operated by Kaasupörssi (Gas exchange) Oy, which is a subsidiary of Gasum Oy. As many as 25 companies currently trade on the Kaasupörssi (Gas exchange) Oy. The total volume on the secondary market covered about 1.9 per cent of natural gas consumption in Finland (60,000 transactions).

Taxes for natural gas were raised in the beginning of 2011.

2.3.3 Retail market

Development in retail market structure

In 2011 there were no major changes in the retail market structure. The retail supply of natural gas covers only about 5 per cent of the total consumption. In Finland there are only about 36,000 customers in the natural gas market. The largest customer segment (29,000 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).

As supplier switching in the Finnish natural gas retail market is not possible, all suppliers are in a monopoly situation within their network area.

At the end of 2011 there were 23 natural gas retail suppliers. Many of the natural gas retailers in Finland are relatively small having only dozens of customers. The share of the top three retail suppliers is about 50 per cent of the total natural gas consumption in the retail level.

2.3.4 Infrastructure

At the end of 2011, the maximum transmission capacity of the natural gas transmission pipeline was 9,500 MW and the total length of the transmission network amounted to approximately 1,313 kilometres.

The TSO, Gasum Oy, is planning to expand its natural gas transmission pipeline to the western part of Finland where there currently does not exist any gas pipeline. However, this project may be delayed due to the impact of the current energy taxation system on the competitiveness of different fuels.

2.3.5 Security of Supply

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 2011 was 3.9 bcm. Based on estimates given by the Ministry of Employment and the Economy natural gas consumption will increase to 5.2 bcm in year 2020 and stay on the same level up to 2030.

Natural gas supply contract with Gazprom is valid until the end of 2025. Annual contract volume is up to about 6 bcm.

In 2011 there were no interruptions in gas supply to Finland. A substantial part of the gas consumption can be substituted with alternative types of energy or by taking into use replacing fuels in case there is an interruption in the supply of gas. The corner stone of preparedness in the case of an interruption is stockpiling oil. This is partly done by the state through its stocks and additionally, the importer of gas and certain users of gas are obliged to stockpile replacing fuel.

2.3.6 Regulation

Network regulation

In the beginning of 2011, the Energy Market Authority was responsible for regulating 23 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 2011 the regulation of natural gas network operations continued in the established manner. It was the second year of the second 4-year regulatory period 2010 - 2013.

Supervision of natural gas prices

With regard to the supervision of the pricing of natural gas the decision given by the Energy Market Authority in May 2008 was a landmark. In May 2008 the Energy Market Authority gave 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 Oy's gas supply was not at the reasonable level during these years and Gasum Oy was ordered to change their pricing policy starting from financial year 2008. Gasum Oy appealed against the decision to the Market Court, which gave its ruling on the case in May 2009. The Market Court dismissed the application for appeal by its ruling. Gasum Oy appealed against the ruling to the Supreme Administrative Court, the highest appellate instance. In December 2011 the Supreme Administrative Court overruled by its decision the appeal.

3. The electricity market

3.1 Network regulation

3.1.1 Unbundling

TSO unbundling and certification

The Finnish transmission system operator, Fingrid Oyj, was established in November 1996 by merging two previously existing transmission network operators. It started its operations in September 1997. Fingrid owns the Finnish main grid and all significant cross-border connections. At the setup of the company Fingrid was 12 per cent owned by the State of Finland, 25 per cent by Fortum Power and Heat Oy, 25 per cent by Pohjolan Voima Oy and 38 per cent by insurance companies. Both Fortum Power and Heat Oy and Pohjolan Voima Oy are major Finnish electricity generators.

The 3rd internal energy market directive package requires that electricity transmission network operators shall be ownership unbundled from production and supply activities. The holdings of Fortum and Pohjolan Voima in Fingrid required that Finland took steps to implement this obligation. Via voluntary deals Fingrid was transformed into a transmission network company factually unbundled from electricity production, operating in compliance with the Internal Electricity Market Directive. Fortum and Pohjolan Voima sold their Fingrid shares to the State of Finland and Ilmarinen Mutual Pension Insurance Company in April 2011.

After the acquisition Fingrid Oyj is legally and functionally unbundled from any functions of electricity supply and generation. Today Fingrid is 53.1 per cent owned by the State of Finland, 19.9 per cent by Ilmarinen Mutual Pension Insurance Company and 27.5 per cent by other shareholders, which are mainly Finnish insurance companies. Fingrid Oyj owns almost fully its network assets. Only a few lines have been leased out.

The aim of Finnish state has been to secure the strategic interests and security of supply in the electricity system and transmission network by majority shareholding of Fingrid shares and holding a majority of votes in the annual general meeting.

According to Article 10 of Directive 2009/72/EC, before an undertaking is approved and designated as transmission system operator, it shall be certified according to the procedures laid down in paragraphs 4, 5 and 6 of Article 10 of the said Directive. The implementation of the Directive 2009/72/EC into national Finnish legislation was not completed out by the end of 2011 and thus the Electricity Market Act defining the procedure of certification, or the authority of the NRA to carry out such action was not in place. However, the preparations for the certification have been started and when the implementation is finalized, the modified Electricity market act and other associated acts are in force, the certification can be completed.

DSO 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 distributed to the customers through the network operator's 400 V distribution net-

work has been 200 GWh or more during three consecutive calendar years. The arrangements were to be implemented no later than the beginning of 2007. Totally, 35 distribution system operators of 87 were at the end of 2011 over the threshold value. Also some distribution system operators under this threshold value have legally unbundled network activities. In July 2012 a total of 53 distribution system operators of 87 operators were legally or ownership unbundled. 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.

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.

Most 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 legal 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 is done in collaboration with other parts of the group or DSOs have outsourced to these activities to service providers. Usually, the distribution system operator and the retailer have at least a common customer service.

The electricity market legislation does not require that the network system operators shall own the network. However, almost every network operator in Finland owns the network it is operating. 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 2011 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.

In addition to this, many network operators in Finland have outsourced some parts of their network related activities, like construction and maintenance of lines to the service providers. These service providers may belong to the same group of companies as the distribution system operators or they are independent from any DSO.

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:

1. The organisation of the applicant corresponds to the scope and nature of its system operations;
2. The applicant has a sufficient staff in its service;
3. 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);

4. The applicant has the economic conditions for profitable electricity system operations;
5. The applicant has the right to decide on the resources needed for the operation, upkeep and development of an electricity system; and
6. 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 26(2)(c) in the Directive 2009/72/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 mentioned in the Article 26(2)(c), which is applied to all distribution system operators. 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 transition period related to legal unbundling did not extend to functional unbundling requirements but in practice the distribution system operators needed to be first legally unbundled before the functional unbundling requirements could 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 at the end of 2011 it covered 18 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 required in the Article 26(2).

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 nine 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 on implementation of the programme were published and posted to the Energy Market Authority in 2008.

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 EUR 500,000 and less than 10 per cent of the company's total revenue. Accounting unbundling requirements are specified with the ministerial degree

and the Energy Market Authority has issued updated version of the guidelines on the compilation of unbundled financial statements in June 2011. 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 non-binding 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. The 3rd Internal energy market directive in the Article 26(2) sets obligations regarding communication and branding of the DSOs. There are no final decisions how these requirements will be implemented in the Finnish regulation as the implementation of directives into the Finnish legislation has been delayed.

3.1.2 Technical functioning

Balancing services

According to Article 37(6)(b), the provision of balancing services which shall be performed in the most economic manner possible and according to the Article 37(8), the regulatory authorities shall ensure that transmission and distribution system operators are granted appropriate incentive, over both the short and long term, to increase efficiencies, foster market integration and security of supply and support the related research activities. When monitoring compliance with and reviewing the past performance of network security and reliability rules and setting or approving standards and requirements for quality of service and supply or contributing thereto, Article 37(1)(h).

The transposition of the Directive 2009/72/EC into national Finnish legislation was not completed out by the end of 2011 and thus the balancing services and other services related to the system responsibility are governed by the Electricity Market Act, where Article 16 states that the NRA approves the terms of services related to the system responsibility. According to the Electricity Market Act, the Energy Market Authority approves 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 executed joint supervision of both network and system operation (including balancing services) in the price regulation of the TSO. Furthermore, the Energy Market Authority approves terms and conditions of TSO's balancing services (i.e. standard balance agreement) when they are to be renewed. In February 2011 the Energy Market Authority approved terms and conditions for TSO balancing services for the period from January 1, 2011 until December 31, 2011. In November 2011 the Energy Market Authority approved terms and conditions for TSO balancing services from January 1, 2012 and these terms and conditions are valid until further notice.

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 power 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 management 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 4 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 (Elspot) has closed.

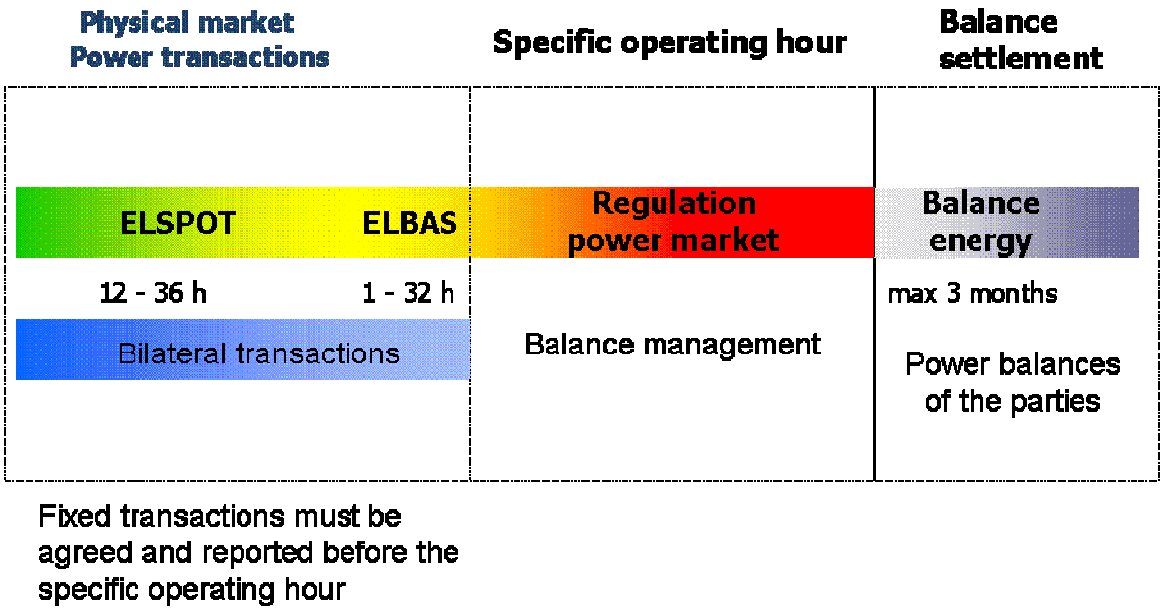

Figure 1. Balance management in the Nordic electricity market model (Source: Fingrid Oyj).

In the Nordic regulation power 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 balancing 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.

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 in the year 2011 was 54 EUR/MWh and down-regulation was 44 EUR/MWh. The volumes traded in regulation market were for up-regulation 88 GWh and for down-regulation 246 GWh in Finland during the year 2011 (Source: Fingrid Oyj.).

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 (EUR/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

The balance service costs related to the national energy consumption were in Finland 47 EUR/GWh in year 2011 when costs of regulating and balancing power and costs of reserves are excluded. The total annual income for TSO from the balance fees in year 2010 was 15,3 million Euros. Fees are charged from every balance responsible party.

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 Spot’s website www.nordpoolspot.com.

The Nordic countries under Nordel have agreed on the balance proposal. The new balance agreement was implemented in Denmark, Sweden and Finland from the beginning of 2009. In Finland production up to 1 MW is settled as consumption. The agreement for common Nordic balance management with one imbalance price for consumption and two imbalance prices for

production was implemented in Norway on 28 September 2009, with an exemption for generation units under 3 MW installed capacity, which will be settled as consumption.

The purpose of balance settlement is in all Nordic countries to settle the imbalances that are the result of electricity deliveries between the parties in the electricity market. The system operators perform two types of balance settlement.

Balance power between two countries is priced and settled according to the Nordel System Operation Agreement. Since September 2002, bids from market participants with available regulating capacity are entered into a common price list in the common Nordic Operational Information System (NOIS). There is now a common regulation market and the system operation agreement results in a balance control and balance regulation of the interconnected power system that is much harmonised.

The balance settlement inside the countries is a settlement between the system operators and the balance responsible parties. This settlement is governed by national balance agreements. The balance agreements also describe how the balance responsible parties can participate in the regulation power market.

Efficiency

In the first regulatory period in 2005-2007, the Energy Market Authority set an efficiency-improvement target for the controllable operating costs of the DSOs, 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.

