

**Annual Report to the European Commission**  
**Finland**

<b>1.</b>	<b><i>Foreword</i></b>	<b>4</b>
<b>2.</b>	<b><i>Major Developments in the electricity and gas markets</i></b>	<b>6</b>
<b>2.1</b>	<b>The electricity market .....</b>	<b>6</b>
2.1.1	Wholesale market.....	6
2.1.2	Retail market.....	8
2.1.3	Public Service Obligations and Consumer Protection .....	9
2.1.4	Infrastructure.....	9
2.1.5	Security of Electricity Supply .....	11
2.1.6	Regulation/Unbundling.....	11
<b>2.2</b>	<b>The gas market .....</b>	<b>13</b>
2.2.1	Wholesale market.....	13
2.2.2	Retail market.....	14
2.2.3	Infrastructure.....	14
2.2.4	Security of Supply .....	14
2.2.5	Regulation/unbundling .....	14
<b>2.3</b>	<b>General conclusions.....</b>	<b>15</b>
2.3.1	The present legal framework.....	15
2.3.2	Related to 3rd package .....	16
<b>3.</b>	<b><i>Regulation and Performance of the Electricity Market</i></b>	<b>18</b>
<b>3.1</b>	<b>Regulatory Issues .....</b>	<b>18</b>
3.1.1	General .....	18
3.1.2	Management and allocation of interconnection capacity and mechanisms to deal with congestion	19
3.1.3	The regulation of the tasks of transmission and distribution companies.....	25
3.1.4	Effective unbundling .....	34
<b>3.2</b>	<b>Competition Issues .....</b>	<b>37</b>
3.2.1	Description of the wholesale market .....	37
3.2.2	Description of the retail market.....	44
3.2.3	Measures to avoid abuses of dominance.....	48
<b>4.</b>	<b><i>Regulation and Performance of the Natural Gas market</i></b>	<b>52</b>
<b>4.1</b>	<b>Regulatory Issues .....</b>	<b>52</b>
4.1.1	General .....	52
4.1.2	Management and allocation of interconnection capacity and mechanisms to deal with congestion	54
4.1.3	The regulation of the tasks of transmission and distribution companies.....	54
4.1.4	Effective Unbundling .....	57
<b>4.2</b>	<b>Competition Issues .....</b>	<b>58</b>
4.2.1	Description of the wholesale market .....	58
4.2.2	Description of the retail market.....	58
4.2.3	Measures to avoid abuses of dominance.....	59
<b>5.</b>	<b><i>Security of supply</i></b>	<b>61</b>
<b>5.1</b>	<b>Electricity .....</b>	<b>61</b>
5.1.1	Supply-demand situation during the peak load .....	61
5.1.2	Generation capacity.....	62
5.1.3	Role of regulatory authorities.....	64
5.1.4	Major infrastructure projects on interconnections.....	65
5.1.5	TSO and security of supply issues.....	66
<b>5.2</b>	<b>Gas .....</b>	<b>68</b>
<b>6.</b>	<b><i>Public Service Issues</i></b>	<b>70</b>
<b>6.1</b>	<b>Electricity .....</b>	<b>70</b>

6.1.1	Obligations of market participants .....	70
6.1.2	The implementation of labelling for primary energy source .....	70
6.1.3	The implementation of Directive Annex A criteria .....	71
6.1.4	Appropriate treatment of vulnerable customers .....	73
6.1.5	Disconnections for non-payment in 2009 .....	74
6.1.6	End-user price supervision of electricity .....	74
<b>6.2</b>	<b>Gas .....</b>	<b>75</b>
6.2.1	The implementation of Directive Annex A criteria .....	75
6.2.2	Appropriate treatment of vulnerable customers .....	75
6.2.3	End-user price supervision of gas.....	76
6.2.4	The activities of regulators in ensuring transparency of the terms and conditions of supply .....	77

The Energy Market Authority  
 Lintulahdenkatu 10  
 00500 HELSINKI  
 FINLAND  
 Telephone +358 10 605 000  
 Telefax +358 9 6221 911

# 1. Foreword

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

The price of electricity is almost constantly in the Finnish headlines. The average day-ahead area price for Finland in 2009 in Nord Pool Spot was EUR 36.98 EUR/MWh, down 27.5 per cent from the previous year. The decline could be attributed to the decline in the overall power demand, which in turn was caused by the economic downturn. In 2008 the average day-ahead area price for Finland was EUR 51.02 per MWh compared with EUR 30.01 in 2007. The share of electricity bought from the power exchange in relation to the Finnish electricity consumption amounted to 54.3 per cent, which again is a record figure.

In the year 2009 the average price of electrical energy for a residential customer with 5,000 kWh/a consumption declined by 2.3 per cent. For small houses with electric heating (consumption 18,000 kWh/a) the decline was 1.9 per cent. This was subsequent to the decline in the wholesale markets, which in turn reflected the overall economic slowdown.

In 2009 the switching rate amounted to roughly 8.1 per cent, which is almost the double as compared to the previous year. The household customers used actively the Internet-based tariff calculator provided by the Energy Market Authority to get information on alternative suppliers and to compare the prices offered by them. The calculator has been popular and since opening of this service in 2006 several million searches have been made using the IT system.

Due to economic recession and mild winter, the consumption of electricity decreased in 2009 for the second year in a row. The peak hourly demand for electricity in 2009 was 13,920 MW compared with 14,808 MW the year before. The Energy Market Authority has estimated that Finland had 13,100 MW of generation capacity available during the winter season 2009 - 2010. The output deficit was covered with imports from the Nordic countries, Russia and Estonia. The domestic generation capacity is expected to grow significantly only after the new Olkiluoto nuclear power plant unit has been completed, which is expected in 2013.

Unlike the electricity market the Finnish natural gas market is less liberalised and competitive. All the natural gas needed is imported from Russia and there are no transmission connections to other EU countries. Finland has derogation from the Natural Gas Directive that allows it not to open its natural gas market. However, a secondary gas market 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.

One of the key regulatory tasks for the Energy Market Authority is network regulation covering both economic and technical aspects. The second regulatory period for electricity network regulation started in 2008 with an improved regulatory model including incentives for cost

efficiency and quality improvement. 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 was launched with a deadline in autumn 2010. The second regulatory period for natural gas network regulation started in the beginning of 2009. The improved regulatory model includes incentives for the natural gas TSO to improve its cost efficiency and quality of supply.

The Energy Market Authority carried out the regulatory and supervisory tasks of electricity and gas market and emissions trading - the specificity of the Finnish energy regulatory authority - with a staff of roughly 37 employees. 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.

Asta Sihvonon-Punkka  
Director General  
Energy Market Authority

## **2. Major Developments in the electricity and gas markets**

### **2.1 The electricity market**

#### **2.1.1 Wholesale market**

##### **Developments in market concentration**

The electricity wholesale market is not national in scope but Nordic. For more than a decade, Finland has formed an integrated wholesale electricity market with Denmark, Norway and Sweden.

In 2009, there were no significant changes in the structure of the Finnish wholesale electricity 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.

##### **Market integration**

Finland is an integral part of the Nordic electricity market and in addition to interconnections to Sweden and Norway it has interconnections to Russia and Estonia. In 2009, the Finnish electricity consumption amounted to approximately 81 TWh, down about 7 per cent when compared to 2008. Of the total demand net imports covered about 15 per cent which corresponds to the level of previous year. There was net export to Sweden, whereas import from Russia increased and from Estonia declined slightly.

The Estlink cable between Finland and Estonia, commissioned at the end of 2006, introduced the opportunity for power import from Estonia. Estonia is also able to buy electricity from Finland via the Estlink cable. Approx. 1.8 TWh of electricity was imported from Estonia in 2009 and respectively 0.1 TWh was exported to Estonia.

The Nordic market has taken steps to better integrate with the markets of the continental Europe and the Baltic states. The project to couple the Nordic and the German electricity markets through European Market Coupling Company (EMCC) was started in 2008 and commissioned in November 2009. The next step on the European market integration path a project to join the EMCC with French, Belgium, the Dutch and Luxembourgish markets was started with the aim to have the tight volume coupling covering all the mentioned markets in operation in September 2010. The ultimate objective would be to have price coupling covering the entire European electricity wholesale market. An investment decision on a new connection between Finnish and the Baltic markets, Estlink2 was made in May 2010. According to the plans the new connection would be in operation in December 2013.

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 year 2009, about 96 per cent of the time Finland and Sweden belonged to the same price area – a decrease of 1.5 per cent

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 2009 the average day-ahead area price for Finland in Nord Pool Spot was EUR 36.98 EUR/MWh, down 27.5 per cent from the previous year (EUR 51,02 per MWh) and closer to the figure of 2007 (EUR 30.01/MWh). The average day-ahead system prices amounted to EUR 35.02 for 2009, 44.73 for 2008, 27.93 in 2007 and 48.59 in 2006. The price differences between the Nord Pool Spot areas were smaller in 2009 than in 2008. Lower consumption contributed to smaller price differences in 2009 than the year before. In 2009 the highest average price was in Eastern Denmark while South Norway had the lowest average price. The average price in South Norway was more than EUR 6 lower than the average price in Eastern Denmark. Lower consumption contributed to lower prices in the Nordic region in 2009 than in 2008. There were also higher generation costs for thermal power plants for most of 2008 than 2009.

### **Development of the power exchanges**

Physical day-ahead and intra-day trading takes place in the Nordic power exchange Nord Pool Spot. In 2009 traded volumes through Nord Pool Spot amounted to 291 TWh, a slight decline from 2008, when the traded volume was 297.6 TWh. The traded volume corresponds to about 72 per cent of the total Nordic power demand and 2.4 TWh in intra-day market Elbas (1.8 TWh in 2008). 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 2009 the share of power sourced through NordPool SPOT was 54.3 per cent.

The geographical extension of the intra-day market increased in March 2009 as Elbas continuous trading platform was introduced in Norway. With Norway included, the same opportunities to balance supply and demand until one hour before delivery are available in all the Nordic countries. A significant increase in the Elbas volumes is expected following this introduction.

Early 2010 the Nord Pool Spot activities were expanded to Estonia. The establishment of a new price area Estlink took place in April 2010. As a prerequisite for this the owners of the Estlink cable allocated sufficient capacity that was at their disposal to public use through Nord Pool Spot. In practice this implied the partial opening up of the exempted merchant line Estlink to third party access in day-ahead timeframe.

### **Conclusions**

Finland has a long time formed an integrated wholesale electricity market with Denmark, Norway and Sweden. In 2009, there were no significant changes in the structure of the Finnish wholesale electricity market and in the development of market concentration.

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. In 2009, about 96 percent of the time Finland and Sweden belonged to the same price area. However, only 26 per cent of the time the day-ahead price in the whole Nordic market was the same.

The Nordic market has taken steps to better integrate with the markets of the continental Europe and the Baltic states. In April 2010 the Nord Pool Spot activities were expanded to Estonia and a new price area Estlink was established. The Finnish and Estonian TSOs made also an investment decision about a new connection between Finnish and the Baltic markets, Estlink2 in May 2010. According to the plans this new connection would be in operation in December 2013.

## **2.1.2 Retail market**

### **Developments in market concentration**

In 2009, there were no major changes in the number of retail suppliers. To serve Finland's circa 3.1 million electricity customers, there are currently about 71 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. 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 1<sup>st</sup>, 2010 there were 32 electricity retailers who had the obligation to supply and who were legally unbundled from electricity network activities.

### **Supplier switching**

In 2009, the number of customers that switched their supplier nearly doubled to 249,600. The overall switching rate in 2009 was 8.1 per cent (in previous year switching rate was 4.4 per cent). The larger consumers, like enterprises and households with electric heating have been more active in switching than smaller ones. Obviously the cost optimization potential increases with increased consumption level.

### **Development of retail electricity prices**

The retail prices are not regulated in Finland. In 2009 the average price of electrical energy for a residential customer with 5,000 kWh/a consumption declined by 2.3 per cent. For small houses with electric heating (consumption 18,000 kWh/a) the decline was 1.9 per cent. During 2009 distribution network access charges without taxes and VAT increased on average 6.0 per cent and transmission access charges by approximately 5 per cent.

### **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. All retail suppliers are obligated to maintain up-to-date information on their public electricity price offers on this website. In 2009 about 2.8 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.

### **Introduction of smart meters**

By the 1<sup>st</sup> of 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. In January 2010 there were already a smart meter in about 1.2 million consumption places.

### **Conclusions**

In 2009 number of customers that switched their supplier nearly doubled from the level in 2008. The overall switching rate was 8.1 per cent. The average price of electrical energy for household customers declined in 2009.

## **2.1.3 Public Service Obligations and Consumer Protection**

### **Complaints**

The number of complaints related to electricity that the Energy Market Authority received in 2009 was 126. Roughly 20 of them addressed the pricing of distribution services. The average processing time was 2.1 months. The complaints submitted fell into the following categories: connection charges, the network access charges, quality of supply, inconsistencies in invoicing and general complaints regarding practices of the supplier.

## **2.1.4 Infrastructure**

### **Development in network tariffs**

At the end of 2009 distribution prices excluding tax were on an average 5.9 per cent higher compared to the situation a year earlier. Reasons for the distribution price increase include substantial growth in investments, required by aging electricity grid, improving network supply and the changes to metering according to new acts. The first regulatory period that ended in 2007 left some network operators with accumulated deferred deficits, which in turn made electricity price increases possible for these companies in 2009. Transmission prices rose slightly in 2009.

The regulation of distribution prices is based on 4-year regulatory periods for which a tariff methodology containing a general and firm-specific efficiency improvement targets is confirmed. Companies that exceeded their reasonable profit in the first regulatory period must return excess returns as lower transfer payments during the second regulatory period 2008-2011. Similarly a four year regulatory period with an income frame including cost efficiency and quality of supply incentives is applied to the transmission network activity.

Four network operators appealed to the Market Court concerning the determination of their reasonable profit on first regulatory period. In January 2010 the Market Court repealed the

Energy Market Authority's decision and returned them to the Energy Market Authority in a retrial. The Energy Market Authority will make new decisions in the respect of what the Market Court decisions ruled. The issues dealt in the Market Court were related to corporate contribution processing and treatment of investment costs in rental networks.

### **Transmission investments**

To decrease congestion on interconnectors between Finland and Sweden the TSOs have launched an investment project to build a new DC interconnection Fenno-Skan 2 between Finland and Sweden. The construction started in 2008. The investment decision is part of the five prioritised Nordic cross-section reinforcements agreed by the Nordic TSOs in June 2004. The capacity of the interconnection will be 800 MW and it expected to be commissioned at the end of the year 2011. The new interconnection will improve the interconnection capacity between Finland and Sweden by 40 per cent resulting in tighter integration of the Nordic market.

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.

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 between Estonia and Finland (EstLink 2) has been achieved. Seabed survey and environmental studies have been completed and the permitting process is ongoing.

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.

### **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 1228/2003. Remaining transmission capacity after day-ahead allocation is set for intra-day 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 counter-trade.

To facilitate an efficient wholesale market and to manage the existing problems of congestion management a process has been initiated by the Nordic Member States. Based on it the Nor-

dic 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. The most significant consequences would be caused to Finland and Sweden, which currently form one price area each. For Finland the study showed that Finland will remain as one price area.

## **2.1.5 Security of Electricity Supply**

### **Competences of NRA for security of supply**

The Energy Market Authority has a responsibility for monitoring the security of supply situation for both electricity and gas. 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 2009 there were no changes in competences.

### **Development of 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 1<sup>st</sup> of July 2010. These new nuclear power plants would be in operation in 2020's.

### **Development of supply/demand balance**

After the new record peak load in total electricity consumption in February 2007 of 14,808 MW the peak in 2009 was 13,920 MW. This was followed by peak load measured on the 28<sup>th</sup> of January 2010, which amounted to 14 320 MW. During the 2010 peak, power generation in Finland was about 11,400 MW and import to Finland 2,920 MW.

The Energy Market Authority has estimated that Finland had approximately 13,100 MW of generation capacity was available in winter season 2009 - 2010. At the end of 2009, the installed nominal capacity of power plants was 16,566 MW. A total of approx. 2,140 MW of new power plant capacity will be completed in 2010 - 2013. At the same time, a few old power plants will be decommissioned.

In the years 2010 - 2012, domestic electricity generation capacity will not be sufficient to cover the electricity consumption during peak consumption periods. Dependency on imports will significantly decrease once the new nuclear power plant unit (Olkiluoto 3) has been completed in 2013. Originally the new unit should have been commissioned by the end of 2009, but the present estimate of commissioning the plant is 2013.

## **2.1.6 Regulation/Unbundling**

### **Competences of NRA**

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

As per July 2010, the total number of staff in Energy Market Authority amounted to 37. Of this number, 19 were occupied with the electricity and gas market issues and 9 with emissions trading issues. The remaining 9 staff members were involved in all of these three areas providing assistance for IT, general administration and secretarial services. The total expenses for 2009 were EUR 3.87 million of which EUR 1.27 million were used for the activities related to emissions trade.

### **Sanctions imposed by the NRA**

On the basis of the Electricity Market Act and the provisions under it, and also the Regulation (EC) No 1228/2003 of the European Parliament and of the Council on conditions for access to the system for cross-border exchanges in electricity, 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. There are not any administrative fines for the non-compliance with the electricity market legislation.

### **Network regulation**

In the field of electricity, the Energy Market Authority is responsible for regulating 89 distribution network operators, 13 regional network operators and one transmission system operator.

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 covers the years 2008 - 2011. Year 2009 was the second year of the 4-year regulatory period.

A project - Roadmap 2020 - went ahead during year 2009. In this 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. A deadline of this project is in the end of year 2010.

### **Development of TSO and DSO 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. The ownership structure was created at the setup of the company. It is 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 package requires that electricity transmission network operators shall be unbundled from production and supply activities. The holdings of Fortum and Pohjolan Voima in Fingrid require that Finland takes steps to implement this obligation. On 28 April 2009, Fortum and Pohjolan Voima announced their decision to launch preliminary studies of the sale of their Fingrid shares.

In its meeting on 16 June 2009, the Cabinet Committee on Economic Policy discussed the unbundling alternatives for Fingrid. The Committee approved guidelines as government objectives stating that Fingrid will be transformed into a transmission network company factually unbundled from electricity production, operating in compliance with the Internal Electricity Market Directive. In the long term, the state will secure the strategic interests and security of supply in the electricity system and transmission network by acquiring the majority of Fingrid shares and the majority of votes in the annual general meeting (minimum of 50.1%). The aim is to execute the change of ownership via voluntary deals with Fortum and Pohjolan Voima. The state is also positively inclined towards such an alternative that shareholders of Pohjolan Voima, which are for the major part users of electricity, or a company established by them fulfilling the requirements of the Directive, buy Pohjolan Voima's holdings in Fingrid.

According to the Electricity Market Act, electricity network operations must be legally unbundled from electricity trade operations and electricity generation if the annual quantity of electricity transmitted to the customers through the network operator's 400 V distribution network has been 200 GWh or more during three consecutive calendar years. The arrangements were to be implemented no later than the beginning of 2007. Also some distribution system operators under this threshold value have legally unbundled network activities. In June 2009 a total of 50 distribution system operators of 88 operators were legally unbundled in Finland.

### **Conclusions**

Directive (2009/72/EC) requires that electricity transmission network operators shall be unbundled from production and supply activities. This requires changes in the ownership of the Finnish TSO, Fingrid. The final decisions on the new arrangements have not been made yet.

## **2.2 The gas market**

### **2.2.1 Wholesale market**

The natural gas market in Finland is relatively isolated and small. In 2009, natural gas consumption in Finland totalled 4.1 bcm, which was imported from Russia by Gasum Oy acting as the sole wholesale supplier in Finland. Pricing of the natural gas is based on oil price, and additionally, the price on coal and domestic market energy prices. The wholesale supply of natural gas to the Finnish end-users and retailers is for the majority of the users based on public tariff. However, there are few wholesale customers who still continue to buy natural gas based on fixed-term contracts they entered into before the Natural Gas Market Act.

Large users account for the bulk of natural gas consumption in Finland. Energy and power companies, which use the bulk of natural gas to co-generate heat and power, used 55.3 per cent with industry consuming 44.7 per cent. The key industrial sectors were pulp and paper and chemical industries whose consumption corresponded to 42.1 per cent 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 op-

eration. 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.

### **2.2.2 Retail market**

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.

### **2.2.3 Infrastructure**

At the end of 2009, 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 1,186 kilometres. Total of 46 km parallel new gas transmission pipeline was completed in 2008.

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.

For natural gas the capacity allocation is done by Gasum.

### **2.2.4 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 2009 was 4.1 bcm. Gasum Oy has estimated that gas consumption will be about 4.3 bcm in 2010. 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 same 5.2 bcm in year 2030. 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 6 bcm.

In 2009 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.

### **2.2.5 Regulation/unbundling**

At the start of 2009, the Energy Market Authority was responsible for regulating 28 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 2009 the regulation of natural gas network operations continued in the established manner. It was the fourth year of the 4-year regulatory period. The first four-year regulatory period commenced at the beginning of 2006 and ended at the end of 2009. In September 2009 the Energy Market Authority issued the methods of determining the return on gas transmission system operations and gas distribution network operations during the second regulatory period starting on 1 January 2010 and ending on 31 December 2013. None of the natural gas network operators made an appeal to the Market Court to amend the decisions.

With regard to the supervision of the pricing of natural gas the decision 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 has appealed against the ruling to the Supreme Administrative Court which is the highest appellate instance. The case is still pending.

## **2.3 General conclusions**

### **2.3.1 The present legal framework**

The electricity market legislation has been constantly updated in Finland since the introduction of competition and sector-specific supervision in 1995 to meet the requirements of the developing competition and to improve the functioning of the market.

There were two important developments to the electricity market legislation that took effect in December 2008 and March 2009 respectively. A new decree of the Ministry of Employment and the Economy containing binding legal rules on exchange of information came into effect in December 2008. Network operators and electricity retailers must now provide the data required for customer switching by an imposed date and in a prescribed form. The decree will promote competition in the electricity retail supply and ensure smooth and speedy supplier switching. In addition to domestic needs, the decree also incorporates the Nordic energy regulators work to increase harmonisation of the Nordic end-user market. The Energy Market Authority was closely and actively participating in the preparation of the new Decree.

In accordance with a Decree of the Council of State that came into force in March 2009, at least 80 per cent of the places of electricity use in the area of operation of each distribution system operator must be equipped with a remote meter reader by the end of 2013. It is possible to depart from this requirement only in small places of electricity use, where electricity is supplied by a local electricity supplier with the obligation to deliver. Even in these consumption points the billing will be changed by shortening the intervals for meter reading. This enables to develop billing through giving more up to date and accurate information on the consumption.

Owing to the new remote meter readers, electricity users can in future become aware of their electricity consumption on the following day, and if desired, in real time, directly on the meter. This will help consumers to control their electricity consumption and energy costs. Along

with the new remote meter reader, it will also be possible to substitute billing based on real consumption for billing according to estimation.

The total costs of the roll-out to remote reading are estimated to be around EUR 565 - 940 million. In the long term, improved energy efficiency and the operational reliability of the power system will bring cost savings to the users, producers and retailers of electricity as well as to distribution system operators. In January 2010 there were already a remote reading meter in about 1.2 million consumption places. Currently in Finland, 10 distribution network operators from the total number of 88 already fulfil the requirement set in the Decree to have at least 80 per cent of the consumption sites equipped with a remote meter reader.

### **2.3.2 Related to 3rd package**

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

The 3<sup>rd</sup> package requires that electricity transmission network operators are separated from production and supply activities. The fact that two generating companies Fortum and Pohjolan Voima are shareholders of Fingrid requires that Finland takes steps to implement the new unbundling requirements. The companies have already announced their decision to launch preliminary studies of the sale of their Fingrid shares.

The Finnish Government has stated that Fingrid will be transformed into a transmission network company factually unbundled from electricity production, operating in compliance with the Internal Electricity Market Directive. In the long term, the state will secure the strategic interests and security of supply in the electricity system and transmission network by acquiring the majority of Fingrid.

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. The 3<sup>rd</sup> 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 3<sup>rd</sup> 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 3<sup>rd</sup> package into national legislation. Deadline for this working group to deliver its proposal is the end of August 2010.