During the second regulatory period in 2008 – 2011 the network operators were encouraged to increase the efficiency of their operations and to maintain a high security of electricity supply. For the second regulatory period in 2008 - 2011 the Energy Market Authority set both the general efficiency target and the company-specific efficiency goals for the DSOs. The company-specific efficiency goals were based on the benchmarking of DSOs by using both the DEA-method (*Data Envelopment Analysis*) and the SFA-method (*Stochastic Frontier Analysis*). The confirmed methodology includes incentives to improve the cost efficiency also for the regional and transmission system operators.

For the third regulatory period in 2012 - 2015 the Energy Market Authority set both the general efficiency target and the company-specific efficiency target for the DSOs. Instead of using DEA- and SFA-methods, the company-specific efficiency targets are estimated on the benchmarking of DSOs by using semi-parametric StoNED-method (*Stochastic Nonsmooth Envelopment of Data*).

Quality of supply

In the Finnish legislation the electricity system operators have various obligations:

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

In addition to the price, quality of supply 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.

In the economic regulation of network operators 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 by having fewer and shorter interruptions compared to average level of previous years the system operator is allowed to have higher rate of return. Similarly, electricity quality impairment lowers the permitted rate of return for the system operator.

Table 1 shows interruptions in transmission and distribution networks during the years 2001-2011. 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.

Table 1. Interruptions in transmission and distribution networks in 2001-2011. [1]

	Interruptions minutes lost per customer per year										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Transmission	2.28	5.54	2.12	2.10	2.02	2.10	1.50	1.55	2.7	5.0	6.9
Distribution	256	136	123	103	180	145	103	129	96	279	366

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 July-August 2010 there were four big storms in Finland which caused interruptions for more than 450,000 customers (about 14 per cent of all electricity customers in Finland). Due to these interruptions distribution system operators had to pay fixed compensations to about EUR 10 million to about 100,000 customers. In 2011, electricity distribution system operators paid fixed compensation payments because of long interruptions a total sum of EUR 47.6 million, compared with EUR 10.1 million in 2010, 1.4 million in 2009 and EUR 0.83 million in 2008.

In late December 2011 there were two notable storms in Finland which caused also interruptions for many customers. These storms were out of ordinary storms because they occurred in the winter.

[1] Distribution data for interruptions has been corrected after cross-checking.

3.1.3 Network tariffs for connection and access

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.

Confirmation of the methodology for setting transmission and distribution network tariffs

The methodology of setting transmission and distribution network tariffs is confirmed by the Energy Market Authority prior to each regulatory period. 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. After the regulatory period has come to an end, the Energy Market Authority confirms 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 include obligations 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 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.

The network system 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.

The length of regulatory periods is four years. As an exception, the first regulatory period covered years 2005 - 2007. The second regulatory period of price regulation in electricity network operation covered the years 2008 - 2011. The third regulatory period covers the years 2012 – 2015.

The Energy Market Authority started in 2010 the preparation of new guidelines on the details of the methodology concerning the third regulatory period. After public consultations the final guidelines were published in late June 2011. The Energy Market Authority confirmed by its decisions the methods concerning the rate of return in electricity network operation to be followed in the third regulatory period for each network system operator in November 2011[2].

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

[2] English translations of the methodology for assessing the reasonableness of the pricing of electricity distribution and transmission network services in 2012-2015 are available on the Energy Market Authority's website.

- 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 and 2012 – 2015 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. Thus the methodology provides incentives to transmission and distribution system operators to develop and to make necessary investments into their network in order to ensure viability of the networks as required by the Article 37(6)(e). 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.

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 Energy Market Authority has fixed in January 2011 by its decisions the methodology for pricing of grid connections in distribution networks. Distribtion system operators should have followed this methodology in pricing of connection fees from May 2011.

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 issued decisions on the appeals in December 2008. The Market Court made some changes to the methods confirmed by the Energy Market Authority. The Energy Market Authority and 11 electricity distribution network operators have made an appeal to the Supreme Administrative Court against the decisions of the Market Court. The Supreme Administrative Court issued decision on these appeals in December 2010. In the decision the Supreme Administrative Court stated that the Market Court should not have overruled the decision of the Energy Market Authority on the calculation methodology confirmed by the Energy Market Authority. The Supreme Administrative Court’s deci-

sion clarified the scope of Energy Market Authors discretionary power. The Supreme Administrative Court stated that the Electricity Market Act leaves the Energy Market Authority extensive discretionary power in advancing the evaluation principles of fair pricing. The summary of this decision was published in the Court's Yearbook. Only summaries of decisions of the Supreme Administrative Court, which are considered as having value as precedents, are published in the Court's Yearbook.

A total of 54 distribution network operators submitted the appeals against the decision issued by the Energy Market Authority in May 2010 on rejecting to elevate a market risk premium in the middle of the second regulatory period. The Market Court turned down the appeals in December 2010. Two companies hence made an appeal to the Supreme Administrative Court. The case is still pending.

A total of 76 electricity network operators filed appeals with the Market Court in December 2011 against the methodology decisions for the third regulatory period (2012 – 2015) confirmed by the Energy Market Authority. The Market Court will hear the case in autumn 2012.

The Energy Market Authority has developed details of the methodology with a view to achieving a regulatory model that is incentivizing more innovations and investments in the networks in order to ensure viability of the networks as required by the Article 37(6)(e). In line with this a project - Roadmap 2020 - went ahead during the years 2009-2011. During this project a vision for network regulation in 2020 was prepared and the needed strategies and actions to develop network regulation of both distribution and transmission system operators were defined. The project Roadmap 2020 was concluded in November 2011.

Network charges for electricity generation

The Electricity Market Act has detailed provisions related to network charges collected from electricity generation. Since February 2008 the connection fees for small-scale electricity generation (maximum 2 MVA) may not include the costs caused by strengthening the existing electricity network but only include the direct costs of connection.

The 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.

Transmission tarification according to Regulation 714/2009

The Regulation 714/2009 (former 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-values[3].

[3] 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

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 tarification methodology set by Energy Market Authority as described above).

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 transmission 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.

TSO shall maintain, 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 Electricity Market Act 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.

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 tarification. Furthermore, no additional charges for generators and/or loads existed in the year 2011.

3.1.4 Cross-border issues

Capacity allocation and 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 exist two DC interconnectors between Finland and Sweden (Fenno-Skan 1 and Fenno-Skan 2). 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 (DC interconnector, Estlink).

Congestions across the borders between Finland and Sweden and between Finland and Norway are managed by implicit auctions (market splitting) in the day-ahead market (spot market) in power exchange Nord Pool Spot. 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. In the implicit action the energy and transmission capacity between various bidding areas is allocated in a single process to the parties of electricity trading. Capacity which may not have been used on the Elspot market is offered to the Elbas market, where trading finishes no later than one hour before the hour of operation. The Elspot capacities for the next day are announced before noon and the Elbas capacities in the afternoon. 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 and from Finland to Estonia or vice versa.

The interconnection between Finland and Estonia has exemption according to the Article 17(1) of the Regulation 714/2009[4], where owners of the interconnection have had priority transmission rights until day-head market has been cleared. However, since the September 20, 2010 the full capacity of the Estlink cable has been available for the Nord Pool Spot Elspot market. The Finnish and Estonian TSOs (Fingrid and Elering) have rented the full capacity from the cable owners and allocated it to Nord Pool Spot. As a rent the cable owners will receive the congestion rents from that interconnection.

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. Fingrid makes 1,300 MW of transmission capacity from Russia available to the electricity market on its 400 kV connections from Russia. Fingrid has reserved a volume of 100 MW to be used as a power system reserve. Electricity can be imported from Russia by customers who have made an agreement on a fixed transmission right with Fingrid and an agreement on energy purchases with a Russian organisation responsible for electricity sales.

In August 2011 a new trading scheme, so-called direct exchange trade, was adopted in electricity trade from Russia to Finland. Direct exchange trade is a first step towards more market-focused procedures in electricity trade between Russia and Finland and at the same time between Russia and the EU. In this model an electricity market player engaged in direct exchange trade buys electricity in the electricity exchange in Russia and sells it directly to the

[4] The exemption has been confirmed by the European Commission in 2005. The exemption is from regulated third part access, restrictions on the use of congestion revenues and tariff regulation until December 31, 2013.

Nordic electricity exchange Nord Pool Spot. If all of the offered electricity cannot be sold to the spot market, the player can also trade in the secondary market, in other words in Nord Pool Spot's or the Russian intra-day market. So far, the volume of direct trading is relatively small, at the most 100 MW, while in conventional bilateral trade it is 1,200 MW and trading is only available from Russia to Finland. The goal is develop trading so that it works in both directions between Finland and Russia.

Transmission capacities on interconnectors within Nordic power system are presented in Figure 2.

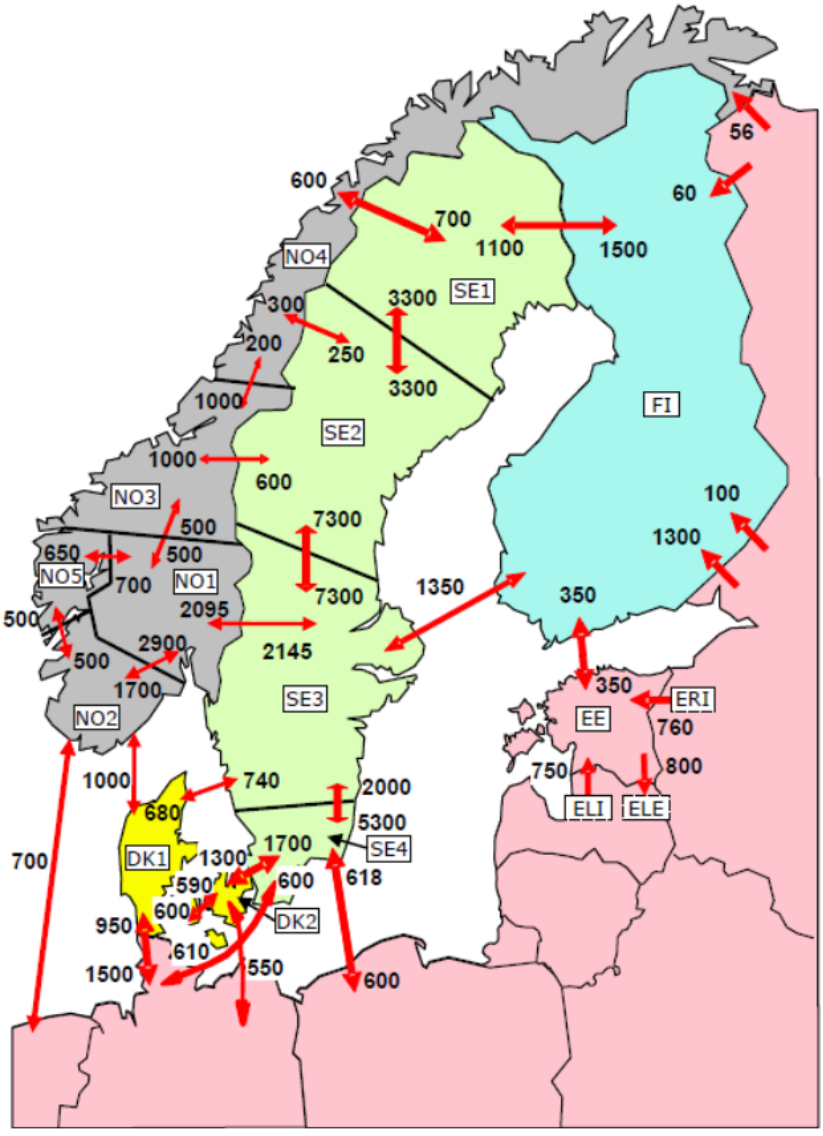

Figure 2. Transmission capacities on the interconnectors of the Nordic countries in October 2011 (Source: Fingrid Oyj).

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. Figure 3 illustrates the share of congestion on the interconnectors of the Nordic countries in 2010 between the Nord Pool Spot price areas.