## 3. Regulation and Performance of the Electricity Market

### 3.1 Regulatory Issues

#### 3.1.1 General

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

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

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

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

**Table 1. Development of market opening.**

Year	Threshold	% Market Open (by volume)
1995	500 kW	about 50-60
1997	No	100
1999	No	100
2001	No	100
2003	No	100
2005	No	100
2007	No	100
2009	No	100

### 3.1.2 Management and allocation of interconnection capacity and mechanisms to deal with congestion

Congestion management

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

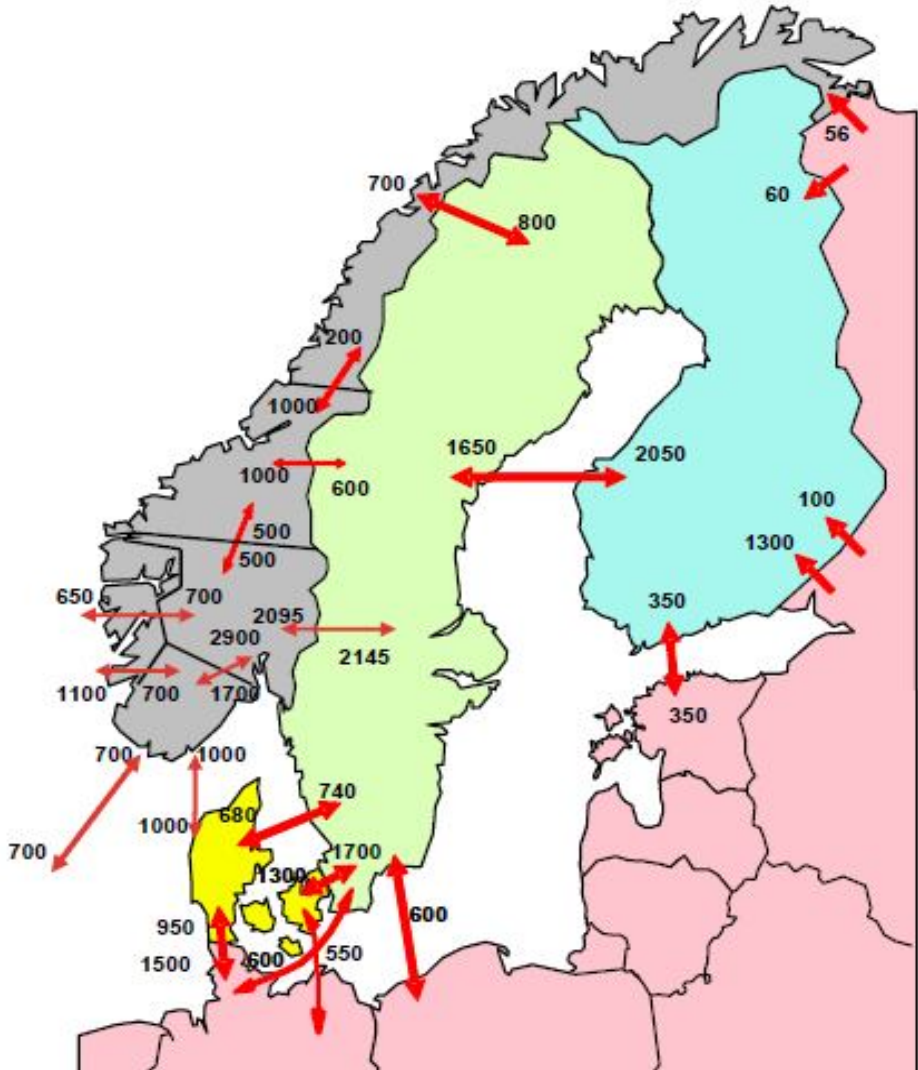


Figure 1. Transmission capacities on the interconnectors of the Nordic countries in May 2010 (Source: Fingrid Oyj).

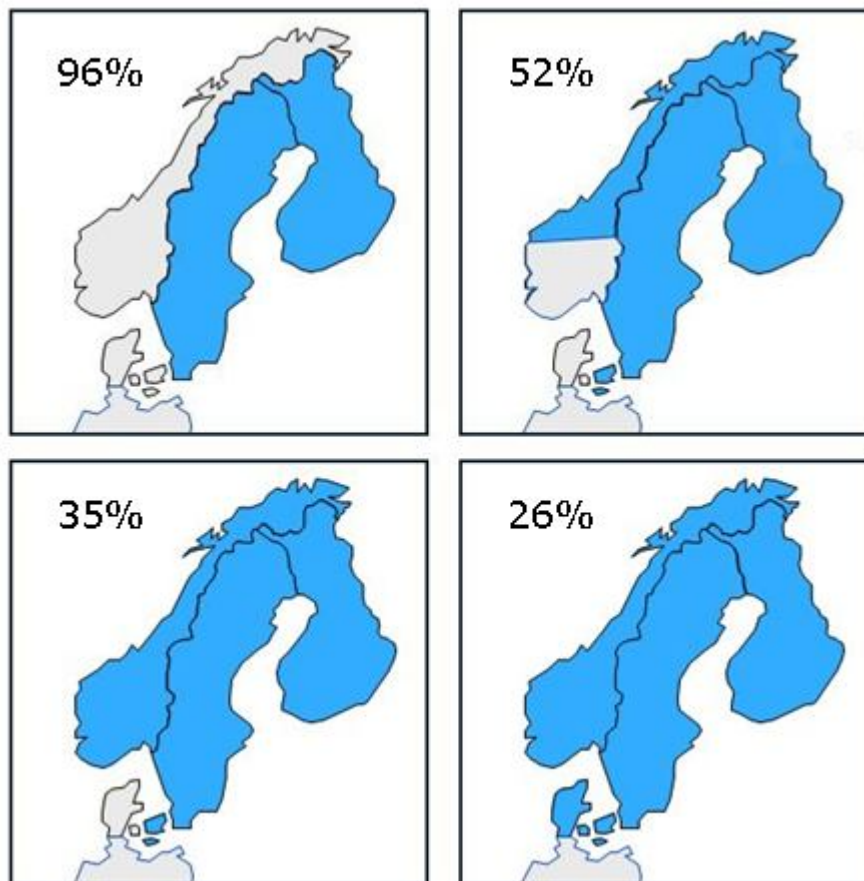
Finland belongs to the Nordic electricity market and congestions across the borders (from Finland to Sweden and Norway) are managed by implicit auctions (market splitting) in the day-ahead market (spot market) in power exchange Nord Pool. Implicit auctions imply that market-based methods are applied in capacity allocation, and thus congestion management is

wholly integrated to the functioning of the Nordic wholesale market. Finland is considered as a single bidding area within Nordic market and congestions within Finland and after spot market closure are managed by counter-trade.

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

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

The Nordic market 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). Moreover, Norway can sometimes be split into more than two price areas. Norway and Sweden have recently been split into several price areas. Figure 2 presents amount of hours in percent during the year 2009 when same day-ahead area price existed. Finland and Sweden had most of the time (96 percent) same day-ahead market price, whereas the whole Nordic market had same day-ahead price only 26 per cent of time in year 2009. Figure 2 shows that most severe congestions exist in the southern part of the Nordic market.



**Figure 2. Time in per cent in year 2009 describing when the same day-ahead price has existed in the various price areas of the Nordic Market (Source: Fingrid Oyj).**

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

Counter trade is used to relieve both national and inter-regional congestions during the daily network operation. Costs of counter trade are paid by the TSO. Table 2 shows the costs of the counter trade paid by the Finnish TSO during the years 2001 - 2009.

**Table 2. Net costs of counter trade in Finland during the years 2000 - 2008 in million Euros.**

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Costs	0.8	1.4	0.3	0.07	0.86	0.48	0.244	0.127	0.085

Source: Nordel, Fingrid Oyj.

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

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 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. The most significant consequences would be caused to Finland and Sweden, which currently form one price area each. For Finland the study showed that Finland will remain as one price area.

### **Implementation of the Regulation 1228/2003 and Congestion Management Guidelines**

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

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

Congestion management method applied to allocate all interconnector capacity in Nordic market, i.e. implicit auction, fulfils the requirements set in the CM guidelines. Remaining transmission capacity after day-ahead allocation is set for intra-day market and cross-border balancing.

Nordic TSOs publish information either on their own website (e.g. [www.fingrid.fi](http://www.fingrid.fi)) or Nord Pool's website ([www.nordpool.com](http://www.nordpool.com)).

The regulatory authorities of the Northern Europe region published in August 2008 a monitoring report on transparency. The objective was to review how the transparency requirements included in the Northern Transparency Report from September 2007 have been complied with. According to this report relevant information has to be published in a harmonized way in the Northern Europe region. The majority of this information is required by the Congestion Management Guidelines. The Transparency Report requires that information on load, transmission and interconnectors as well as balancing was to be published at the beginning of 2008 on transmission system operators' (or power exchanges') homepages. Publication of generation information was to be implemented starting from 1st July 2008.

The monitoring report showed that the level of transparency is high in the Northern Europe region as regards load, transmission and interconnections and balancing. However, there is still need for improvement. The information on balancing is currently mainly not published as requested. Information on generation is seen as the part where major improvements still have to be made.

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 2009 congestion management income for the Finnish TSO (Fingrid Oyj) totalled EUR 4.9 Million (EUR 23.2 million in 2008 and 21.3 in 2007)<sup>1</sup>. During the period 1.1 – 30.6.2010 congestion management revenues totalled EUR 6.7 million respectively.

### **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<sup>2</sup>. 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.etsonet.org](http://www.etsonet.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.

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 di-

---

<sup>1</sup> Source NordPool Spot

<sup>2</sup> Document “Principles for determining the transfer capacity in the Nordic power market” dated 23 January 2008, available at [www.nordel.org](http://www.nordel.org)

mentioning 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)<sup>3</sup> 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.

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.

---

<sup>3</sup> 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.



### 3.1.3 The regulation of the tasks of transmission and distribution companies

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

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

The network operators have various obligations:

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

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

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

The Energy Market Authority has issued electricity distribution network licenses with geographical area of responsibility to 88 distribution network operators. At the Finnish electricity market legislation electricity distribution network have been defined as network below 110 kV level. Some of the electricity distribution network operators have also 110 kV lines. Additionally, there were in June 2010 also 12 regional network companies having only 110 kV lines.

Fingrid Oyj, the electricity transmission system operator, is responsible for the main transmission grid. It owns and operates electricity transmission lines of 400 kV and 220 kV and additionally some 110 kV lines. Based on the Electricity Market Act, the Energy Market Authority has granted the company an electricity network license, in which the Authority has ordered the company to be responsible for the functioning of the power system at a national level (system responsibility). As the transmission system operator Fingrid's tasks include the responsibility for electricity transmission in the main grid, the development of the main transmission grid, maintenance of instantaneous balance between demand and supply, balance settlement at a national level and promoting the functioning of the electricity market.

The length of electricity network in Finland at the end of 2009 in km divided into different voltage levels is shown in Table 3.

**Table 3. Length of electricity network at the end of 2009.<sup>4</sup>**

	Length of network, km			
	110 kV or above	1-70 kV	0.4 kV	Sum
<b>Distribution</b>	6,484	138,019	233,771	378,274
<b>Regional</b>	1,758			1,758
<b>Transmission</b>	14,338			14,338
<b>Sum</b>	22,580	138,019	233	394,370

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

### Network Tariffs

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

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

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

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

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

<sup>4</sup> Preliminary figures May/June 2009

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

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

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

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

In addition to the price, 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.

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

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

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

In autumn 2008, the Energy Market Authority confirmed with its decisions the realised returns that have accrued to each electricity system operator during regulatory period 2005 - 2007, along with a reasonable rate of return. If a surplus has accrued to a system operator during the period, the Energy Market Authority will oblige the company to return it to customers in the form of lower distribution tariffs in the course of the regulatory period 2008 - 2011. There were, however, eleven companies that had set the distribution rates in 2005 - 2007 higher leading into rate of return exceeding the maximum allowed by the Energy Market Authority. These companies have to return the excess, corresponding to EUR 11.7 million to the customer base during the now ongoing observation period of 2008 - 2011. This excess corresponds to about 4 per cent of the total annual net sales of the mentioned companies. The companies that have not set the rates to the maximum allowed could increase the charges during the ongoing observation period by a total of EUR 340 million. In case all companies would set the rates to the maximum, the rates would increase by 7 per cent on an average.