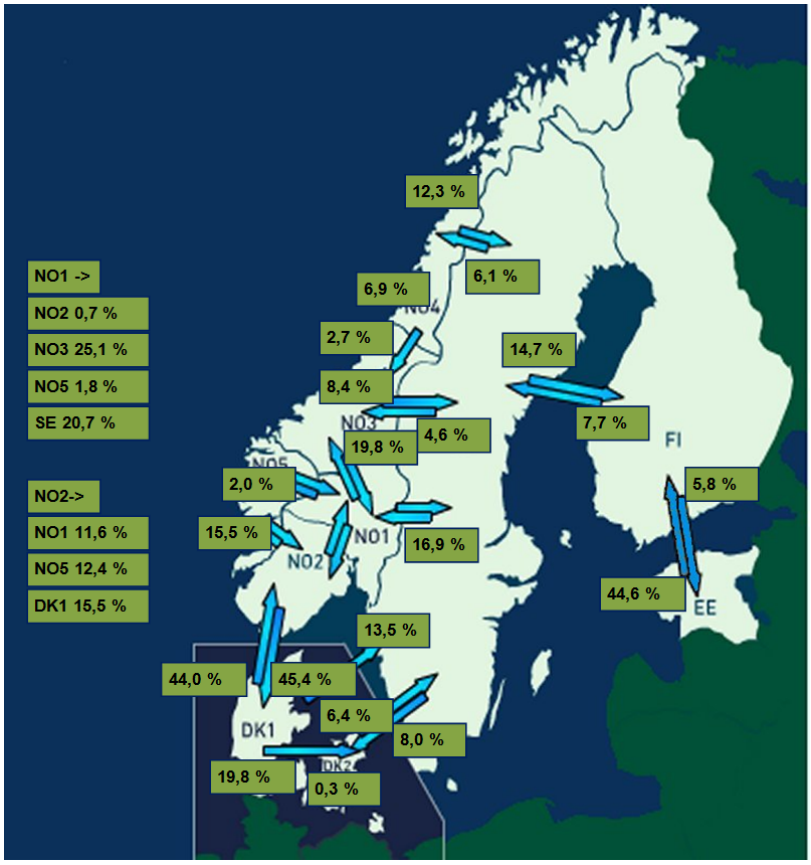

Figure 3. Share of the annual congestion hours between different prices areas. The percentages and arrows illustrate the share of annual hours the flow between areas has been congested in the direction of the arrow in 2011. (Source: Nord Pool Spot).

The Nordic market has traditionally been split into six price areas: Finland (Helsinki), Sweden (Stockholm), West Denmark (Jutland), East Denmark (Zealand), South Norway (Oslo) and North Norway (Tromsø). However, this was changed in 2010 as Norway was split into five price areas. Similarly in November 1, 2011 Sweden was split into four price areas. Figure 4 presents the percentage of hours during the year 2011 (January – October) when same day-ahead area price existed. In this picture the price areas are grouped for clarity. Finland and Sweden had most of the time (74 per cent) same day-ahead market price, whereas the whole Nordic market had same day-ahead price only 26 per cent of time in year 2011.

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.

In May 2010 the TSOs of Finland and Estonia declared the investment into Estlink2 cable, a DC link connecting the two countries. This cable is expected to be completed by 2014. As most of the hours there have been a difference between the Estonian and Finnish prices, the construction of Estlink 2 with the capacity of 650 MW should substantially reduce this congestion. Similarly the Fenno-Skan 2, with the capacity of 800 MW, completed November 2011 contributed to improving the link between the Swedish and Finnish price areas.

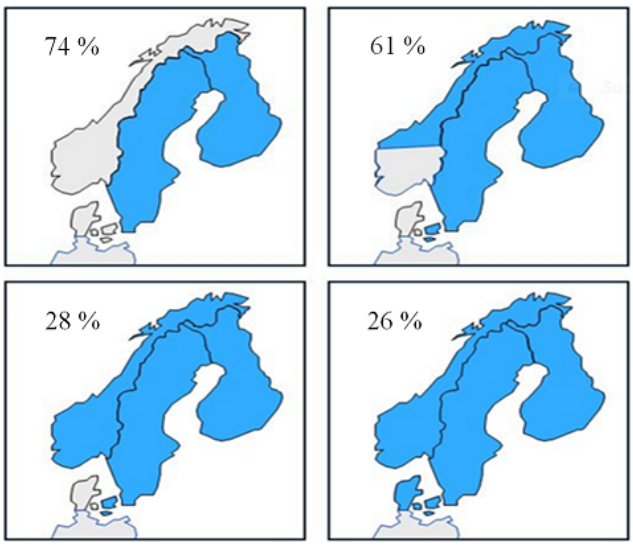

Figure 4. Time in per cent in year 2011(January – October) describing when the same day-ahead price has existed in the various price areas of the Nordic Market (Source: Fingrid Oyj).

Counter trade is used to relieve both national and inter-regional congestions during the daily network operation. Costs of counter trade are paid by the TSO. Table 2 shows the costs of the counter trade paid by the Finnish TSO during the years 2003 - 2011.

Table 2. Net costs of counter trade in Finland during the years 2003 - 2011 in million Euros.

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Costs	0,3	0,07	0,86	0,48	0,244	0,127	0,085	0,2	0,2

Source: Nordel, Fingrid Oyj.

As the transmission investments are resource demanding and lead times are long, it has been considered important to look ways to develop congestion management methods in the existing grid. In 2008 a study commissioned by the Member States evaluated the various approaches towards congestion management was finalised. Based on it the Nordic energy ministers requested in September 2008 the Nordic TSOs to analyse what kind of effects the division of the current Nord Pool Spot area into a larger number of price or bidding areas would imply. For Finland the study showed that Finland will remain as one price area.

Implementation of the Regulation 714/2009 and Congestion Management Guidelines

The Energy Market Authority acts as the regulatory authority to supervise the compliance with the Regulation 714/2009 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.

The Congestion Management Guidelines under the Regulation 714/2009 entered into force in March 2011. The Congestion Management Guidelines set up requirements for TSOs on managing congestions, co-ordination, transparency and use of congestion income. Furthermore, the Congestion Management 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 congestion management guidelines. Remaining transmission capacity after day-ahead allocation is set for intra-day market and cross-border balancing.

Nordic TSOs publish information either on their own website (e.g. www.fingrid.fi) or Nord Pool Spot's website (www.nordpoolspot.com).

The 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 2011 congestion management income for the Finnish TSO (Fingrid Oyj) totalled EUR 25,5 Million (In 2010 EUR 9 Million, EUR 4,9 Million in 2009 and EUR 23,2 million in 2008)[5].

Transmission capacity calculation

The Nordic TSOs have agreed 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 document[6]. 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.etso-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.

[5] Source NordPool Spot

[6] Document "Principles for determining the transfer capacity in the Nordic power market" dated 23 January 2008, 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)[7] 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.

[7] 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.

3.1.5 Compliance

In 2011 there were no changes with regard to the competences of the Energy Market Authority compared to the previous year. As per July 2012, the total number of staff in Energy Market Authority amounted to 54. Of this number, 22 were occupied with the electricity and gas market issues, 11 with production subsidies and 11 with emissions trading issues. The remaining 10 staff members were involved in all of these three areas providing assistance for IT, general administration and secretarial services. The total expenses for 2011 were EUR 5.27 million.

According to the Finnish legislation the Energy Market Authority shall supervise that the provisions of the Electricity Market Act and any rules and regulations issued under it, as well as Regulation 714/2009 are complied with. However, the construction of cross-border power lines, and the import and export of electricity are supervised by the Ministry of Employment and the Economy.

According to the Electricity Market Act the official of the Energy Market Authority has the right to perform an inspection in the premises occupied by a body or an establishment carrying out the activities supervised in order to carry out the surveillance duty under the Electricity Market Act and to supervise the compliance of the confirming or obliging decisions made by the Energy Market Authority. However, an inspection may not be carried out in premises within the scope of domestic peace. A body or an establishment carrying out activities to be supervised shall, on demand, present the documents and files in its data systems to the official performing an inspection and provide access to the electrical apparatus and equipment that can have a meaning for the supervision of the compliance with the rules or regulations issued by virtue of this Act. The official performing the inspection has the right to take copies free of charge of the documents to be inspected as well printouts of the files in the data systems.

On the basis of the Electricity Market Act and the provisions under it, and also the Regulation 714/2009, the Energy Market Authority is empowered to oblige an electricity network operator or a retail supplier to correct his mistake or omission. It may be ordered in the obliging decision how the mistake or omission should be mended. The obliging decision may also order a refund to a customer of a fee incorrectly charged from him. The Authority may impose a conditional fine to make a decision effective. Thus the powers of the Energy Market Authority are compliant with the Article 37(4)(a)(b)(c)(e).

The Electricity Market Act does not include any provisions to power the Energy Market Authority to impose or propose a competent court to impose penalties or any administrative fines to network system operators or other electricity market actors for the non-compliance with their obligations pursuant to the Electricity Market Act or the Regulation as required in the Article 37(4)(d).

As the Finnish transmission system operator, Fingrid Oyj, is ownership unbundled from other operations provisions in Article 37(3)(a)(b)(e) and Article 37(5) are not relevant for Finland.

3.1.6 Dispute settlement

The Energy Market Authority monitors the transmission system operator, distribution system operators and suppliers overall compliance with the electricity market legislation. However, the Energy Market Authority does not have power for dispute settlements between consumers and energy companies in the individual cases. The paragraph 39a of the Electricity Market Act states that complaints against transmission or distribution system operator must be handled within two months after receipt of the complaint. According to paragraph 52 of the Electricity Market Act the regulatory authority´s decisions shall have binding effect unless and until overruled on appeal. Paragraph 42 gives to the Energy Market Authority the power to get relevant information from the market participants and conduct inspections on their grounds in order to get relevant information for monitoring purposes.

In Finland the disputes between consumers and entrepreneurs in the individual cases 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 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.

3.2 Promoting Competition

The implementation of the third electricity market package is still on-going in Finland and thus, the Finnish legislation does not yet include all the provisions acquired by Directive 2009/72/EC.

The Finnish Electricity Market Act does not have explicit provisions on Articles 37 (i)-(k) regarding monitoring the level of transparency, including of wholesale prices, and ensuring compliance of electricity undertakings with transparency obligations and monitoring the level and effectiveness of market opening and competition.

The market monitoring is however being done implicitly by the Energy Market Authority.

3.2.1 Wholesale markets

Market structure and integration to Nordic wholesale market

Finland consumed about 84 TWh in 2011 (87.5 TWh in 2010 and 80,8 TWh in 2009), down about 3.8 per cent on the previous year primarily due to the overall economic decline.

Finnish electricity production amounted to a total of 68 TWh in 2011, down about 9 per cent on the year before. Domestic cogeneration of heat and power covered 31 per cent of the consumption of electricity, and saw a substantial decrease. Nuclear power covered 26 per cent of the demand and hydro power 15 per cent. Coal-based and other conventional condensing power generation amounted to about 11 per cent and wind power accounted for 0.6 per cent.

In 2011 the net imports of electricity from Russia, Estonia, Sweden and Norway increased by 18 per cent Net imports covered about 16 per cent of total electricity consumption in 2011. Electricity import from Russia to Finland was 10.8 TWh and decreased by 0.8 TWh. Import

from Sweden was 5.1 TWh and from Estonia 1.7 TWh. Electricity net imports from the Nordic market was about 1.9 TWh. Total net imports of electricity covered about 16 per cent of electricity consumption. The peak demand amounted to 14,998 MW in 2011[8]. Table 3 shows electricity net production, imports and exports in Finland in 2003 – 2011.

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 capacity[9] of the power stations at the end of 2011 was 16,545 MW consisting of conventional thermal power (9,045 MW), nuclear power (2,750 MW), hydro power (2 600 MW) and wind generation (197 MW).

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

Table 3. Electricity net production, imports and exports (TWh) in Finland.

TWh	2003	2004	2005	2006	2007	2008	2009	2010	2011
GROSS PRODUCTION	84,3	85,8	70,5	81,9	81,2	77,1	71,6	80,4	73,5
Cons. in power plants	3,9	3,6	2,7	3,3	3,4	2,9	2,9	3,4	3
PRODUCTION	80,4	82,2	67,9	78,6	77,8	74,2	68,7	77	70,6
Hydro power	9,5	14,9	13,6	11,3	14	16,9	12,6	12,8	12,3
Wind power	0,1	0,1	0,2	0,1	0,2	0,2	0,2	0,3	0,5
Nuclear power	21,8	21,8	22,3	22	22,5	22	22,5	21,9	22,2
Conv. therm. power	49	45,4	31,8	45,1	41,1	34,9	33,3	42	
Co-gen. CHP	28	28,2	26,1	27,6	26,8	26,7	24,2	28,5	25,9
distr heat	15,3	15,1	14,4	14,5	14,4	15,5	14,8	17,4	14,9
industry	12,7	13	11,6	13,1	12,3	11,2	9,4	11,1	10,9
Condensing etc.	21	17,2	5,7	17,5	14,4	8,2	9,1	13,5	9,6
conv.	21	17,2	5,7	17,5	14,4	8,2	9,1	13,5	9,6
GT etc.	0	0	0	0	0	0	0	0	0
IMPORTS from	11,9	11,7	17,9	15,4	15,4	16,1	15,5	15,7	17,7
Sweden	0,5	0,4	6,4	3,7	3,1	2,8	1,9	2	5,1
Norway	0,1	0,1	0,2	0,2	0,2	0,2	0,1	0,1	0,1
Russia	11,3	11,1	11,3	11,6	10,2	10,9	11,7	11,6	10,8
Estonia					1,9	2,3	1,8	2	1,7
TOTAL SUPPLY	92,3	93,8	85,8	94	93,2	90,2	84,2	92,7	88,8
EXPORTS to	7	6,8	0,9	3,8	2,9	3,3	3,4	5,2	3,8
Sweden	6,9	6,6	0,8	3,7	2,7	3,3	3,2	4,8	3,2
Norway	0,2	0,2	0,1	0,1	0,1	0	0,1	0,2	0,1
Russia	0	0	0	0	0	0	0	0	0
Estonia						0	0	0,2	0,5
GROSS CONSUMPTION	85,2	87	84,9	90,1	90,4	86,9	80,8	87,5	84,4
Incl. electric boilers	0,1	0,1	0,1	0,1	-	0,1	0,1	0,1	0

Source: Adato Energia Oy, Statistics Finland, Nordel

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

[8] Source Energiateollisuus ry
[9] Source: Energy Market Authority's power plant registry.

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.

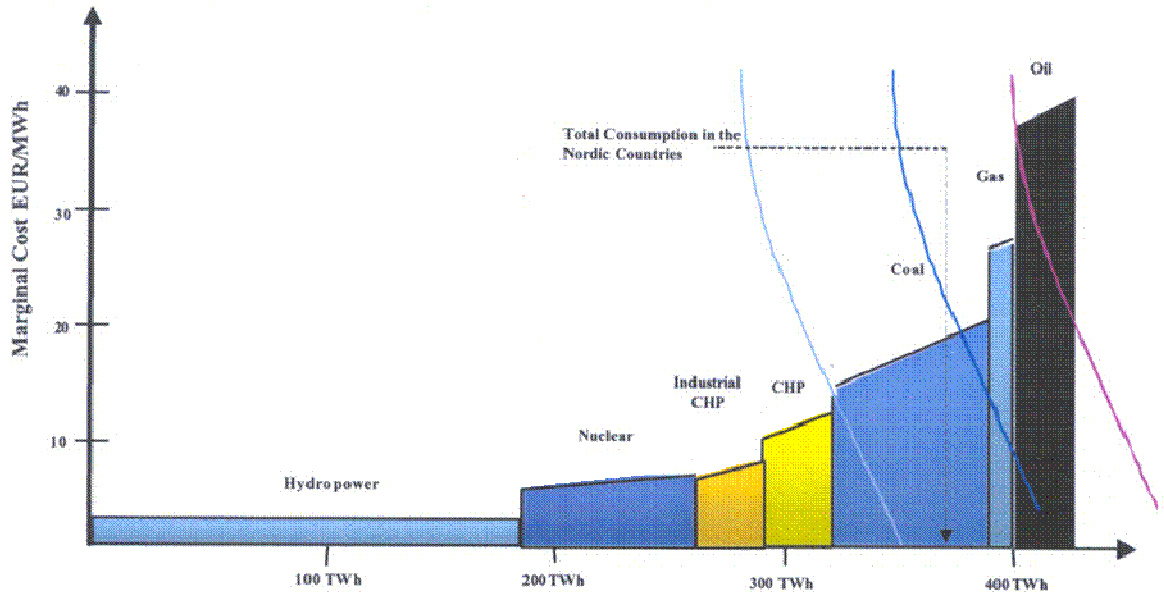

Figure 5. Marginal cost of production in the Nordic countries. (Source: Keskikallio, Lindholm: The Nordic Electric Power market. Ministry of Trade and Industry Finland report 11/2003).

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 have built a new DC interconnector between Finland and Sweden (Fenno-Skan 2) which was commissioned in November 2011. 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. At the end of 2011 transmission capacity from Finland to Sweden was 1,650 MW and the capacity from Sweden to Finland 2,050 MW respectively. The transmission capacity between Finland and Norway is 100 MW to both directions. Outside the Nordel area, Finland has an interconnector capacity of 1,300 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 4,650 MW. The import capacity as a percentage of the total installed capacity is about 22 per cent. Taking into consideration only the interconnectors between Finland and the Nordel area (Sweden and Norway) the corresponding percentage amounts to about 10 per cent. An extension of the Eslink cable to increase the capacity by 650 MW to a

new total of 1,000 MW has been decided. The new link is expected to be commissioned early 2014.

Price monitoring

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 Nasdaq OMX for the financial electricity trade.

Approximately 73 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, Norway and Kontek interconnector an additional element to the physical electricity market is the Elbas intra-day market operated by Nord Pool Spot where trade continues up to one hour before the delivery.

Nord Pool Spot is owned by the Nordic TSOs. Statnett SF and Svenska Kraftnät own 30 per cent whereas Fingrid Oyj and Energinet.dk own 20 per cent each. Nord Pool is headquartered in Oslo, Norway, with offices in Denmark, Finland and Sweden.

As of January 2012, 350 participants trade on the Nord Pool Spot markets - Elspot and Elbas.[10] In 2011, the volume of electricity traded in Nord Pool Spot AS amounted to 316 TWh, an increase of 2% (310 TWh in 2010, 291 TWh in 2009 298 TWh in 2008). The market share of Nord Pool Spot AS from the consumption in the Nordic countries is 76%, about on the same level as the year before (74 in 2010 and 72 per cent in 2009). The market share of Nord Pool Spot AS is more than 50 per cent in all the Nordic countries, which can be considered as a sign of a truly integrated Nordic marketplace. Figure 6 presents the share of electricity bought from Nord Pool Spot AS in relation to the electricity consumption in Nordic countries (Finland, Sweden, Norway and Denmark) during the years 1998-2010.

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 56.9 per cent of the Finnish consumption in 2011.

Transmission System Operators (TSOs), Elering in Estonia and Fingrid in Finland, rented a part of Estlink for market from the 1st of April 2010. From that day the new Estlink bidding area was established by Nord Pool Spot AS. The new area connects Estonia to the Nordic power market. Later 2010 the Finnish and Estonian TSOs rented rest of Estlink capacity and since then the full capacity of Estlink has been provided to Nord Pool Spot market.

[10] Source Nord Pool Spot, July 2012

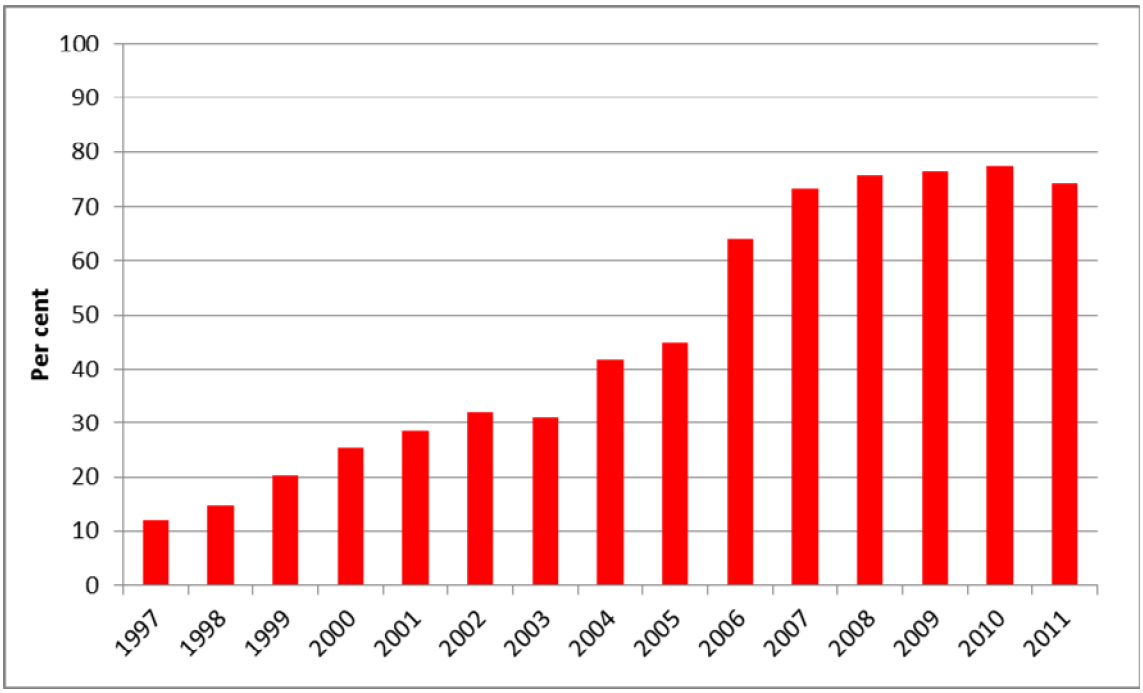

Figure 6. The percentage share of electricity bought from power exchange in relation to the electricity consumption in Nordic countries (Finland, Sweden, Norway and Denmark). (Source: Nord Pool Finland Oy)

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.

The basis of the price formation in the Nordic power market is the spot market. Trade is organised as an implicit auction. 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.

The allocation of cross-border capacity and the management of congestions between Finland and the other Nordic countries are managed by implicit auctions (market splitting) in the day-ahead market of the Nordic power exchange. The price differentials emerge as a function of insufficient transfer capacity over the national boundaries. In 2011, about 74 per cent of the time Finland and Sweden belonged to the same price area – a decrease of 20 points compared with the previous year. For 19 per cent of the time the day-ahead price in the whole Nordic market was the same.

In 2011 the average day-ahead area price for Finland in Nord Pool Spot was 49.3 EUR/MWh, down 12.9 per cent from the previous year. In 2010 the price had been 56.64 EUR/MWh, in 2009 36.98 EUR/MWh and in 2008 51.02 EUR/MWh. The average day-ahead system prices amounted to 47.05 EUR/MWh (in 2010 56.06 EUR/MWh, 35.02 EUR/MWh for 2009 and

44.73 EUR/MWh for 2008). The overall price level of 2011 was lower as compared to previous year. In November 2011 Sweden was split into four separate price areas.

The TSO provides system services (ancillary services) in Finland. 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 and operates 819 MW[11] of gas turbine generation capacity 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 1,000 MW and are in effect from 2005 to 2015.

Monitoring the level of transparency, including compliance with transparency obligations, and the level and effectiveness of market opening and competition

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 Nasdaq OMX on the basis of a license from the Norwegian Financial Supervisory Authority. Additionally, NordREG brings

[11] Source Fingrid Oyj

together energy regulators, financial supervisory authorities and competition authorities by organising on an annual basis a joint meeting to discuss the Nordic electricity market issues with relevance to Nord Pool Spot.

The Forum of Nordic energy regulators (NordREG) has agreed to co-operate regarding the issues of the Nordic power exchange despite the fact that besides the Norwegian regulator NVE the other Nordic Regulators 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.

In 2011 NordREG and Nord Pool Spot agreed to found the Nord Pool Spot Regulatory Council to provide a forum for exchange of information and discussion on market development in the Nord Pool Spot market area. The objective of the Council is to extend the dialogue between Nord Pool Spot and the regulators in the region and also serve as a point for information from Nord Pool Spot to all relevant regulators.

As required by the Norwegian Stock Exchange Act and the related regulations on market surveillance, Nord Pool Spot 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.[12]

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

In June 2005, Nord Pool ASA (Nasdaq OMX acquired Nord Pool ASA in 2008) 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 reactions are applied against a market participant or participants involved in possible contraventions of the exchange rules.[13]

Furthermore, the maximum violation charge for breaching the rules will increase from 1 million Norwegian crowns to 10 million (approx. EUR 1.2 million). By establishing a discipli-

[12] Source: Nord Pool ASA Annual Report 2004, p. 10.
[13] 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

nary committee and substantially increasing the maximum violation charge, Nord Pool Spot 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.

Furthermore, in Finland there are some 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 degree.

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.

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, or only a few, rules governing the generation and supply of electricity except supervision of retail supply under obligation to, the monitoring of security of supply and unbundling. On the basis of the Act on Competition Restrictions (No. 480/1992, last amended in 2004), 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 Industries 2 division is responsible for competition enforcement in the energy markets. The Finnish Competition Act is harmonized with competition articles of the the Treaty on the Functioning of the European Union.

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 distributed at 400 V in the distribution 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 COMP/M.3173 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.

3.2.2 Retail markets

Retail market structure

In 2011, there were no major changes in the number of retail suppliers. To serve Finland's circa 3.1 million electricity customers, there are currently 73 retail suppliers of which more than one third is marketing electricity actively outside their traditional supply area.

Only a few electricity retailers are ownership unbundled from electricity distribution network activities. Many of the electricity retailers are part of companies involved in the network business. On July 1st, 2011 there were 33 electricity retailers who had both the obligation to supply and who were legally unbundled from electricity network activities.

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 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 within the obligation to supply system do not have to be approved by the regulator before the supplier takes them into use. By virtue of the Electricity Market Act (Section 21) the Energy Market Authority may investigate either on the basis of a complaint or at its own initiative the pricing of electricity. In 2011 the Energy Market Authority has not made such investigations.

Today 70 from total of 73 retail suppliers in Finland have 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, 2012 there were 36 electricity retailers who had the obligation to supply and who were legally unbundled from electricity network activities. Only four electricity retailers are ownership unbundled from electricity network activities. Most of the legally unbundled electricity retailers (69) still belong to same group of companies as a distribution system operator or are owned by distribution system operators. Total of 34 retailers are not legally unbundled from network activities.