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

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

The network operators may appeal against the methodology confirmed by the Energy Market Authority to the Market Court and, furthermore, both the Energy Market Authority and the network operators are able to appeal against the decisions of the Market Court to the Supreme Administrative Court. A total of 91 electricity system operators filed appeals with the Market Court in January 2008 against the methods for the second regulatory period confirmed by the Energy Market Authority. The Market Court 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 cases are still pending.

Estimated national average network access charges during period 1.7.-31.12.2009 for different consumption bands are shown in Table 4. Prices are excluding all taxes and VAT. During 2009 distribution network access charges without taxes and VAT increased on average 6.0 per cent and transmission access charges by approximately 5 per cent. At the beginning of 2008 the electricity taxes were raised by 0.03 cent/kWh for industrial customers and by 0.14 cent/kWh for other customers.

**Table 4. Estimated national average network charges during period 1.7-31.12.2009 excluding taxes and VAT.<sup>5</sup>**

	Number of regulated companies	Approx network access charge (euro/MWh)		
		Band Ie	Band Ib	Band Dc
Transmission	1	2.12		
Distribution	88 (+ 12 regional)	4.48	26.20	41.71

At the 1<sup>st</sup> of February, 2008 the new amendment to the Electricity Market Act came into force. According to this amendment, the connection fees for small-scale electricity generation (maximum 2 MVA) may not include the costs caused by strengthening the existing electricity network but only include the direct costs of connection. The new regulation also sets the maximum level of the network charges for the electricity generation connected to the distribution network. In the distribution networks the annual network charges for input collected from an electricity generator may not exceed 0.7 EUR/MWh.

### **Interruptions of delivery and compensations from non-delivery**

Table 5 shows interruptions in transmission and distribution networks during the years 1999-2009. 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 5. Interruptions in transmission and distribution networks in 1999-2009.<sup>6</sup>**

	Interruptions minutes lost per customer per year										
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Transmission	6.27	1.62	2.28	5.54	2.12	2.10	2.02	2.10	1.50	1.55	2.70
Distribution	167	114	256	136	123	103	180	145	103	129	96

According to the Amendment to the Electricity Market Act, which came into force in September 1<sup>st</sup>, 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

<sup>5</sup> 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 2500-5000 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.

<sup>6</sup>Distribution data for interruptions has been corrected after cross-checking.

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 2009 electricity distribution system operators paid fixed compensation payments because of long interruptions a total sum of EUR 1.4 million, compared with EUR 0.83 million in 2008 and EUR 0.36 million in 2007.

### **Transmission tariffication according to Regulation 1228/2003**

The Regulation 1228/2003 warrants the Commission to adopt and amend Guidelines on Transmission Tarification. Furthermore, the Regulation requires parallel adoption of ITC and Transmission Tarification Guidelines, but the difficulties with deciding on the appropriate ITC scheme have postponed the process. ITC Guidelines and Guidelines on Transmission Tarification have not been adopted so far. ERGEG has advised Commission on draft guidelines and also made a proposal for reporting on charging structure and G-values<sup>7</sup>.

### **General description of the transmission tariff structure**

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

Transmission pricing in Finland is based on postage stamp tariff, i.e. same tariffs all across the country independent of location. Tariffs consist of only variable charges without any fixed charge, i.e. charge for the use of the transmission network and charge for market utilisation ("consumption fee"). Consumption fee consists of two time periods for which a different charge is applied: (i) wintertime from the 1<sup>st</sup> November to the 31<sup>st</sup> 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

---

<sup>7</sup> ERGEG advice to the European Commission "Guidelines on Transmission Tarification" July 2005, available at ERGEG website: [www.ergeg.org](http://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](http://www.ergeg.org)

transmitted through the connection point. The grid service fees are invoiced monthly by the TSO.

Charges are mainly passed to the consumers (“consumption fee” and “use of grid fee”), where tariff for grid input (“production fee”) is defined according to Nordic tariff harmonisation and draft Guidelines on Transmission Tarification under Regulation 1228/2003. Fees for the year 2009 were as follows:

- Consumption fee / consumption: 2.28 €/MWh, winter period  
1.14 €/MWh, other times
- Use of grid fee: 0.68 €/MWh, output from grid  
0.30 €/MWh, input to grid
- Connection point fee: 1000 € connection point / month

#### Connection charges paid by generators and/or loads

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

#### Other charges

There are no separate charges for ancillary services; costs of ancillary services are largely included in use of grid fee component. In addition, charges based on location are not applied in Finnish transmission tarification. Furthermore, no additional charges for generators and/or loads existed in the year 2009.

#### Average G charge for year 2009

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

G-charge includes use of the grid fee (input to grid component) and connection point fee. Individual G-charge for small generators is higher compared to large generators due to effect of connection point fee. The average G charge for year 2009 in Finland was around 0.328

€/MWh (2008: 0.327 €/MWh). This average G-charge complies with ranges set in draft Guidelines on Transmission Tarification.

**Balancing**

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

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

<b>Physical market Power transactions</b>		<b>Specific operating hour</b>	<b>Balance settlement</b>
<b>ELSPOT</b>	<b>ELBAS</b>	<b>Regulation power market</b>	<b>Balance energy</b>
12 - 36 h	1 - 32 h		max 3 months
<b>Bilateral transactions</b>		<b>Balance management</b>	<b>Power balances of the parties</b>

**Fixed transactions must be agreed and reported before the specific operating hour**

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

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

The balance between production and consumption within a specific operating hour is created through the regulation market by the upward and downward regulation of production and consumption to handle physical imbalances taking into account the effects on congestions.<sup>8</sup>

<sup>8</sup> More information in Nordel Annual report 2002 and Annual Report 2005 – Energy Market Authority, Finland



The price of the regulation power during the specified operating hour (the balancing interval 60 minutes) is determined on the basis of ordered up- or down-regulations. This implies that the price of the regulating power is known only after the end of the specific operating hour. It has been agreed that the price of up-regulation is the most expensive up-regulation bid ordered by the TSO during the specific operating hour. All those who have participated in the up-regulation during the specific operating hour receive the same compensation per MWh. Respectively the price of down-regulation is the cheapest down-regulation bid ordered by the TSO during the specific operating hour. All those who have participated in the down-regulation during the specific operating hour receive the same compensation per MWh. The average regulating power prices for up-regulation was 39 €/MWh (year 2008 53.93 €/MWh and 2007: 53.97 €/MWh) and down-regulation was 33 €/MWh (year 2008 21 €/MWh and 2007: 21 €/MWh) in Finland in year 2009. The volumes traded in regulation market were for up-regulation 94 GWh (year 2008 90 GWh and 2007: 121 GWh) and for down-regulation 184 GWh (year 2008 201 GWh and 2007: 167 GWh) in Finland during the year 2009 (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 (euro/MWh) and location (north/south of Finland)
- The bids are to be submitted electronically to TSO no later than 30 minutes before the beginning of the operation hour, bids can be given within “rolling window” where gate is closed 30 minutes before the specific operating hour and bids can be given from beginning of operating day until 30 minutes before the specific operating hour
- The bid applies to a whole hour and it can be activated immediately from the beginning of the hour or later during the hour
- There may exist several power plants behind one regulation bid

According to the Electricity Market Act, the Energy Market Authority sets the pricing methodology for balancing services provided by the TSO. During the first and second regulatory period (years 2005 – 2007 and 2008 - 2011) the Energy Market Authority executes joint supervision of both network and system operation (including balancing services) in the price regulation of the TSO. Furthermore, the Energy Market Authority shall accept terms and conditions of TSO’s balancing services (i.e. standard balance agreement) when they are to be renewed. In November 2008 the Energy Market Authority approved terms and conditions for TSO balancing services from the 1<sup>st</sup> of January 2009. The approval is valid until the 31<sup>st</sup> of December 2010.

The balance service costs related to the national energy consumption were in Finland 36 euro/GWh (2008: 29 euro/GWh) in year 2009 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 2009 was 9.4 million Euros (2008: 2.2 million Euros). Fees are charged from every balance responsible party. In the 1<sup>st</sup> of June 2010 there were 27 balance responsible parties in Finland.

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

### **3.1.4 Effective unbundling**

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

The Third Legislative Package on the Liberalisation of the Energy Markets requires that electricity transmission network operators are unbundled from any activities of generation and supply. The holdings of Fortum and Pohjolan Voima in Fingrid require that Finland has to take steps to implement this obligation. On 28 April 2009, Fortum and Pohjolan Voima announced their decision to launch preliminary studies of the sale of their Fingrid shares.

In its meeting on 16 June 2009, the Cabinet Committee on Economic Policy discussed the unbundling alternatives for Fingrid. The Committee approved guidelines as government objectives stating that Fingrid will be transformed into a transmission network company factually unbundled from electricity generation, operating in compliance with the Internal Electricity Market Directive. In the long term, the state will secure the strategic interests and security of supply in the electricity system and transmission network by acquiring the majority of Fingrid shares and the majority of votes in the annual general meeting (minimum of 50,1%). The aim

is to execute the change of ownership via voluntary deals with Fortum and Pohjolan Voima. The state is also positively inclined towards such an alternative that shareholders of Pohjolan Voima, which are for the major part users of electricity, or a company established by them fulfilling the requirements of the Directive, buy Pohjolan Voima's holdings in Fingrid.

Final decisions regarding the ownership of Fingrid have not been made yet.

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

If the vertically integrated distribution system operator had reached the threshold value before the amendment to the Electricity Market Act became effective at the end of 2004, a change in the corporate structure had to be implemented by the first of January 2007. The transition period was shorter than the directive allows. Totally, 35 distribution system operators of 89 were at the end of 2009 over the threshold value. Also some distribution system operators under this threshold value have voluntarily legally unbundled network activities from electricity supply and generation activities. In June 2010 a total of 52 distribution system operators were legally unbundled.

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

Many of the distribution system operators are either municipal utilities or companies in which the majority of the shares are owned by municipalities. There are about 15-20 DSOs who are private or state owned. In Finland there are no requirements for ownership unbundling of the DSOs. Most of the legally unbundled distribution system operators still belong to same group of companies as electricity retailers and/or generators. In many cases the parent company of a legally unbundled distribution system operator is a generating or retailing company. On the other hand, some electricity retailers are owned by a group of distribution system operators. In most cases the legally unbundled distribution system operators belonging to a group of companies share their operational, managerial, and financial responsibilities. Part of the strategic and operational tasks of distribution system operators are done in collaboration with other parts of the concern or outsourced to them. Usually, the distribution system operator and the retailer have at least a common customer service.

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

The majority of the electricity system operators have the economic ownership of the assets. However, there are some electricity system operators who are operating with leased out network assets and thus they don't have the economic ownership of their network assets. At the end of 2009 there were 9 distribution system operators who were operating with a distribution network leased out from their parent company. In addition to these there are some other DSOs whose network assets are partially leased, like some substations.

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

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

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

The functional unbundling requirements are applied to legally unbundled distribution system operators with some limitations, with the exception of the requirement in the article 15(2)(c), which is applied to all distribution system operators (see above). The functional unbundling requirements are restricted to legally unbundled distribution system operators because the requirements are related to the legal organs of the company (the board of directors and the managing director) and are not therefore applicable to vertically integrated company. The 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 2009 it covered 17 distribution system operators in Finland. According to Electricity Market Act a person managing a network operator engaged in a legally unbundled electricity network operation with 50 000 customers or more may not act as the managing director of a utility in charge of electricity generation or electricity supply or as a member of its board of directors or a corresponding organ, if the network operator and the utility are under the control of the same party. The threshold of 50,000 customers is lower than the directive requires.

The requirements for professional interests and compliance programmes are limited to legally unbundled electricity system operators with 100,000 customers or more and it covers eight 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 1<sup>st</sup>, 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 decree and the Energy Market Authority has issued the guidelines on the compilation of unbundled financial statements in 2005. These guidelines are not legally binding but they show the procedure the Energy Market Authority considers fulfil the requirements of the legislation. Both the distribution system operators and the transmission system operator are under the obligation to publish unbundled accounts with certain formula. They shall publish the unbundled financial statements as a part of the statutory financial statement, annual report or corresponding other public document available to the stakeholders.

The unbundled income statements, balance sheets and any supplementary information of unbundled operations are audited as part of the statutory auditing. The Energy Market Authority has issued the guidelines in co-operation with chartered accountant on the auditing of unbundled financial statements in 2006. These 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 Third Legislative Package on the Liberalisation of the Energy Markets sets obligations regarding communication and branding of the DSOs. There are no final decisions how these requirements will be implemented in the Finnish regulation.