The Energy Market Authority has estimated that t about 4 electricity retailers have larger than 5 per cent share of retail market. This number is estimation as the exact market shares of individual retailers are not available. The market share of the three largest companies in the retail market for small and medium-sized customers has been estimated as 35-40 per cent (Table 4).

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 these, a couple of retailers have started operations as independent suppliers in Finland.

At the end of 2011 there were 4 electricity retailers in the Finnish electricity retail market acting only in the competitive part of the retail supply market. These retailers are fully independent from the Finnish network companies. The market share of these companies is only a few per cent.

Table 4. 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 suppli-ers[14]	Market share of three largest retail companies (%)		
				large and very large industrial	small-medium industrial and business	very small business and household
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	
2008	49.2	4	< 5	N/A	35-40	
2009	50.6	4	< 5	N/A	35-40	
2010	50.0	4	< 5	N/A	35-40	
2011	47.7	4	< 5	N/A	35-40	

Price monitoring

The retail prices are not regulated in Finland. The electricity supplier must provide the Energy Market Authority information on prices which are applied when selling electricity to the customers whose main fuse is max 3x63 amperes or whose consumption is below 100,000 kWh. In line with the Articles 37(1)(i) and 37(1)(j) the price information is regularly analysed in order to aid market development and made publicly available in easily comparable form in the Energy Market Authority's price comparison web service (www.sahkonhinta.fi).

The price of electrical energy available to households on the basis of competitive tendering increased in 2011 until late summer, but in the autumn there was a downturn due to drops in electricity wholesale prices. The price of electrical energy under obligation of supply paid by household consumers increased in 2011 by an average of 3.8% and that paid by electrically heated households by 2.7%. Compared to the previous year the rise of prices of electrical energy in the retail level was low. At the end of the year the prices were in downtrend due to the economic stagnation and the improved hydropower situation in Norway and Sweden.

The prices of new fixed-term contracts responded faster to changes in wholesale prices than the prices of contracts valid under further notice. New two-year fixed-term contracts became 4.1% to 5.8% cheaper over the year.

In 2011 the electricity network charges exclusive of tax paid by households increased by 2.8% on average. Reasons behind the increases in the electricity transmission price increases include the network investments made. The transmission network operator, Fingrid, increased its grid service prices by 30% to cover costs arising from the replacement of the ageing grid

[14] Here fully independent supplier is interpreted as a supplier who does not belong to any DSO or is not part of group of company with any DSO or is not owned by any DSO.

sections and connection of new production to the grid. Distribution network operators have also invested in new remotely readable meters.

Electricity taxes were last increased at the beginning of 2011. The impact of that increase, including VAT, on the consumer electricity bill was around €0.01/kWh.

The estimated national average electricity prices during the second half of 2011 for three reference customer bands defined by Eurostat are shown in Table 5. 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.

Table 5. Electricity prices for reference customer bands during period 1.7-31.12.2011. [15]

Euro/MWh	Band Dc	Band Ib	Band Ie
Network charges (excl. levies)	46.4	29.0	5.2
Levies included in network charges	-	-	-
Energy costs and supply margin	67.9	49.8	48.1
Taxes (incl. Electricity tax and VAT)	47.2	26.8	20.9
Total (including all taxes)	161.5	105.6	74.2

Monitoring the level of transparency, including compliance with transparency obligations, and the level and effectiveness of market opening and competition

The Energy Market Authority monitors that all necessary information is available to all retail market participants and overlooks that retail market sellers follow the transparency requirements set by the Electricity Market Act. Monitored parameters include price level and spread and, switching rates. The Finnish Market Authority publishes statistics on electricity prices monthly and switching rates three times per year.

In collaboration with other NordREG members the Energy Market Authority also prepares annually a report on Nordic electricity markets, which compares the above mentioned parameters across the Nordic markets.

In line with the Articles 37(1)(k) and 37(1)(l) contractual issues are dealt with case-specifically in co-operation with the Consumer Agency and contractual freedom, compatible with Community law, is respected.

Since 2007 the Energy Market Authority has collected information on supplier switching from the distribution system operators. This data collection is based on voluntary arrangement DSOs reporting this information three times per year to the Energy Market Authority have altogether about 70-80 per cent of retail customers in Finland.

[15] 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.

In 2011, the estimated number of customers that switched their supplier was about 233,000. The overall switching rate in 2011 was 7.6 per cent. The overall switching rate remained at the same level as in the previous year.

Enterprises and households with moderate or high consumption have been more active in switching than other user groups. The switching rate among these customer groups increased in 2011. Table 6 shows the supplier switching rates in 2006 - 2011.

Table 6. The share of customers who have changed the supplier.

	Households and other permanent dwellings		Other customers		
	< 10000 kWh/a	>10000 kWh/a	Max 3x63 A	>3x63 A	Total
2006	3.1 %	7.7 %	3.8 %	7.7 %	4.2 %
2007	3.0 %	6.8 %	3.3 %	8.0 %	4.0 %
2008	3.4 %	5.6 %	2.8 %	6.2 %	4.4 %
2009	7.2 %	10.9 %	5.1 %	11.6 %	8.1 %
2010	8.0 %	10.5 %	4.8 %	12.6 %	7.6 %
2011	7.0 %	11.7 %	4.7 %	14.1 %	7,6 %

The Energy Market Authority does not collect data on the shares of different types of customer contracts. However, the most typical contract for household customers is a contract made for an indefinite period that may be terminated with two weeks' notice. There are also fixed-term contracts with the most common duration being one or two years. If a fixed-term supply contract has been concluded outside the obligation to supply with a consumer for a period longer than two years, the consumer may terminate the contract after the period of two years in the same way as he may terminate a contract that is valid indefinitely.

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 for the cost of extra meter reading only if the customer will not read the meter by himself/herself or the meter has not been read remotely by the DSO. Instead of reading the meter, the network operator may also estimate the meter values during the change of supplier without actual meter reading. However, many DSOs do not charge the cost of extra meter reading even if the time elapsed from the previous change of supplier is less than 12 months.

Within the framework of NordREG, the Energy Market Authority is actively participating in the development of data exchange processes, which is a central task for the integration of the Nordic electricity retail markets.

In the national level the legal provisions on information exchange between the parties are set forth in the Decree, issued by the Ministry of Employment and the Economy in December 2008. It is supplemented by the branch organisation's recommendations. These rules set the framework for the information exchange during 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. According to the decree, it is also required that the market actors shall ensure before

taking into use that their information exchange systems are able to send and receive standard protocol messages.

According to the decree and 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 14 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. However, the Energy Market Authority has not collected statistical information on actual time delays for switching.

3.2.3 Recommendations on supply prices

The Finnish Energy Market Authority has not given any direct recommendations on supply prices. However, the Energy Market Authority it publishes monthly statistics on retail and network prices in order to promote competition and public market analysis.

In addition, according to Article 37(1)(o) all necessary information on supply prices is provided to the Finnish Competition Authority if needed.

3.2.4 Carry out investigations and imposing measures to promote effective competition

The Energy Market Authority is granted the powers to impose necessary and proportionate measures to promote effective competition and to ensure the proper functioning of the energy market in the Chapter 9 of the Electricity Market Act. The objective of the Electricity Market Act is to ensure the prerequisites for the effective function of the electricity market and thereby ensure a sufficient supply of energy at reasonable prices and quality. The primary way to achieve the goal is to safeguard healthy and functioning competition in electricity production and sales as well as to obtain a fair and equal service in all network activities.

The Energy Market Authority also has the right to cooperate with the Finnish Competition Authority, the Financial Supervisory Authority and the Commission. According to Section 10 of the Administrative Procedure Act of Finland (434/2003) an authority shall provide the requested assistance, within its competence and as required by the nature of the matter, to another authority for taking care of an administrative matter; it should also otherwise promote inter-authority co-operation.

To promote effective competition in the electricity retail market the Energy Market Authority has maintained since 2006 a web-based tariff calculator designated to facilitate price comparisons and supplier switching. All retail suppliers are obligated to maintain up-to-date information on their public electricity price offers on this website. In 2011 about 2 million price comparisons were made within the IT system. The system was also developed to inform customers better about the origin of the electricity. The primary way the customers use this service is by making searches. Especially after substantial price increases and when electricity market issues are the focus of media's attention, there occurs a peak in the number of searches. The system has also been developed to inform customers better about the origin of the electricity.

Since 2005 Nordic energy regulators have been working to promote and facilitate a common end-user market for electricity in Finland, Denmark, Sweden and Norway. The main objective for the end-user market integration is to minimize the regulatory and technical obstacles for

the suppliers willing to operate in the various Nordic countries. In October 2009 Nordic ministers for energy expressed their political support to the initiative to establish a common Nordic end user market by 2015. The Energy Market Authority has actively continued working towards that target during 2011.

According to the Electricity Market Act the customers and other market actors may submit a complaint regarding the practices of electricity distributors or retailers. In 2011 the Energy Market Authority made 55 decisions on complaints related to electricity market operators. Out of these about 42 were cases regarding pricing of distribution services and 13 were cases regarding practices of suppliers. The average processing time was 1.5 months. There are no statistics about the number of other inquiries than complaints.

Most often the complaints submitted fall into the following categories:

- Complaints regarding the connection charges
- Complaints regarding the network charges
- Complaints regarding quality of supply
- Complaints regarding metering
- Complaints regarding inconsistencies in invoicing
- General complaints regarding practices of the supplier

The Energy Market Authority has the primary jurisdiction over the four first categories: complaints regarding the connection charges, network charge, quality of supply and metering.

Complaints regarding connection charges, quality of supply and metering, as a rule are analysed individually by the Energy Market Authority and the legally binding resolution is submitted both to the customer and to the network operator involved. However, the Energy Market Authority has confirmed methods for determining the connection charges and the network operators shall follow those methods.

Complaints regarding the network charges are handled in conjunction with the regulation of the network charges within the regulatory period.
The Energy Market Authority has given regulation on the content of electricity and natural gas bills. If the complaint is regarding to the correctness of the bill, the Energy Market Authority is not the competent authority to deal with the issue. In such cases, the customer has to take legal action at the civil court or as a consumer make a complaint to the Consumer Disputes Board.

Regarding suppliers the Energy Market Authority mainly deals with complaints related to terms and conditions of retail sale, specific contractual issues and information exchange during the supplier switching. Complaints regarding the marketing practices of the suppliers and other consumer protection issues are dealt with by Consumer Agency.

3.3 Consumer protection

Compliance with Annex 1

According to the Article 37(1)(n) of the Directive 2009/72/EC the national regulatory authority shall help to ensure, together with other relevant authorities, that the consumer protection measures, including those set out in annex 1 are effective and in force. Annex 1 lists number of consumer protection measures that should be guaranteed in consumer relations. Directive

2009/72/EC haven´t been implemented yet to the Finnish legislation. Despite of that most of the requirements of the Directive have already been met in the current legislation.

In the Electricity Market Act the rules concerning the contract information are mentioned in the paragraph 25 c and comparing the current legislation to the requirements listed in annex 1 the current legislation fulfills most of the requirements stated in the annex 1 section 1(a). Only the subsection points 5, 6 and 8 of annex 1 section a) causes changes to the current legislation. Also the paragraph 27 c needs some modification when it comes to the terminology.

In the current Electricity Market Act the rules concerning changing contractual terms are mentioned in the paragraph 26. The paragraph fulfills requirements set in the annex 1 section 1(b). In the current legislation there aren´t rules concerning different payment methods.

According to paragraph 15 a in the current Electricity Market Act, the distribution system 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 distribution system 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 distribution system may also estimate the meter values during the change of supplier. However, many distribution system operators do not charge the cost of extra meter reading even if the time elapsed from the previous change of supplier is less than 12 months. The possibility for DSOs to charge of the meter reading is expected to be removed when the new remotely read meters start have been installed by the end of 2013. The Energy Market Authority has given a decision in 2012 where the Energy Market Authority denied the DSO to charge for the meter reading when the customer had a remotely read meter.

In the current Electricity Market Act there are no specific rules concerning requirements mentioned in Annex 1 section 1(f) because general clause in the paragraph 1 in the chapter 2 of the Finnish Consumer Protection Act can also be used for handling consumer complaints in electricity related issues.

There isn´t equivalent paragraph to the requirement of Annex 1 section 1(h) in the current Electricity Market Act itself. However, the paragraph 8 in the chapter 6 of the Degree of the Council of State concerning measurement and balance settlement (66/2009) corresponds this section of Annex 1.

Ensuring access to consumption data

Article 37(1)(p) states that the national regulatory authority shall ensure access to costumer consumption data, the provision, for optional use, of an easily understandable harmonized format at national level for consumption data, and prompt access for all customers to such data under point (h) of Annex 1.

The paragraph 8 in chapter 6 of the Degree of the Council of State concerning measurement and balance settlement (66/2009) states that customer has right to his own consumption data free of charge. Information must be released to the customer at the same time when it is given or ready to be given to the supplier. This corresponds to the requirements of section (h) of the Annex 1 of the directive.