## **3.2 Competition Issues**

### **3.2.1 Description of the wholesale market**

#### **Market structure and integration to Nordic wholesale market**

Finland consumed 80.8 TWh of electricity in 2009, about 7.4 per cent down on the previous year primarily due to the overall economic decline. Cogeneration of heat and power covered 30 per cent of the consumption of electricity, and saw a substantial decline as a result of the fall in industrial output. Nuclear power covered 28 per cent of the demand and hydro power

15 per cent, which saw a quarter decline when compared to the previous year. Coal-based and other conventional condensing power generation amounted to about 11 per cent and wind power accounted for 0.3 per cent. Electricity import from Russia to Finland was 11.7 TWh and increased by 0.9 TWh but import from Estonia was 1.8 TWh. Electricity net exports to the Nordic market was about 0.4 TWh. Total net imports of electricity covered close to 15 per cent of electricity consumption. The peak demand amounted to 14,077 MW in 2009<sup>9</sup>. Table 6 shows electricity net production, imports and exports in Finland in 2001 – 2009.

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<sup>10</sup> at the end of 2009 was 17,266 MW consisting of conventional thermal power (11,452 MW), nuclear power (2,646 MW), hydro power (3,074 MW) and wind generation (94 MW).

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

---

<sup>9</sup> Source Energiategollisuus ry

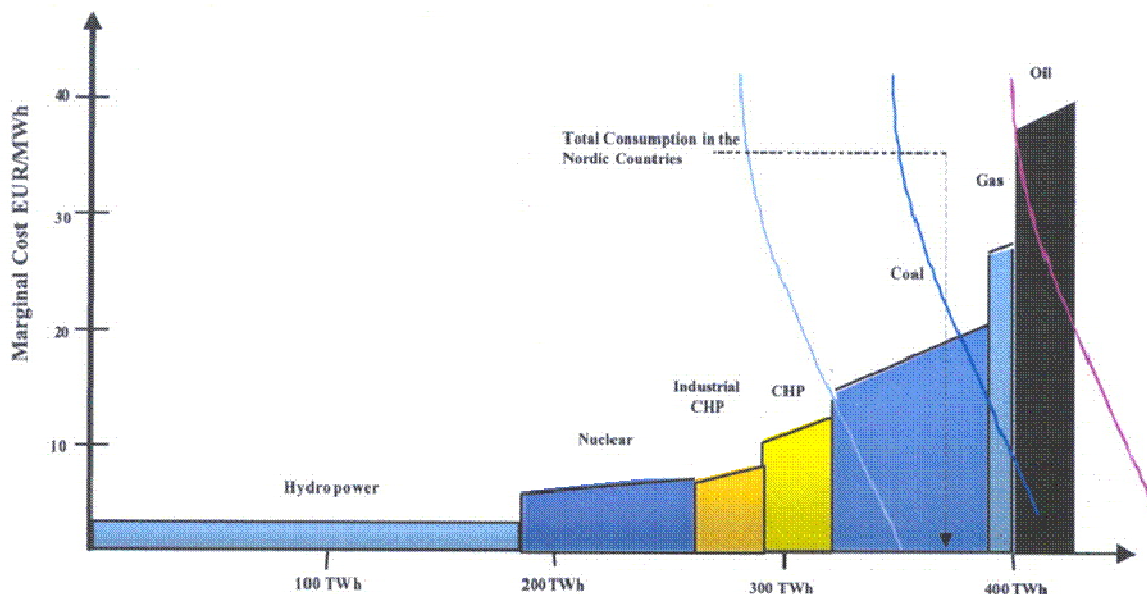
<sup>10</sup> Source: Nordel annual statistics 2007, S1 Installerad effekt den 31 december 2007, MW and Energy Market Authority's power plant registry.

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

<b>TWh</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>GROSS PRODUCTION</b>	74.3	74.9	84.3	85.8	70.5	81.9	81.2	77.1	71.6
Cons. in power plants	3.1	3.3	3.9	3.6	2.7	3.3	3.4	2.9	2.9
<b>PRODUCTION</b>	71.2	71.6	80.4	82.2	67.9	78.6	77.8	74.2	68.7
Hydro power	13.0	10.6	9.5	14.9	13.6	11.3	14.0	16.9	12.6
Wind power	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2
Nuclear power	21.9	21.4	21.8	21.8	22.3	22.0	22.5	22.0	22.5
Conv. therm. power	36.3	39.5	49.0	45.4	31.8	45.1	41.1	34.9	33.3
Co-gen. CHP	25.7	27.2	28.0	28.2	26.1	27.6	26.8	26.7	24,2
distr heat	14.1	14.9	15.3	15.1	14.4	14.5	14.4	15.5	14,8
industry	11.6	12.3	12.7	13.0	11.6	13.1	12.3	11,2	9,4
Condensing etc.	10.6	12.4	21.0	17.2	5.7	17.5	14.4	8.2	9,1
conv.	10.6	12.3	21.0	17.2	5.7	17.5	14.4	8,2	9,1
GT etc.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0,0	0,0
<b>IMPORTS from</b>	11.8	13.5	11.9	11.7	17.9	15.4	15.4	16.1	15.5
Sweden	4.1	5.4	0.5	0.4	6.4	3.7	3.1	2.8	1.9
Norway	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1
Russia	7.7	7.9	11.3	11.1	11.3	11.6	10.2	10.9	11.7
Estonia							1.9	2.3	1.8
<b>TOTAL SUPPLY</b>	83.0	85.1	92.3	93.8	85.8	94.0	93.2	90.2	84.2
<b>EXPORTS to</b>	1.8	1.5	7.0	6.8	0.9	3.8	2.9	3.3	3.4
Sweden	1.6	1.4	6.9	6.6	0.8	3.7	2.7	3.3	3.2
Norway	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1
Russia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estonia							0.0	0.0	0.0
<b>GROSS CONSUMPTION</b>	81.2	83.5	85.2	87.0	84.9	90.1	90.4	86.9	80.8
Incl. electric boilers	0.1	0.1	0.1	0.1	0.1	0.1	-	0.1	0.1

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 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 4 shows the marginal cost of production in the Nordic countries.



**Figure 4. Marginal cost of production in the Nordic countries. (Source: Kesikallio, Lindholm: The Nordic Electric Power market. Ministry of Trade and Industry Finland report 11/2003).**

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

As regards the Nordic countries, Finland is physically connected to Sweden and Norway. The transmission capacity from Finland to Sweden is 1,650 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 3,800 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.

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

Approximately 70 percent the electricity used in the Nordic market area is traded through power exchange whereas remaining 30 percent is traded via bilateral transactions or internal procurement. For Finland, Sweden, Denmark and Kontek interconnector an additional ele-



ment 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 June 2010, the total number of participants having direct trading at Nord Pool Spot AS – sellers and buyers – was 248.

In 2009, the volume of electricity traded in Nord Pool Spot AS amounted to 291 TWh with a slight decline from the previous year (297.6 TWh in 2008). The market share of Nord Pool Spot AS from the consumption in the Nordic countries rose to 72 per cent in 2009 from 70.1 per cent in 2008. 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.

Transmission System Operators (TSOs), Elering in Estonia and Fingrid in Finland, rented a part of Estlink for market from the 1<sup>st</sup> 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.

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 54.3 per cent of the Finnish consumption in 2009. Figure 5 presents the share of electricity bought from Nord Pool Spot AS in relation to the electricity consumption in Finland during the years 1998-2009.

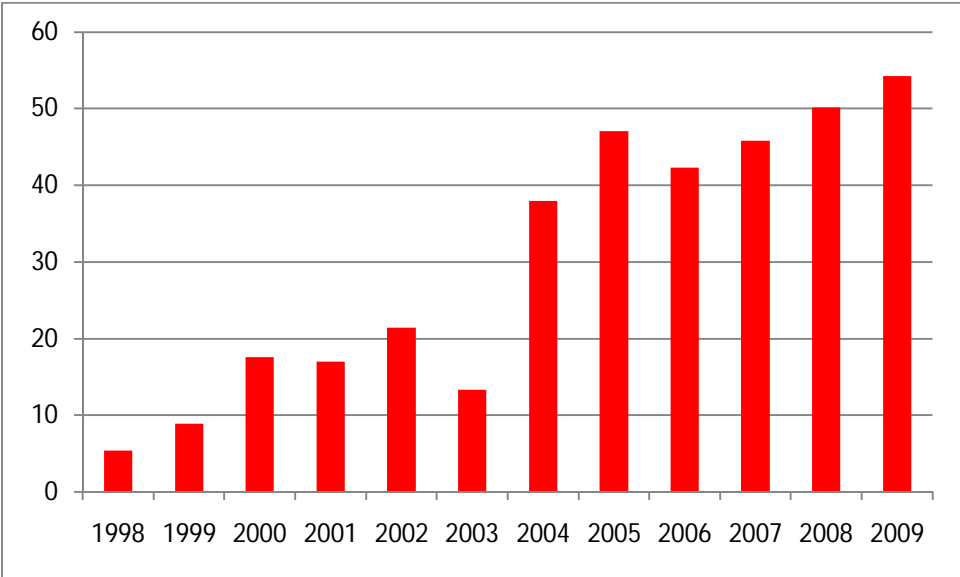


Figure 5. The percentage share of electricity bought from power exchange in relation to the electricity consumption in Finland. (Source: Nord Pool Finland Oy)

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

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 year 2009, about 96 per cent of the time Finland and Sweden belonged to the same price area – a decrease of 1.5 per cent 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 2009 the average day-ahead area price for Finland in Nord Pool Spot was EUR 36.98 EUR/MWh, down 27.5 per cent from the previous year (EUR 51,02 per MWh) and closer to the figure of 2007 (EUR 30.01/MWh). The average day-ahead system prices amounted to EUR 35.02 for 2009, 44.73 for 2008, 27.93 in 2007 and 48.59 in 2006. The price differences between the Nord Pool Spot areas were smaller in 2009 than in 2008. Lower consumption contributed to smaller price differences in 2009 than the year before. In 2009 the highest average price was in Eastern Denmark while South Norway had the lowest average price. The average price in South Norway was more than EUR 6 lower than the average price in Eastern Denmark. Lower consumption contributed to lower prices in the Nordic region in 2009 than in 2008. There were also higher generation costs for thermal power plants for most of 2008 than 2009.

### **Ancillary services**

The TSO provides system services (ancillary services) in Finland. Technical properties of system services are presented in more detail in Section 5.1.5.

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<sup>11</sup> 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.

---

<sup>11</sup> Source Fingrid Oyj

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 will be in effect from 2005 to 2015.

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

### **Acquisitions and mergers**

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

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

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

The Court’s decision is founded on inter alia that a) there is a Nordic electricity transmission grid and the trading mechanism offered by Nord Pool; b) the prices in Finland and Sweden correlate; c) the number of congestion hours between Finland and Sweden is not significant; d) it is not feasible to build a transmission grid that would never be congested; e) there will be more transmission capacity between Sweden and Finland in 2011. Furthermore the Court did

not accept the FCA's findings that one doesn't have to be able to predict the congestion precisely in order to take advantage of the separation of the price areas and some market parties can with the use of simulation models and the knowledge and experience gained through operating a wide variety of production capacity predict the separation of the markets.

The FCA has appealed the decision to the Supreme Administrative Court. The case is still pending.

In 2009 there were no remarkable changes in the market structure.

### **3.2.2 Description of the retail market**

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

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

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

There are today 67 electricity retailers having the obligation to supply within at least one distribution network area of responsibility. Many of the electricity retailers are part of companies involved in the network business. On July 1<sup>st</sup>, 2010 there were 32 electricity retailers who had the obligation to supply and who were legally unbundled from electricity network activities. Only a few electricity retailers are ownership unbundled from electricity network activities. Most of the legally unbundled electricity retailers still belong to same group of companies as a distribution system operator. Some electricity retailers are owned by distribution system operators.

In the Finnish electricity retail market there are about 4 electricity retailers with a larger than 5 per cent share of market. The exact 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 35-40 per cent (Table 7).