Public service obligations

Finland has provided public services responsibilities for the companies. 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 Energy Market Authority may order the supplier with obligation to supply to supply electricity to the customers. Such supplier shall have public electricity sales conditions and the prices for the customer who doesn´t actively participate to the electricity market. They shall not have any unacceptable or trade restrictive conditions or restrictions. Excessive pricing is prohibited.

The electricity branch organization, Finnish Energy Industries, has prepared the standard contracts including general terms of electricity supply. These standard contracts are widely used by the suppliers. In regard to 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 the customers encompassed by the supplier's obligation to supply. The Energy Market Authority also supervises that the terms do not include any unreasonable conditions or limitations that would restrict competition within electricity trade. Furthermore, an electricity 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.

Vulnerable customers definition

In Finland, vulnerable customers, the vital energy availability has been confirmed with social security measures. The definition of vulnerable customer can also be considered to be included in the Constitution, where the right to social security is managed.

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.

Suppliers' and DSOs' 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 system 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 system 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.

3.4 Security of supply

In 2011 Finland has not implemented any safeguard measures as mentioned in the Article 42.

3.4.1 Monitoring balance of supply and demand

The Energy Market Authority has a responsibility for monitoring the security of supply situation for electricity. The Energy Market Authority maintains information on generation and interconnector capacity, while the Ministry of Employment and the Economy has the responsibility for preparing the estimates for the demand. In 2011 there were no changes in these competences.

Based on estimates given by the Ministry of Employment and the Economy the peak load demand in the next winter season 2012 - 2013 would be 15,200 MW. The new estimation of peak demand will be made during the year 2012. Total demand for electricity in Finland in 2020 is estimated to be about 91 TWh. In year 2030 total demand for electricity is estimated to be about 100 TWh and peak load demand in winter 2029 - 2030 17,000 MW. Table 7 presents the short term estimation of peak load demand while Figure 7 presents the long term estimations of peak load demand and generation capacity balance during wintertime.

Table 7. Short term forecast for peak load demand. Source: Ministry of Employment and the Economy

Winter season	2012-2013	2013-2014	2014-2015	2016-2017
Estimated peak load, MW	15,200 MW	15,300 MW	15,400 MW	15,500 MW

In the years 2012 - 2014, domestic electricity generation capacity will not be sufficient to cover the electricity consumption during peak consumption periods in a normal year. Dependency on imports will significantly decrease once the new nuclear power plant unit (Olkiluoto 3) has been completed in 2014. Originally the new unit should have been commissioned by the end of 2009, but the present estimate of commissioning the plant is 2014. In the years 2015 - 2016 the peak load balance is assumed to be slightly positive.

The import capacity of electricity at the end of the year 2011 from neighbouring countries to Finland was about 4,650 MW. During the year 2011 transmission capacity was increased by 800 MW when the Fenno-Skan 2 line between Sweden and Finland was commissioned in November.

Figure 7 presents the long term forecast for peak load demand and generation capacity balance during wintertime for the years 20011/2012 – 2029/2030.

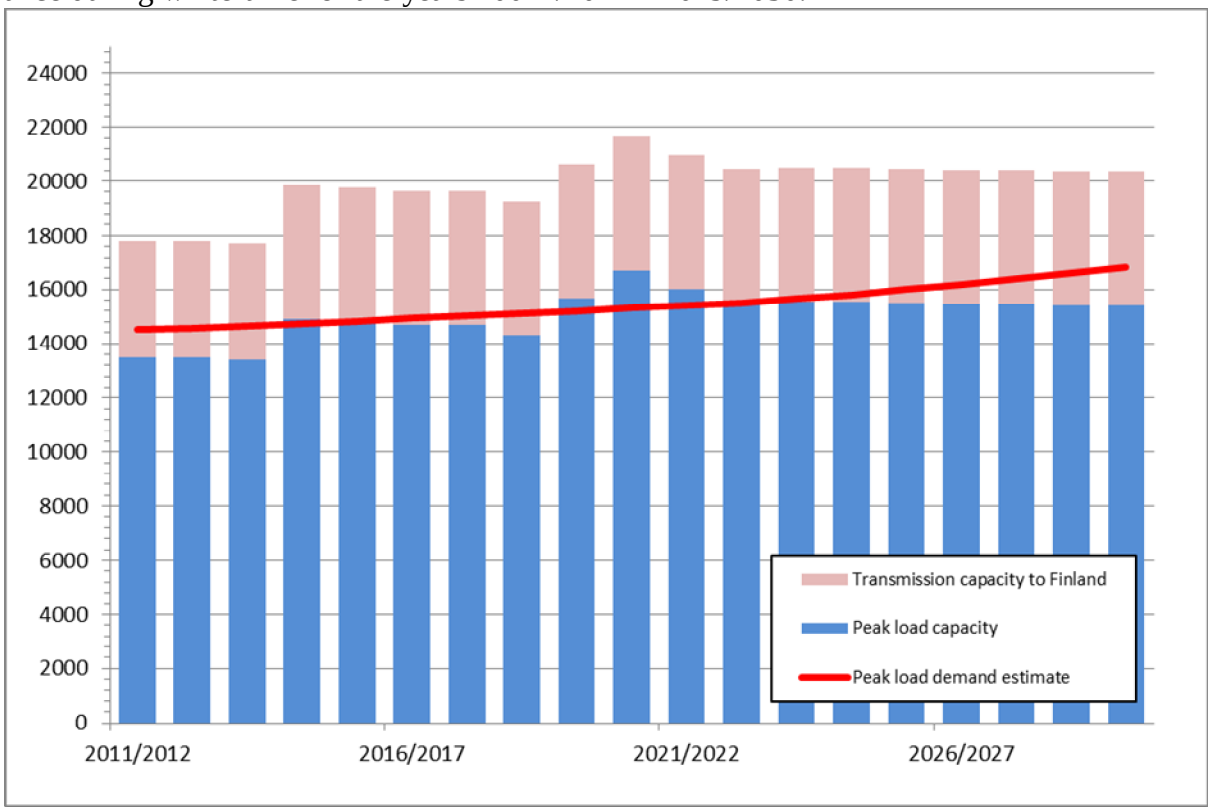

Figure 7. Long term forecast for peak load demand and generation capacity balance during wintertime for the years 20011/2012 – 2029/2030

3.4.2 Monitoring investment in generation capacities in relation to the security of supply

The total available generation capacity in the winter season 2011 - 2012 was about 13,155 MW in Finland. The capacity included in about 600 MW of condensing power capacity that was not available for Nordic spot market in 2011. This capacity was kept as reserve power for peak loads.

Total installed generation capacity in Finland was about 16,545 MW in the end of 2011. Installed wind generation capacity was 197 MW in the end of 2011. 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 2012 - 2013 is about 13,260 MW. In addition a new reserve power plant of 300 MW will be available in the next winter season. Table 8 presents the generation capacities in peak loading by production type during the years 2001 - 2012.

Table 8. Electricity Generation Capacities in Peak Load Period, MW

	Separate Electricity Generation				Combined Heat and Power			
	Hydro power	Nuclear power	Condensing power	Gas turbines and engines	Industry	District heat	**Capacity of power stations**	Power system reserves
2001	2,460	2,640	4,000	800	1,610	3,400	**14,910**	..
2002	2,480	2,640	3,990	800	1,780	3,420	**15,110**	..
2003	2,490	2,680	3,200	20	2,180	2,910	**13,480**	1,030
2004	2,500	2,680	3,200	20	2,200	2,900	**13,500**	1,080
2005	2,520	2,680	3,200	10	2,290	2,900	**13,600**	1,080
2006	2,550	2,680	3,200	10	2,290	2,920	**13,650**	1,060
2007	2,350	2,720	2,800	10	2,450	2,790	**13,120**	1,046
2008	2,350	2,700	2,650	-	2,450	3,150	**13,300**	1,180
2009	2,350	2,700	2,650	-	2,450	3,150	**13,300**	1,180
2010	2,550	2,700	2,200	-	2,300	3,350	**13,100**	1,180
2011	2,575	2,730	2,200	-	2,365	3,490	**13,360**	1,240
2012	2,600	2,750	1,950	-	2,365	3,490	**13,155**	1,240

Generation fuel mix for energy from the year 2011 is presented in Figure 8. During the next year it is not expected to be any significant changes in fuel mix for power generation in Finland.

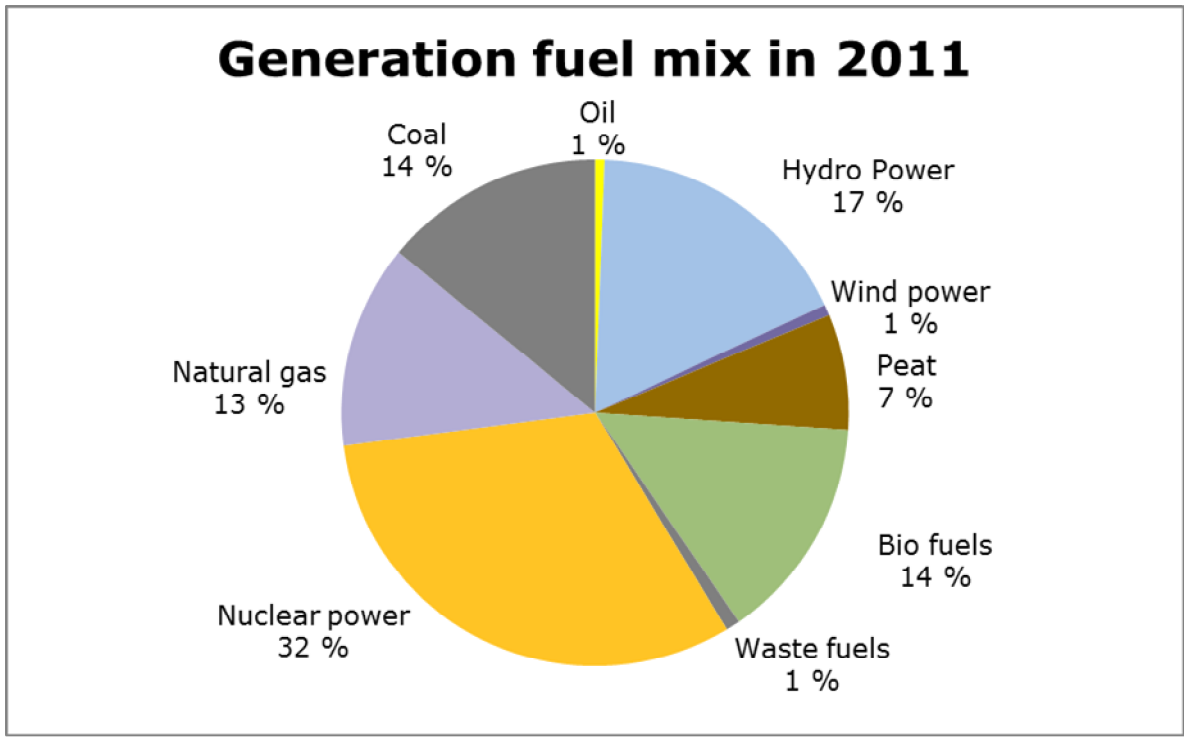

Figure 8. Generation fuel mix for energy (TWh) in 2011. Source: Finnish Energy Industries.

Electricity production capacities under planning or construction at the moment are presented in Table 9. Construction project of the fifth nuclear power plant unit (Olkiluoto 3) is going ahead. The building project has been delayed several times. The current schedule targets for summer 2014. Accurate commissioning date is currently unknown. Total capacity of Olkiluoto 3 will be about 1,600 MW.

Wind power capacity is targeted to increase up to 2,500 MW by year 2020. Main reason for increase is Finland's new feed-in tariff system. New system came in effect at the beginning of year 2011. However, there have been delays in building projects of wind power plants because of different kind of permission and clearances needed. Currently it's unlikely that targeted capacity of 2,500 MW is achieved by the year 2020. Feed-in tariff is also available for biogas and wood-driven power capacity.

About 1,400 MW of condensing power capacity will reach age close to 45 years in 2020. It's assumed that capacity would be decommissioned in years 2016-2023.

Table 9. Forthcoming new generation capacity in 2012-2016 (in the peak load period).

MW	Hydro	CHP		Nuclear power
		District heating	Industry	
2012	20	76	12	20
2013	33	32	-	-
2014	23	159	-	1600
2015	25	12	-	-
2016	14	-	-	-

3.4.3 Monitoring investments in transmission lines

The transmission capacity between Finland and Sweden increased significantly in November 2011 when submarine 500 kV DC cable of 800 MW, Fenno-Skan 2 was commissioned. Fingrid Oyj and Svenska Kraftnät, the transmission system operators in Finland and Sweden respectively constructed a new cross-border transmission connection between the countries. The companies share the ownership of the submarine cable in equal proportions. The new Fenno-Skan 2 connection was 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.