Some large foreign players have entered the Finnish retail supply market by acquiring local electricity companies. Those companies are active both in electricity retail supply and distribution businesses. These companies also own electricity generation in Finland. In the electricity retail supply market the share of those companies amount to some 10-20 per cent. In addition to these, a couple of retailers from other Nordic countries have started operations as independent suppliers in Finland.

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.

In addition to the 67 electricity retail suppliers with an obligation to supply, in the beginning of July 2010 there were about 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 network companies. The market share of these companies is only a few per cent.

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

	Total retail consumption (TWh)	No. of companies with >5% retail market	Number of <u>fully</u> independent suppliers (1)	Market share of three largest retail companies (%)		
				large and very large industrial	small-medium industrial and business	very small business and household
2001	43.6	4	< 5	N/A	35-40	
2002	45.0	4	< 5	N/A	35-40	
2003	45.5	4	< 5	N/A	35-40	
2004	45.9	5	< 5	N/A	35-40	
2005	46.3	5	< 5	N/A	35-40	
2006	47.9	4	< 5	N/A	35-40	
2007	48.2	4	< 5	N/A	35-40	
2008	49.2	4	< 5	N/A	35-40	
2009	50.6	4	< 5	N/A	35-40	

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

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. The Energy Market Authority has not collected statistical information on actual time delays for switching.

The Energy Market Authority has started in 2007 to collect information on supplier switching activity. Table 8 shows the share of customers who have changed the supplier in 2006 - 2009. Approximately 8.1 per cent of the Finnish electricity customers have switched supplier in 2009. The switching rate almost doubled compared to previous year.

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

	Households and other permanent dwellings		Other customers		Total
	< 10000 kWh/a	>10000 kWh/a	Max 3x63 A	>3x63 A	
2006	3.1 %	7.7 %	3.8 %	7.7 %	4.2 %
2007	3.0 %	6.8 %	3.3 %	8.0 %	4.0 %
2008	3.4 %	5.6 %	2.8 %	6.2 %	4.4 %
2009	7.2 %	10.9 %	5.1 %	11.6 %	8.1 %

The estimated national average electricity prices during the second half of 2009 for three reference customer bands defined by Eurostat are shown in Table 9. Energy costs and supply margin for household customer at the table are based on public energy tariffs. Negotiated and actual energy prices might be different.

**Table 9. Electricity prices for reference customer bands during period 1.7-31.12.2009.** <sup>12</sup>

Euro/MWh	Band Dc	Band Ib	Band Ie
Network charges (excl. levies)	41.7	26.2	4.5
Levies included in network charges	-	-	-
Energy costs and supply margin	55.1	48.5	48.1
Taxes (incl. Electricity tax and VAT)	32.1	19.6	14.8
Total (including all taxes)	128.9	94.3	67.4

<sup>12</sup> 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.

During 2009 total electricity prices for consumers (household 5000 kWh) increased by 1.6 per cent on average. That includes network charges (rose by 6.6 per cent) and energy price (declined by 2.3 per cent).

According to the Electricity Market Act the customers may submit a complaint regarding the practices of electricity distributors or retailers. The total number of action requests related to electricity market operators in 2009 submitted to Energy Market Authority was 126. Out of these 20 were cases regarding pricing of distribution services. The average processing time was 2.1 months.

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 inconsistencies in invoicing
- General complaints regarding practices of the supplier

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

Complaints regarding connection charges or quality of supply, as a rule are analyzed 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. If the decision includes obligations to the network operator and the network operator is not satisfied with the decision, the company may make an appeal to the Market Court and further to the Supreme Administrative Court.

Complaints regarding the network charges are handled in conjunction with the regulation of the network charges within the regulatory period. The network operators are permitted to earn during a regulatory period of 4 years a reasonable return on invested capital. The Energy Market Authority confirms before each regulatory period the methodology for determining the return on electricity network operations during the regulatory period. After the end of the regulatory period the Energy Market Authority confirms for each network operator the amount of earnings in euros accrued during the regulatory period that has exceeded or fallen below an earnings level that is considered reasonable (supervision decision). If the earnings accrued during the regulatory period exceed the earnings level that is deemed reasonable, then the Energy Market Authority will issue a supervision decision requiring the network operator to take into account the said windfall profit in pricing during the next regulatory period by reducing its distribution service charges. The windfall profit will automatically reduce by a corresponding absolute sum the earnings that are deemed reasonable for the next regulatory period. On the other hand, if the earnings accrued during the regulatory period fall below the earnings level that is deemed reasonable, then the Energy Market Authority will issue a supervision decision confirming that the network operator may take into account the said windfall loss in pricing during the next regulatory period by increasing its distribution service charges.

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.

Complaints regarding the marketing practices of the suppliers and other consumer protection issues are dealt with by Consumer Agency.

The Energy Market Authority maintains a website designated for the customers where the customers may search for better power offers. All the suppliers are obligated to maintain up-to-date information on their offers on this website. 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. During the year 2009 there were altogether 2.8 million search requests performed on the site.

### **3.2.3 Measures to avoid abuses of dominance**

#### **Competition supervision**

The responsibility of supervising the electricity generation, wholesale supply and retail supply falls primarily to the Finnish Competition Authority. The Electricity Market Act in Finland does not include any rules governing the generation and supply of electricity except supervision of retail supply under obligation to supply (the kind of "regulated market"), the monitoring of security of supply and unbundling. On the basis of the Act on Competition Restrictions (No. 480/1992, last amended in 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 EC Treaty.

The following are considered as abuse of dominant position under Article 6 of the Finnish Competition Act:

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

The Finnish Competition Authority works, among other industries, also in the electricity sector to promote healthy competition and to investigate antitrust and merger cases. In the Finnish Competition Act there are no special provisions related to the abuse of dominant position in the electricity market. The Finnish Competition Authority's analysis is always case-specific and there are no universally applicable criteria which could be used in the decision making.



The Finnish Competition Authority's view is that energy sector cases should be assessed on equal standard with cases in other industries. Nor has the Finnish Competition Authority gathered up any special information of the electricity markets. However there is a one special provision related to merger control on the electricity sector. Market Court may, upon the proposal of the Finnish Competition Authority, prohibit a concentration in the electricity market as a result of which the combined share of the transmission operations of the parties to the concentration and the entities or facilities in such a relation to them of the amount of electricity transmitted at 400 V in the transmission grid exceeds 25 per cent on a national level. So far the Finnish Competition Authority has not investigated a merger where this provision could have put into practise.

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

### **Transparency and provision of information**

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

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

As required by the Norwegian Stock Exchange Act and the related regulations on market surveillance, Nord Pool has established its own market surveillance department. The department is responsible for monitoring trading activities and the conduct of participants both in the physical and the financial power market. The market surveillance is intended to ensure that the activities of the market actors are in line with the prevailing statutes and regulations as well as with the power exchange's own rules.<sup>13</sup>

---

<sup>13</sup> Source: Nord Pool ASA Annual Report 2004, p. 10.

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

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

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

In June 2005, Nord Pool ASA decided to introduce further measures to deter and penalise breaches of the trading rules at the power exchange – including the establishment of a disciplinary committee. The committee will contribute to ensure that safer and more appropriate reactions are applied against a market participant or participants involved in possible contraventions of the exchange rules.<sup>14</sup>

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 disciplinary committee and substantially increasing the maximum violation charge, Nord Pool intends to ensure that no market participant is tempted to break the trading rules at the expense of the market and its other participants.

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

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

Furthermore, on the basis of Section 36a of the Electricity Market Act, the power plant operator is obliged to notify the Energy Market Authority of a planned maintenance outage of its power plant practising separate electricity generation, with an output of 100 mega-volt-amperes, which would take place between the 1<sup>st</sup> of December and the 28<sup>th</sup> 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

---

<sup>14</sup> 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](http://www.nordpool.com/information/press_releases/2006-003.html)

of a power plant be rescheduled outside the period of the 1<sup>st</sup> of December and the 28<sup>th</sup> 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.

## **4. Regulation and Performance of the Natural Gas market**

### **4.1 Regulatory Issues**

#### **4.1.1 General**

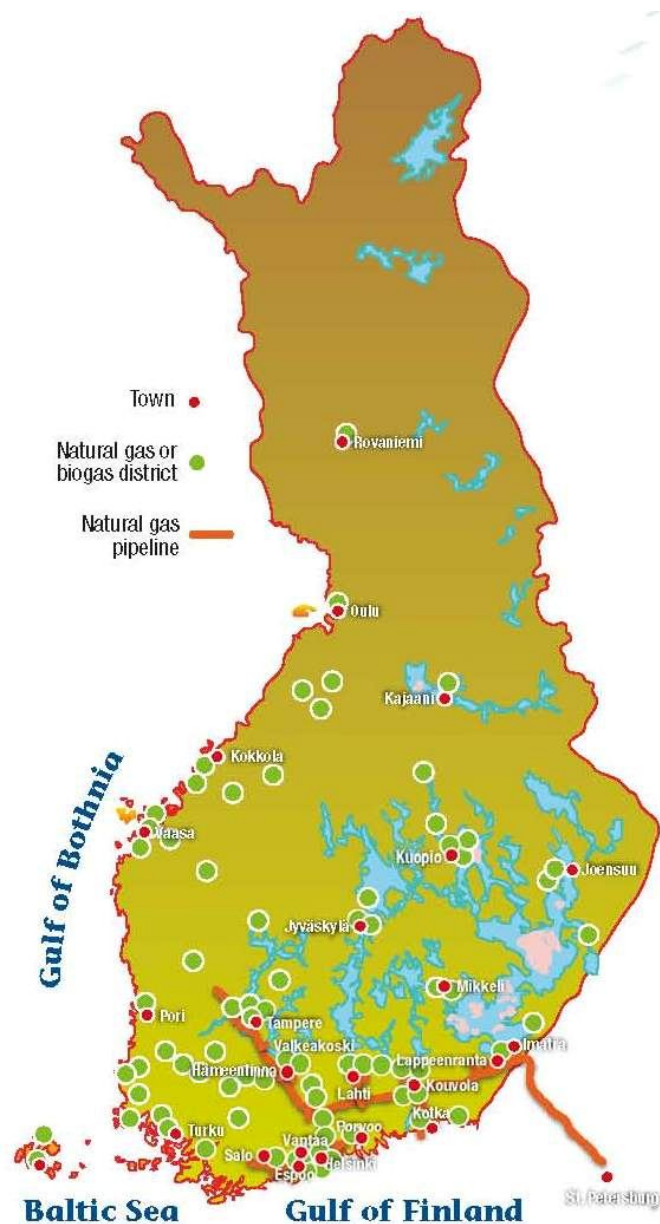
The Finnish natural gas market has been under sector-specific regulatory supervision since the assertion of the Natural Gas Market Act in August 2000. The Natural Gas Market Act was amended at the beginning of the year 2005 to implement the Natural Gas Market Directive (2003/55/EC). The Natural Gas Market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

The Finnish natural gas market is relatively isolated with a pipeline connection only to the importing country Russia. There is only one importer and wholesale supplier – Gasum 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 31 local natural gas distribution network operators at the end of the year 2009. As can be seen from the Figure 6, all the Finnish DSO's and the consumption sites of natural gas are situated in the southern part of the country along the main transmission pipeline.



**Figure 6. 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 are plans to extend the gas pipeline to the western coast of Finland but a decision on it has not been made. Increasing the volume of the gas market would be important in making additional import connections economically viable. Furthermore, it would be important for Finland to be connected to the Baltic States gas network as well. When implemented, the Baltic connector linking the networks of Finland and Estonia would offer the possibility to optimise the transmission of natural gas to Finland and the Baltic States. In addition to forming a connection to Latvia's gas storages, the new pipeline would open up the possibility to subsequently begin the importation of LNG as a joint venture carried out among the region's gas companies.

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

The Finnish natural gas transmission network is only connected to the Russian natural gas pipeline, which provides for the whole supply of natural gas to Finland. In Finland there is only one natural gas wholesale company, Gasum 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.

#### **4.1.3 The regulation of the tasks of transmission and distribution companies**

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. Its ownership is divided between the State of Finland, Fortum Heat and Gas Oy, E.ON Ruhrgas International AG and OAO Gazprom. Approximately 80 per cent of Finnish DSOs are wholly or mainly owned by municipalities. The remaining 20 per cent of DSOs are owned by other companies from the industry.

##### **Network Tariffs**

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

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

The methodology of setting network tariffs will be confirmed prior to a regulatory period of four years. The first regulatory period covered the years 2006 – 2009 and the second covers the year 2010 - 2013. 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. In September 2009 the Energy Market Authority confirmed the methodology for the second regulatory period in 2010 – 2013. Energy Market Authority will validate the realized profits of network operations for 2006 – 2009 and give a decision on reasonable pricing for the first regulatory period during autumn 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. For natural gas TSO the confirmed methodology includes incentives to maintain and improve its cost efficiency and security of supply level.

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

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

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

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

Table 10. Natural gas transmission charges for reference customers (Euro/MWh, excluding taxes). Table 10 shows the transmission tariffs of Gasum Oy for reference customers from the year 2001 to the spring of 2010; the entity is Euros per MW and prices are without taxes, and the customers are supposed to have a yearly consumption of 50 – 1,000 GWh, during 4,000 – 6,000 hours and peak power of 12.5 – 166.7 MW. Gasum Oy's tariff system is based on so called post-stamp model.

**Table 10. Natural gas transmission charges for reference customers (Euro/MWh, excluding taxes).**

<b>GWh</b>	<b>50</b>	<b>50</b>	<b>150</b>	<b>150</b>	<b>500</b>	<b>500</b>	<b>1 000</b>	<b>1 000</b>
<b>h</b>	<b>4,000</b>	<b>6,000</b>	<b>4,000</b>	<b>6,000</b>	<b>4,000</b>	<b>6,000</b>	<b>4,000</b>	<b>6,000</b>
<b>MW</b>	<b>12.5</b>	<b>8.3</b>	<b>37.5</b>	<b>25.0</b>	<b>125.0</b>	<b>83.3</b>	<b>250.0</b>	<b>166.7</b>
<b>2001</b>	6.25	4.78	6.19	4.72	4.26	4.67	4.22	3.04
<b>2002-2005</b>	5.70	4.41	5.32	4.05	4.12	2.98	4.08	2.95
<b>2006</b>	7.06	5.64	6.48	5.10	4.66	3.43	4.62	3.39
<b>2007</b>	7.43	5.94	6.83	5.37	4.92	3.62	4.87	3.58
<b>2008</b>	8.07	6.46	7.41	5.83	5.33	3.92	5.28	3.88
<b>2009</b>	8.79	7.03	8.07	6.35	5.81	4.27	5.75	4.22
<b>2010</b>	9.32	7.45	8.56	6.73	6.15	4.53	6.09	4.48

On the basis of statistics in year 2009 delivered by the distribution system operators to the Energy Market Authority it can be concluded that interruptions of supply on the distribution level were minimal during the year 2009 with total of 5 interruptions in distribution companies. In the Finnish transmission network there were 3 unplanned service interruptions during year 2009.

### **Balancing**

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

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

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

The balancing period applied to natural gas trading on the Kaasupörssi Oy – the natural gas exchange – was changed from six hours to one hour as of 1 January 2007. The reform was based on an amendment to decree 974/2000 of the Ministry of Trade and Industry, aimed at enhancing the flexibility of secondary market trading.

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



### **Capacity allocation mechanism**

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

#### **4.1.4 Effective Unbundling**

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

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

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

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

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

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

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

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

## **4.2 Competition Issues**

### **4.2.1 Description of the wholesale market<sup>15</sup>**

In the year 2009, the size of the Finnish natural gas market was 4.1 bcm (at 15 °C / 3.2 Mtoe), 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 8,000 MW, so the maximum transmission capacity is often at use in cold winter days. Maximum 24-hour use was 20.5 million m<sup>3</sup> (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 31<sup>st</sup> of December 2025. The agreement marks a substantial increase in gas sales to Finland, with an annual level of 6 bcm.

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 the year 2009, the share of wholesale supply sold under public tariffs increased to some 75 per cent. The whole contract-based trading covers some 90 per cent of the wholesale market. Additionally, Gasum 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 28 companies currently trade on the Kaasupörssi (Gas exchange) Oy. Monthly volumes in secondary market have varied from 11 GWh to 84 GWh during the year 2009. At the same time the system price has varied from 17 to 40 euro/MWh. Total volume in the secondary market covered about 1.2 per cent of natural gas consumption in Finland.

### **4.2.2 Description of the retail market**

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

In Finland there are only about 36 000 customers in the natural gas market. Less than 150 customers - heavy industrial users as well as power and district heating plants - use more than 95 per cent of the total natural gas consumption in Finland. The largest customer segment

---

<sup>15</sup> Defined to cover any transaction of gas between market participants other than final end-use customers

(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 2009 there were 23 natural gas retail suppliers. During 2009 number of retail suppliers decreased due to mergers. 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. The retail supply of natural gas has grown with an annual rate of 2 per cent. In addition to the original domestic retail suppliers, there are also retail suppliers owned by foreign-based companies. The market entrance of the foreign-based companies has occurred through acquisitions.

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

Estimated national average natural gas prices in February 2009 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 February 2009.<sup>16</sup>**

Cent/kWh	I4-1
Network charges (excl. levies)	0.81
Energy costs and supply margin	2.37
Taxes	0.21
Total (excluding VAT)	3.39

In the secondary market, which compared to the total Finnish natural gas market constitutes to 1.2% the prices are market based. There are 25 members in the secondary market who represent all the major gas users in Finland. In the year 2009 there were about 69,000 transactions in the secondary market and the prices varied between 17.33 and 25.81 euro/MWh during 2009.

### **4.2.3 Measures to avoid abuses of dominance**

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. Energy Market Authority gave a decision on the pricing methodology for the natural gas transmission network pricing during autumn 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

<sup>16</sup> Reference customer: annual consumption 150,000 MWh, 4,000 hours.

pricing of transmission network services provided by Gasum Oy 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 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 Act 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 has appealed against ruling to the Supreme Administrative Court which is the highest appellate instance. The case is still pending.

# 5. Security of supply

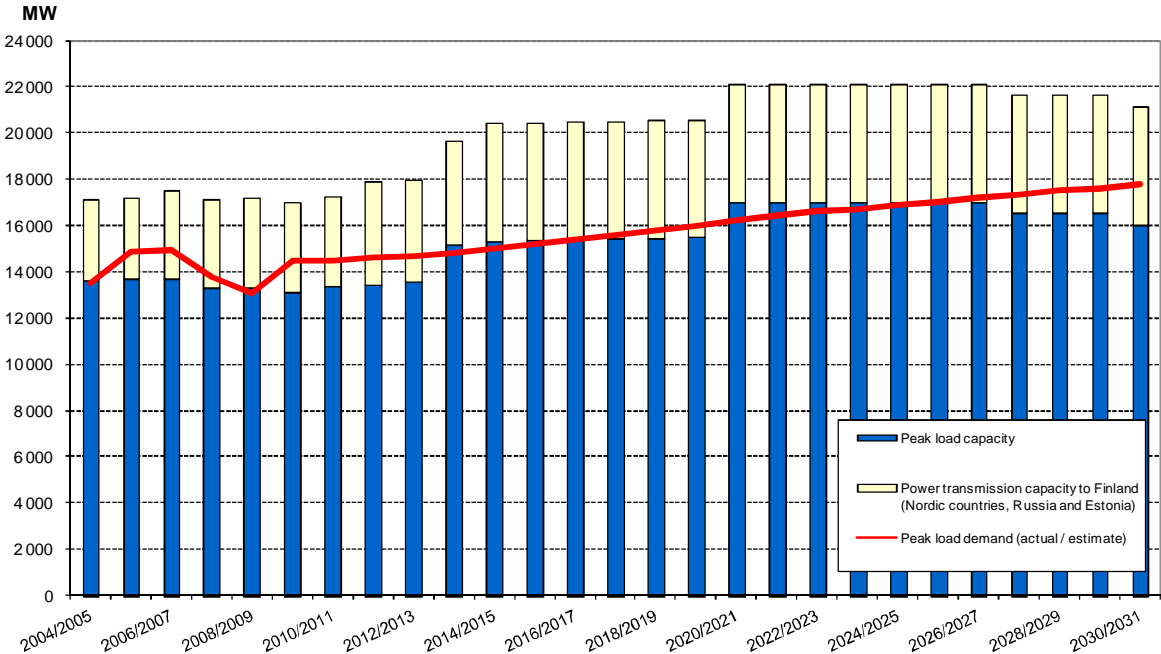
## 5.1 Electricity

### 5.1.1 Supply-demand situation during the peak load

The Energy Market Authority has estimated that Finland had 13,100 MW of generation capacity was available in winter season 2009 - 2010. The power reserves related to system disturbances in Finland were 1,180 MW. At the end of 2009, the installed nominal capacity of power plants was 16,566 MW. The peak load in total electricity consumption in 2009 was 13,920 MW compared to the record peak load in February 2007 of 14,808 MW. During the 2009 peak demand, power generation in Finland was about 11,120 MW and import to Finland 2,800 MW.

Based on estimates given by the Ministry of Employment and the Economy the peak load demand in the next winter season 2010 - 2011 would be 14,500 MW. The peak load demand is estimated to increase to 15,200 MW in winter 2015 - 2016. Total demand for electricity in Finland in 2015 is estimated to be about 92 TWh. In year 2025 total demand for electricity is estimated to be about 103 TWh and peak load demand in winter 2025 - 2026 17,000 MW. Figure 7 presents the peak load demand and generation capacity balance during wintertime (actual and forecasts) for the years 2004/2005 – 2030/2031.

Figure 7 presents the peak load demand and generation capacity balance during wintertime (actual and forecasts) for the years 2004/2005 – 2030/2031.



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

In the years 2010 - 2012, domestic electricity generation capacity will not be sufficient to cover the electricity consumption during peak consumption periods in a normal year. Depend-

ency on imports will significantly decrease once the new nuclear power plant unit (Olkiluoto 3) has been completed in 2013. Originally the new unit should have been commissioned by the end of 2009, but the present estimate of commissioning the plant is 2013. In the years 2013 - 2015 the peak load balance is assumed to be slightly positive if some 600 MW old condensing power, which are currently in power reserve system, would stay in operation.

The import capacity of electricity in year 2009 from neighbouring countries to Finland was about 3,850 MW. At the beginning of year 2007, transmission capacity increased by 350 MW when the Estlink DC line between Estonia and Finland was completed.

## 5.1.2 Generation capacity

The total available generation capacity in the winter season 2009 - 2010 was about 13,100 MW in Finland. The capacity included in about 600 MW of condensing power capacity that was not available for Nordic spot market in 2006. Total installed generation capacity in Finland was about 16.6 GW in 2009. Installed wind generation capacity was 147 MW in 2009. 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 2010 - 2011 is about 13,350 MW. Table 12 presents the generation capacities in peak loading by production type during the years 2000 - 2010.