In addition, Fingrid has made a capital investment decision concerning the second DC interconnector, EstLink 2, between Estonia and Finland. The capacity of the planned transmission link is 650 MW and the costs of the project total approx. EUR 320 million. The submarine cable will be built in co-operation with the Estonian transmission system operator Elering. The project receives an investment subsidy of EUR 100 million from the European Union. Contracts with the main deliveries have been made and building of substations has started. At present, there is one 350 MW direct current connection between Finland and Estonia. The new transmission link will raise the total electricity transmission capacity between the countries to approx. 1,000 MW, therefore integrating the Baltic electricity market closer to the Nordic market. The new connection will also increase the supply security of electricity in the Baltic Sea region. The goal is that the new link will be brought to commercial operation at the beginning of 2014.

3.4.4 Measures to cover peak demand or shortfalls of suppliers

Act on peak load reserves to ensure balance between supply and demand

The new on peak load reserves to ensure balance between supply and demand (so-called peak load reserve act, 117/2011) came in to effect on March 1, 2011 and replaced the previous act. Peak load reserve capacity will be used to ensure that the balance between supply and demand is achieved if the balance has not been achieved in commercial market i.e. Nord Pool Spot. The new act increased the role of the Energy Market Authority. According to the act the Energy Market Authority evaluates and decides the required size of the peak load reserve capacity, arranges the tendering process and makes the procurement decisions. The Energy Market Authority also supervises the profit of the peak load power plants.

During the peak load season, from December to end of February, peak load reserve power plants are in 12 hour readiness. Otherwise power plants are in one month readiness. The use of peak load reserve power plants is very rare, for example during the winters 2010-2011 and 2011-2012 peak load reserve power plants weren't used.

In the peak load reserve system the power plants selected as peak load reserve, will receive fixed compensation for acting as a reserve. The Finnish TSO, Fingrid is responsible for making agreements with the selected power plants and pays the compensations to the power plants. The peak load reserve system is funded by the fees collected from the Finnish electricity end-users. The Energy Market Authority has approved in 2011 terms and conditions for the use of peak load reserves and the methodology for collecting payments from the electricity users to cover costs of this system.

The Energy Market Authority carried out the tendering process of peak load power plants during spring 2011. Three units were selected to comprise peak load reserve of total 600 MW for the period of from October 1, 2011 until June 30, 2013. Peak load reserve power plants will be selected next time in 2013. From 1.12.2013 onwards it is possible also for consumption reduction (demand response) to act as a peak load reserve capacity.

Responsibilities of TSO regarding security of supply and operational security

The transmission system operator Fingrid 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 Code[16]. 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 transmission 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.

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 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 140 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.

[16] Available on website www.entsoe.eu

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 865 MW.

Table 10 presents summary of reserves for securing system operation in Finland. A new fast disturbance reserve plant of total 300 MW will be completed in autumn 2012 in a city of Forssa. The need of fast disturbance reserves in Finland is increasing when new nuclear power plant Olkiluoto 3 (1600 MW) will be completed in 2013. Tripping of Olkiluoto 3 will be the biggest production unit and new dimensioning fault of the Finnish power grid.

Table 10. Summary of reserves for securing system operation 2011 in Finland (Source: Fingrid Oyj).

Type of reserve	Contractual capacity	Obligation
Frequency controlled normal operation reserve	- Power plants - Vyborg DC link, 100 MW - Estonia DC link, 50 MW	140 MW
Frequency controlled disturbance reserve	- Power plants - Load shedding	260 MW
Fast disturbance reserve	- Gas turbines - Load shedding	880 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.

4. The gas market

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 Kaasupörssi Oy, has been established for trading gas 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 Oy – 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 take place in the near future. In a European comparison, the Finnish natural gas market is highly exceptional.

There were 23 local natural gas distribution network operators at the end of the year 2011. As can be seen from the Figure 9, all the Finnish natural gas DSO's and the consumption sites of natural gas are situated in the southern part of the country along the main transmission pipeline.

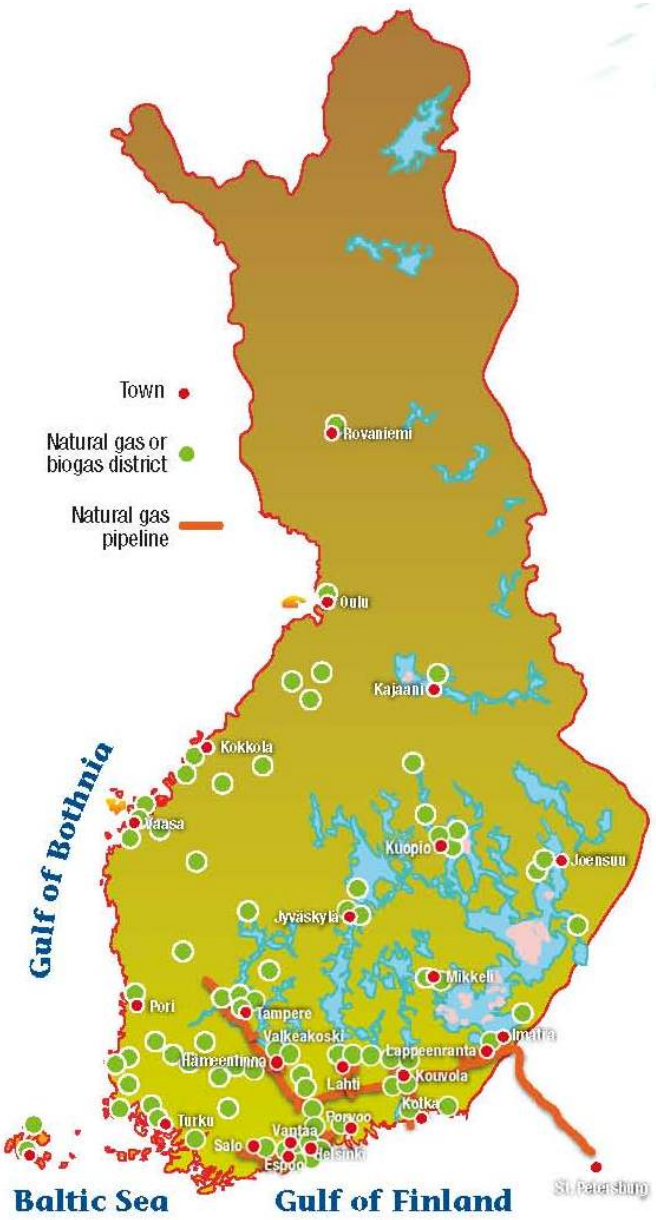

Figure 9. Map of natural gas network in Finland (source: Finnish Gas Association)

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 have been plans to extend the gas pipeline to the western coast of Finland but any decision has not been made. Increasing the volume of the gas market would be important in making additional import connections economically viable. Furthermore, the Commission has proposed a concept called the Baltic Energy Market Integration Plan, BEMIP where Finland would be connected to the Baltic States gas network, and via the Baltics to the interconnected European gas network. 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 natural gas companies.

4.1 Network regulation

4.1.1 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 system 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 Oy is owned by Fortum Heat and Gas Oy (31 per cent), OAO Gazprom (25 per cent), State of Finland (24 per cent) and E.ON Ruhrgas (20 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.

As Finland has derogation from the unbundling requirements of the Directive, the certification of the natural gas TSO has not been done in Finland.

The accounting unbundling applies to all natural gas system operators. The accounting unbundling is also required in the companies, which have other activities besides natural gas 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 10 per cent of total revenue of the company's natural gas supply operations.

Accounting unbundling requirements are specified with the ministerial degree 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 fulfilling 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.

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 Energy Market Authority has issued the guidelines in co-operation with chartered accountant on the auditing of unbundled financial statements in 2006. These non-binding 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 license from the company.

4.1.2 Technical functioning

In the natural gas sector, there are 23 local distribution network operators and one transmission system operator. The transmission system operator is also the sole importer and wholesale supplier of natural gas.

On the basis of statistics in year 2011 delivered by the natural gas distribution system operators to the Energy Market Authority it can be concluded that interruptions of supply on the distribution level were minimal with total of 10 interruptions in distribution companies. In the Finnish natural gas transmission network there were no unplanned service interruptions during year 2011.

4.1.3 Network and LNG tariffs for connection and access

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.

Confirmation of the methodology for setting transmission and distribution network tariffs

The methodology of setting gas transmission and distribution network tariffs is confirmed by the Energy Market Authority prior to each regulatory period. 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. 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 network system 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.

The length of regulatory periods is four years. The first regulatory period covered the years 2006 – 2009 and the second covers the year 2010 - 2013. In September 2009 the Energy Market Authority confirmed the methodology for the second regulatory period in 2010 – 2013. The Energy Market Authority validated the realized profits of network operations for 2006 – 2009 and gave a decision on reasonable pricing for the first regulatory period the fall of 2010.

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 2010 – 2013 includes all items mentioned above, besides efficiency targets for distribution 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 methodology provides incentives to the transmission and distribution system operators to develop their network as all network investments are included into regulated asset base. For natural gas TSO the confirmed methodology includes also incentives to maintain and improve its cost efficiency and security of supply 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 transmission and distribution system operators 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.

4.1.4 Cross-border issues

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 Oy. The company imports natural gas and transmits it through its own transmission network to large-scale consumers and distribution companies. Gasum Oy 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.

4.1.5 Compliance

In 2011 there were no changes with regard to the competences of the Energy Market Authority compared to the previous year.

According to the Finnish legislation the task of the Energy Market Authority is to supervise that the provisions of the Natural Gas Market Act and any rules and regulations issued under it, as well as Regulation 715/2009 are complied with.

According to the Natural Gas Market Act the official of the Energy Market Authority has the right to perform an inspection in the premises occupied by a body or an establishment carrying out the activities supervised in order to carry out the surveillance duty under the Natural Market Act and to supervise the compliance of the confirming or obliging decisions made by the Energy Market Authority. However, an inspection may not be carried out in premises within the scope of domestic peace. A body or an establishment carrying out activities to be supervised shall, on demand, present the documents and files in its data systems to the official performing an inspection and provide access to the electrical apparatus and equipment that can have a meaning for the supervision of the compliance with the rules or regulations issued by virtue of this Act. The official performing the inspection has the right to take copies free of charge of the documents to be inspected as well printouts of the files in the data systems.

On the basis of the Natural Gas Market Act and the provisions under it the Energy Market Authority is empowered to oblige a natural gas network operator or a retail supplier to correct his mistake or omission. It may be ordered in the obliging decision how the mistake or omission should be mended. The obliging decision may also order a refund to a customer of a fee incorrectly charged from him. The Energy Market Authority may impose a conditional fine to make a decision effective.

The Natural Gas Market Act does not include any provisions to power the Energy Market Authority to impose or propose a competent court to impose penalties or any administrative fines to network system operators or other electricity market actors for the non-compliance with their obligations pursuant to the Natural Gas Market Act or the Regulation as required in the Article 41(4)(d).

As Finland has derogation from Articles 4, 9, 37 and 38 from the Directive 2009/73/EC unbundling of the Finnish transmission system operator, Gasum Oy, is not required and thus provisions in Article 41(3) and Article 41(5) are not relevant for Finland.

4.1.6 Dispute settlement

The Energy Market Authority monitors the natural gas transmission system operator, distribution system operators and suppliers overall compliance with the natural gas market legislation. However, the Energy Market Authority does not have power for dispute settlements between consumers and energy companies in the individual cases, like related to following terms and conditions. The paragraph 2a under chapter 7 of the Natural Gas Market Act states that complaints against natural gas transmission or distribution system operator must be handled with-

in two months after receipt of the complaint. According to paragraph 4a under chapter 8 of the Electricity Market Act the regulatory authority´s decisions shall have binding effect unless and until overruled on appeal. Paragraph 5 under chapter 7 gives to the Energy Market Authority the power to get relevant information from the market participants and conduct inspections on their grounds in order to get relevant information for monitoring purposes.

In Finland the disputes between consumers and entrepreneurs in the individual cases 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 Boards 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 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.

4.2 Promoting Competition

4.2.1 Wholesale Markets

Wholesale market structure

In the year 2011, the size of the Finnish natural gas market was 3,9 Bcm (4,4 Bcm in 2010, at 0 oC), which was all imported from Russia by Gasum Oy, 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 Oy for immediate substitute for the possible lack of natural gas. The importing capacity of Gasum Oy is estimated to be about 9,500 MW, so the maximum transmission capacity is often at use in cold winter days. Maximum 24-hour use was 22,08 Million m3 on February 18th, 2011.

The Russian natural gas exporter Gazprom and Gasum Oy has entered into an agreement for Russian natural gas exports to Finland until the 31st of December 2025. The agreement marks a substantial increase in gas sales to Finland, with an annual level of 6 Bcm.

Price monitoring

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 Oy and the customers. A majority of the customers by natural gas from Gasum Oy based on a public tariff, which Gasum Oy 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 2011, the share of wholesale supply sold under public tariffs was about 75 per cent. The whole contract-based trading covers some 90 per cent of the wholesale market. Additionally,

Gasum Oy offers short term products that are sold on the Kaasupörssi Oy. Since 2002 there has existed a secondary market operated by Kaasupörssi Oy, which is a subsidiary of Gasum Oy. As many as 25 companies currently trade on the Kaasupörssi Oy. Members in the secondary market represent all the major gas users in Finland.

Kaasupörssi Oy maintains the Gas Physical Forward (GPF) market which includes both the secondary market of gas and the market of additional gas purchased from Gasum for short-term needs. In 2011 the total volume in the GPF market was 2,445 GWh, about 40% down from the record of previous year of 3,981 GWh, which was about three times higher than in 2009 (1,372 GWh).

In the secondary market, which compared to the total Finnish natural gas market constitutes to one per cent the prices are market based. There are 27 members in the secondary market who represent all the major gas users in Finland. In 2011 there were about 60,000 (54,500 in 2010) transactions in the secondary market and the prices varied between 20.40 and 31.30 EUR/MWh. Total number of transactions in the GPF market was 92,000 in 2011 (129,000 in 2010).

Monitoring the level of transparency, including compliance with transparency obligations, and the level and effectiveness of market opening and competition

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.

The natural gas network pricing is covered by ex-ante regulation. The Energy Market Authority gave a decision on the pricing methodology for the natural gas network pricing in 2009 to be applied during the 4-year regulatory period (2010–2013). At the end of the regulatory period the Energy Market Authority will give a decision on whether the pricing of network services provided by natural gas network operators 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.

According to the Natural Gas Market Act 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). Because the Finnish gas market has not been fully opened to competition and there is only one importer/wholesaler (Gasum Oy), the obligation to supply applies to all gas suppliers practically in every case. Therefore the customers in every customer category have the same right to purchase natural gas at a reasonable price.

As regards the supervision of natural gas wholesale or retail pricing, the powers of the Energy Market Authority are ex post by their nature. In May 2008 the Energy Market Authority gave a decision on whether the pricing of wholesale supply of natural gas had been reasonable. The decision given was based on the financial years 2006 and 2007. 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 per cent) was entered at by using benchmarking studies in the field. According to the decision the pricing of Gasum Oy's gas

supply was not at the reasonable level during these years and Gasum Oy was ordered to change their pricing policy starting from financial year 2008.

Gasum Oy appealed against the decision to the Market Court. The Market Court dismissed the application for appeal by its ruling in May 2009. Gasum Oy appealed in 2009 against ruling to the Supreme Administrative Court which is the highest appellate instance. The Supreme Administrative Court gave a ruling in December 2012. In its decision also the Supreme Administrative Court overruled the appeal.

4.2.2 Retail Markets

Retail market structure

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 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 (29,000 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).

At the end of 2011 there were 23 natural gas retail suppliers. Many of the natural gas retailers in Finland are relatively small having only dozens of customers. The share of the top three retail suppliers is about 50 per cent of the total volume. 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 Oy is downward vertically integrated into natural gas retail supply and distribution network operation through its ownership in Gasum Paikallisjakelu Oy.

Price monitoring

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 supplier with obligation to supply is practically 100 per cent in every segment.

Estimated national average natural gas prices in December 2011 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 end-user prices within obligation to supply.

Table 11. Natural gas price for the reference customer in December 2011.[17]

Cent/kWh	I4-1
Network charges (excl. levies)	0.93
Energy costs and supply margin	3.08
Taxes	0.90
Total (excluding VAT)	4.91

Monitoring the level of transparency, including compliance with transparency obligations, and the level and effectiveness of market opening and competition

The Natural Gas Directive allows Finland to derogate from the obligation to liberalise its natural gas market, as long as Finland only has one main supplier of natural gas and is not connected to the European gas network. For that reason, supplier switching is not possible in the present situation.

4.2.3 Recommendations on supply prices

In 2011 the Finnish Energy Market Authority has not given any direct recommendations on supply prices.

However, the Energy Market Authority publishes monthly statistics on prices in order to promote competition and public market analysis.

4.2.4 Carry out investigations and imposing measures to promote effective competition

The Finnish Energy Market Authority is granted the powers to impose necessary and proportionate measures to promote effective competition and to ensure the proper functioning of the energy market in the Chapter 7 of the Natural Gas Market Act in Finland. The objective of the Finnish Natural Gas Market Act is to ensure the prerequisites for the effective function of the natural gas market and thereby ensure a sufficient supply of energy at reasonable prices and quality. The primary way to achieve the goal is to safeguard healthy and functioning competition in natural gas sales as well as to obtain a fair and equal service in all network activities.

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.

[17] Reference customer: annual consumption 150,000 MWh, 4,000 hours.

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.

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.

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 Oy'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 Oy has appealed the decision to the Market Court. The Market Court overruled the appeal by its decision in May 2009. Gasum Oy appealed in 2009 against ruling to the Supreme Administrative Court which is the highest appellate instance. The Supreme Administrative Court gave a ruling in December 2012. In its decision the Supreme Administrative Court also overruled the appeal.

The branch organisation, Finnish Gas Association 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 Finnish Energy Market Authority has also the right to cooperate with the Finnish Competition Authority, the Financial Supervisory Authority and the Commission. According to Section 10 of the Administrative Procedure Act of Finland (434/2003) an authority shall provide the requested assistance, within its competence and as required by the nature of the matter, to another authority for taking care of an administrative matter; it should also otherwise promote inter-authority co-operation.

According to the Natural Gas Market Act the customers and other market actors may submit a complaint regarding the practices of natural gas distributors or retailers. The total number of action requests related to natural gas market operators in 2011 submitted to Energy Market Authority was 2. The average processing time was 2.6 months. There are no statistics about the number of other inquiries than complaints.

Complaints regarding connection charges as a rule are analysed individually by the Energy Market Authority and the legally binding resolution is submitted both to the customer and to the network operator involved. However, the Energy Market Authority has confirmed methods for determining the connection charges and the network operators shall follow those methods.
Complaints regarding the network charges are handled in conjunction with the regulation of the network charges within the regulatory period.

The Energy Market Authority has given regulation on the content of natural gas bills. If the complaint is regarding to the correctness of the bill, the Energy Market Authority is not the competent authority to deal with the issue. In such cases, the customer has to take legal action at the civil court or as a consumer make a complaint to the Consumer Disputes Board.

4.3 Consumer protection

4.3.1 Compliance with annex 1

Article 41(1)(o) states that the national regulatory authority shall help to ensure, together with other relevant authorities, that the consumer protection measures, including those set out in Annex I, are effective and enforced.

Annex 1 lists number of consumer protection measures that should be guaranteed in consumer relations. Directive 2009/73/EC haven´t been implemented yet to the Finnish legislation. Despite of that most of the requirements of the Directive have already been met in current legislation.

In the current Natural Gas Market Act the rules concerning the contract information are in paragraph 7 under chapter 4 and comparing the current legislation to the annex 1 requirements the current law fulfills most of the requirements stated in the annex 1 section 1(a). Only the subsection points 5, 6 and 8 of annex 1 section (a) causes changes to the current legislation. The paragraph 6 in chapter 4 of the Natural Gas Market act states that the rules in paragraph 27 c of the Finnish Electricity Market Act also ably to the natural gas market. As already stated before, the paragraph 27 c needs some modification when it comes to the terminology.

In the Natural Gas Market Act the rules concerning the changing the terms of contract are in paragraph 7 under chapter 4. The paragraph fulfills requirements set in the annex 1 section 1(b).

In the current Natural Gas Market Act there are no specific rules concerning requirements mentioned in Annex 1 section 1(f) because the Finnish consumer protection acts general clause in paragraph 1 under the chapter 2 can also be used for handling consumer complaints in electricity related issues. 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 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.

There isn´t equivalent paragraph to the requirement of Annex 1 section 1(h) in the current legislation at the moment.

4.3.2 Ensuring access to consumption data

Article 41(1)(q) of the directive 2009/73/EC states that the national regulatory authority shall ensure access to customer consumption data, the provision for optional use, of an easily understandable harmonized format at national level for consumption data and prompt access for all customers to such data under point (h) of Annex I.

The current Natural Gas Market Act does not include corresponding provisions about customers' access to the consumption data.

4.3.3 Public service obligations

According to the Natural Gas Market Act customers have a right to a contract with their gas service provider that specifies:

- the identity and address of the supplier;
- the services provided, the service quality levels offered, as well as the time for the initial connection;
- if offered, the types of maintenance service offered;
- the means by which up to date information on all applicable tariffs and maintenance charges may be obtained;
- the duration of the contract, the conditions for renewal and termination of services and of the contract, the existence of any right of withdrawal;
- the alternative procedures for dispute resolution.

The legislation requires that conditions shall be fair and those should be provided prior to the conclusion or confirmation of the contract. Customers must be given adequate notice of any intention to modify contractual conditions. Gas service provider shall inform customers about their right of withdrawal when the contractual conditions are modified. 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. 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 for the secondary market. Thus there are no special provisions concerning consumers' right to change the supplier.

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.

4.3.4 Vulnerable customers definition

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.

The seller must keep terms of sale and prices as well as the grounds for determining consumers' as well as the obligation to deliver within the scope of clients. They must not be unreasonable or natural gas trade restrictive conditions or restrictions. They must notify the Energy Market Authority in the sale of natural gas and the terms and conditions.

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.

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.

The Finnish legislation including the Constitution and social security measures can be considered to meet the gas directives vulnerable customer protection requirements.

4.4 Security of supply

4.4.1 Monitoring balance of supply and demand

The Energy Market Authority has a responsibility for monitoring the security of supply situation for gas. The Energy Market Authority maintains information on transmission network capacity and availability, while the Ministry of Employment and the Economy has the responsibility for preparing the estimates for the demand. In 2011 there were no changes in these competences.

According to the amendments to the 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.

All natural gas supplied in Finland is imported from Russia and there are no connections to other EU countries. In addition there aren't natural gas production or storage facilities in Finland. The natural gas consumption in 2011 was 39,1 TWh. (3,91 bcm). Consumption decreased about 12 per cent from the year 2010 (44,6 TWh, 4,46 bcm). Gas consumption is estimated to be roughly the same in 2012. The currently available import capacity from Russia is about 9,500 MW. Natural gas supply contract with Gazprom is valid until the end of 2025. Annual contract volume is up to about 60 TWh (6 bcm).

In natural gas shortage situation market based mechanisms are used to reduce gas consumption at the first stage. The price of gas that exceeds gas users intended capacity is increased to reduce consumption. During winter 2011-2012 there was no need to increase the price of natural gas to reduce consumption.

Two new transmission pipeline building projects were completed in the year 2011. Lines were between Lempäälä and Kangasala (34 km) and Mäntsälä and Siuntio (89 km). New natural gas fired power plants weren't installed.

4.4.2 Expected future demand and available supplies as well as envisaged additional capacity

Taxation of natural gas increased substantially in the beginning of the year 2011. The taxation of natural gas used to be relatively low, total taxes directed to natural gas were 2,016 €/MWh. New tax level is 8,94 €/MWh from beginning of the year 2011. In addition, the taxes will rise in the forthcoming years. The tax will be 11,44 €/MWh in 2013-2014 and 13,64€/MWh from 2015 onwards. Increasing tax level will weaken competitiveness of natural gas and the usage of gas is expected to decrease.

Currently there are no specific plans to expand natural gas transmission pipelines. However, there is a long term plan to expand the gas network to the western part of Finland, mainly to the cities of Turku and Naantali. Length of pipeline extension would be about 200 km.

Additionally, the TSO executed 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, Balticconnector, would enable that the Latvian natural gas storage facilities could be used to improve reliability in natural gas transmission to Finland. Balticconnector feasibility study was a priority project of the Trans-European Energy Networks and it was partly funded by EU from the TEN-E program. The final report of Balticconnector study project was completed in February 2011. The study ascertained that it is indeed possible to lay an offshore pipeline between Finland and Estonia. However currently there are no specific plans to proceed to the building phase.

Gasum Oy opened a new liquefied natural gas (LNG) production plant in June 2010 in Porvoo. LNG production capacity of the plant is about 20,000 tons per year. There is also 2,000 m^3 LNG storage for produced LNG. This LNG can be gasified back to natural gas transmission network. Trial run of LNG gasifying unit was made in the summer 2011.

There have been plans to use LNG as fuel of big cruiseferries of the Baltic Sea and Gasum is planning to build a new LNG terminal for ferries, but no investment decisions has been made during the year 2011.

4.4.3 Measures to cover peak demand or shortfalls of suppliers

In natural gas shortage situation marked based mechanisms are used to reduce gas consumption at the first stage. The price of gas that exceeds gas users guaranteed capacity is increased to reduce consumption. This kind of market based mechanism is typically used 0-2 times during the winter time. If shortage situation continues TSO is allowed to cut down consumption of non-gas dependent customers.

If shortage situation still continues, substitute fuels (HFO, LFO, coal, peat, wood and LPG), a special propane air mixing unit of 350 MW and movable LNG-regasification plant of 75 MW can be used. If the natural gas supply is prevented over an extended period the obligatory storages can be used too. The 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.