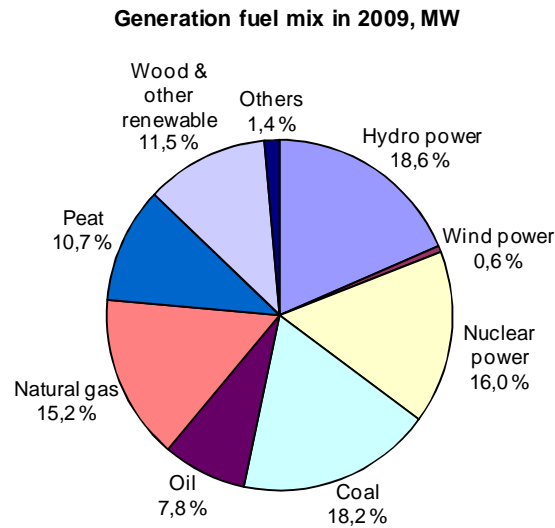
**Table 12. Electricity Generation Capacities in Peak Load Period, MW.<sup>17</sup>**

	Separate Electricity Generation			Gas turbines and engines	Combined Heat and Power		Capacity of power stations	Power system reserves
	Hydro power	Nuclear power	Condensing power		Industry	District heat		
2000	2,430	2,640	4,000	800	1,570	3,320	<b>14,760</b>	..
2001	2,460	2,640	4,000	800	1,610	3,400	<b>14,910</b>	..
2002	2,480	2,640	3,990	800	1,780	3,420	<b>15,110</b>	..
2003	2,490	2,680	3,200	20	2,180	2,910	<b>13,480</b>	1,030
2004	2,500	2,680	3,200	20	2,200	2,900	<b>13,500</b>	1,080
2005	2,520	2,680	3,200	10	2,290	2,900	<b>13,600</b>	1,080
2006	2,550	2,680	3,200	10	2,290	2,920	<b>13,650</b>	1,060
2007	2,350	2,720	2,800	10	2,450	2,790	<b>13,120</b>	1,046
2008	2,350	2,700	2,650	-	2,450	3,150	<b>13,300</b>	1,180
2009	2,350	2,700	2,650	-	2,450	3,150	<b>13,300</b>	1,180
2010*	2,550	2,700	2,200	-	2,300	3,350	<b>13,100</b>	1,180

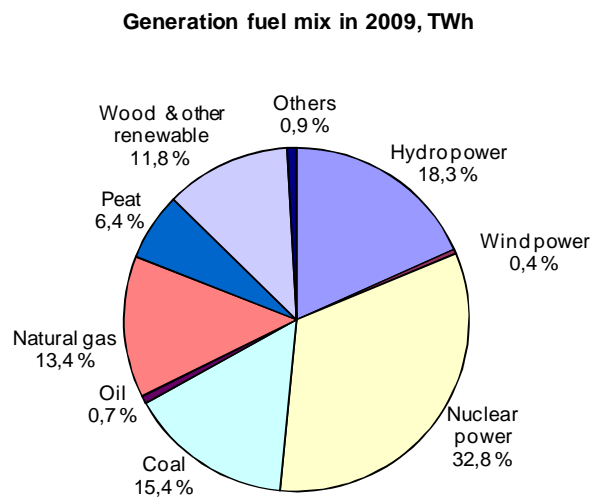
Source: Statistics Finland

Generation fuel mix for capacity and energy from the year 2009 is presented in Figure 8 and Figure 9. During the next two years (2011 - 2012) it is not expected to be any significant changes in fuel mix for power generation in Finland. Nuclear capacity will increase in 2013 by 1,600 MW. The main fuels for new CHP capacity in 2010 - 2014 will be biomass and peat.

<sup>17</sup> The simultaneously available capacity (net) of power plants during extreme cold and dry water situations, which can be produced during one hour in Finland. The calculation method was amended in 2003, when the reserve capacities related to system maintenance were placed into a separate column. Numbers for 2010 are at beginning of year.



**Figure 8. Generation fuel mix for capacity (MW) in 2009.**



**Figure 9. Generation fuel mix for energy (TWh) in 2009.**

The power generation capacity (commissioned new capacity minus decommissioned capacity) has declined some 200 MW in 2009 compared to 2008 despite the fact that some new generation capacity was commissioned. This was due to the fact that at the same time some old generation capacity was decommissioned.

Electricity production capacities under planning or construction at the moment are presented in Table 13. Construction project for the fifth nuclear power plant unit (Olkiluoto 3) is going ahead. The new plant is planned to be in production in 2013 with total electricity generation capacity (about 1,600 MW).

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 con-

structuring a new nuclear power plant in Simo or Pyhäjoki were both approved. On 1<sup>st</sup> July 2010, the Finnish Parliament voted on the two decisions-in-principle approved by the Government in May for the construction of additional nuclear power plants. These new nuclear power plants would be in operation in 2020's.

Wind power capacity is estimated to increase up to 2,500 MW by year 2020 if the proposed feed-in tariff system will be approved in Finland. Feed-in tariff has been proposed for biogas and wood-driven power capacity also.

About 1,700 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 13. Forthcoming new generation capacity in 2010-2014 (in peak load period).**

	Forthcoming new capacity (MW)			
	Hydro	CHP		Nuclear power
		District heat	Industry	
2010	24	159	104	30
2011	24	-	-	30
2012	13	70	-	-
2013	35	-	-	1600
2014	14	64	-	-

### 5.1.3 Role of regulatory authorities

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

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

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



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

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

In Finland the State can grant investment subsidy for power plant construction project if the new production is based on renewables, including wind power. Power producer can also get subsidy for produced electricity generated by wind power or low capacity hydro power and also for electricity generated by certain fuels (for example wood and biogas). Large peat condensing power plants can get limited feed in tariff during years 2007 – 2010. System is limited for total capacity of about 400 MW and maximum for 3 900 hours per year. Tariff depends on prices of coal and CO<sub>2</sub>-emission. Temporary (2007 - 2011) power reserve tendering system was introduced at the beginning of 2007. In this system condensing power plant can get compensation for fast start up time (in 12 hours).

#### **5.1.4 Major infrastructure projects on interconnections**

##### **Fenno-Skan 2**

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

##### **EstLink 2**

Fingrid has made a capital investment decision concerning the second direct current transmission link, 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 execution of the project still requires that the recently-opened (spring 2010) electricity

market in Estonia starts off favourably and that the project receives an investment subsidy of EUR 100 million from the European Union.

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.

### **5.1.5 TSO and security of supply issues**

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

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

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

The power system in Finland is planned in accordance with principles agreed jointly between Nordic TSOs in Nordic Grid Code<sup>18</sup>. The main planning principle is that the power system has to withstand any single fault (n-1 criteria). A dimensioning fault (worst possible fault) varies on the basis of the operational situation of the Finnish grid, but is often the tripping of the largest production unit or an extensive busbar fault.

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

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

For disturbance management purposes, both power and transmission reserves are maintained in the Finnish power system. TSO is responsible for the maintenance of reserves that are needed in the Finnish power system. For this, TSO uses its own resources and also purchases

---

<sup>18</sup> Available on website [www.entsoe.eu](http://www.entsoe.eu)

reserve maintenance from other resource owners. Restoration of the power system from severe disturbance incidents is headed by TSO's Power System Control Centre.

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

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

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

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

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

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

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

## 5.2 Gas

All natural gas supplied in Finland is imported from Russia. There are no natural gas production or storage facilities in Finland. The natural gas consumption in 2009 was 4.1 bcm (at 15 °C/3.5 Mtoe). Gasum Oy has estimated that gas consumption will be about 4.3 bcm in 2010. Based on estimates given by the Ministry of Employment and the Economy natural gas consumption will increase to 5.2 bcm (4.5 Mtoe) in year 2020 and stay same 5.2 bcm (4.5 Mtoe) in year 2030. 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 6 bcm (5.2 Mtoe).

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

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

The TSO, Gasum Oy, has plans to expand its natural gas transmission pipeline to the western part of Finland. At the moment new gas transmission pipeline is under planning between Lempäälä and Kangasala (34 km). Gasum has also decided to build a new pipeline from Mäntsälä to Siuntio (89 km).

Additionally, the TSO has launched together with Gazprom, Eesti Gaas and Latvijas Gaze a project to examine the feasibility of constructing a pipeline to link Finnish, Estonian and Latvian natural gas networks. This new pipeline would enable that the Latvian natural gas storage facilities could be used to improve reliability in natural gas transmission to Finland. A full scale environmental impact assessment (EIA) procedure will be carried out, concentrating in to the offshore section of the project. The present gas transmission network and the planned projects are shown in Figure 10.

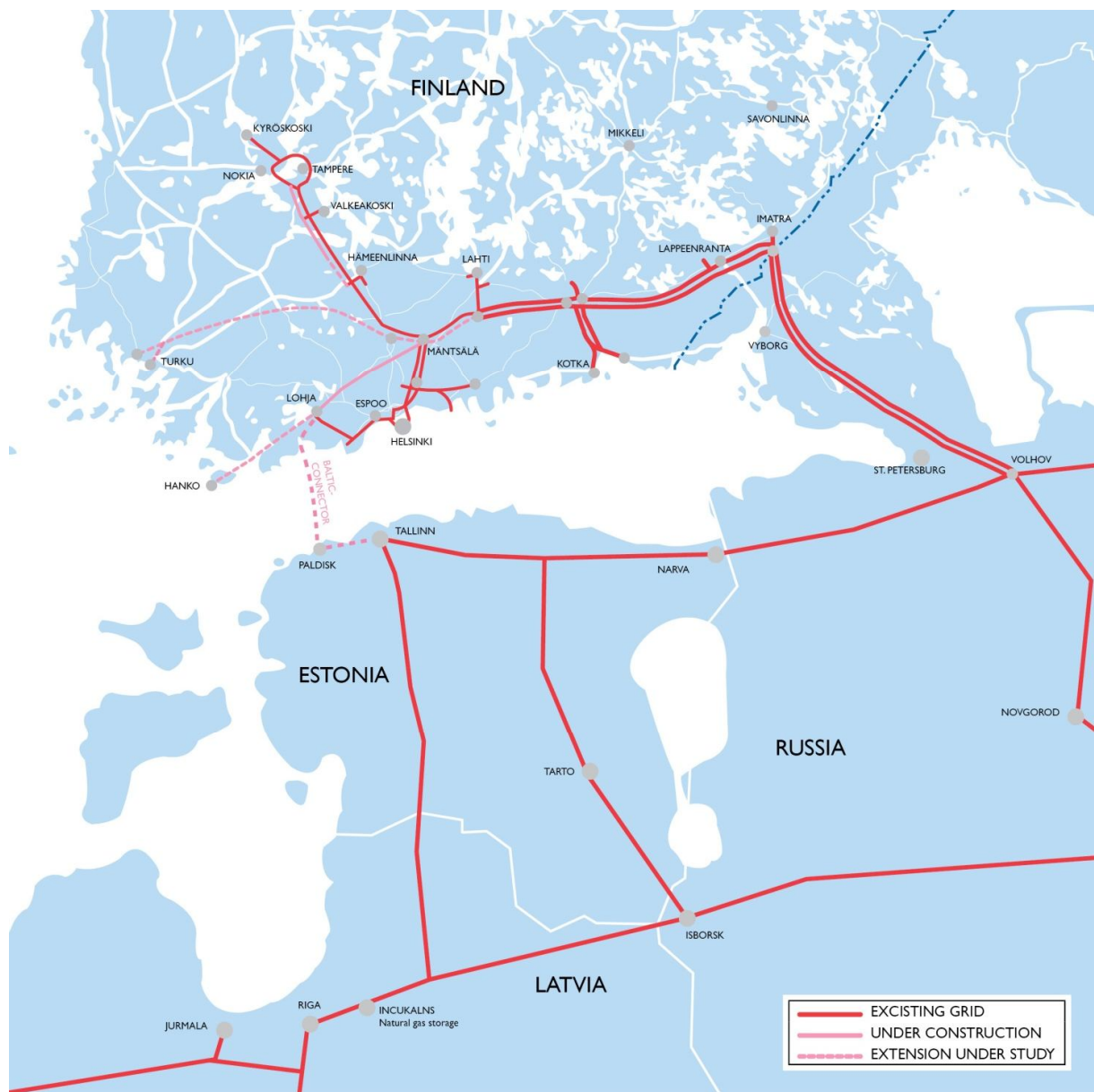


Figure 10. Natural gas transmission network and planned reinforcements.

## **6. Public Service Issues**

### **6.1 Electricity**

#### **6.1.1 Obligations of market participants**

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

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

#### **6.1.2 The implementation of labelling for primary energy source**

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

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

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

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

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

### **6.1.3 The implementation of Directive Annex A criteria**

#### **Information to be given before concluding a contract**

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

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

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

#### **Publicising the terms and fairness of the terms**

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

Regarding networks services the Section 12 of the Electricity Market Act states that the network operator shall publish the general terms of sale and the prices of its network services as well as the underlying criteria. Furthermore, Section 14 states that the sale prices and terms of the network services and the criteria according to which they are determined shall be equitable and non-discriminatory to all network users. Exceptions to them may only be on special

grounds. The pricing of network services shall be reasonable and must not present any unfounded terms or restrictions obviously limiting competition within the electricity trade.

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

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

### **Amending the terms of contract**

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

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

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

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

### **Marketing**

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



### **Changing the electricity supplier**

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

### **Dispute settlement**

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

The Consumer Ombudsman may bring the class action, for instance, against a network operator or electricity supplier and act as the representative of the class in a general court of law.

#### **6.1.4 Appropriate treatment of vulnerable customers**

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

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

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

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

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

### **6.1.5 Disconnections for non-payment in 2009**

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

### **6.1.6 End-user price supervision of electricity**

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

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

Information on supplier switching rates is presented in chapter 3.2.2.

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

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

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

## **6.2 Gas**

### **6.2.1 The implementation of Directive Annex A criteria**

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

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

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

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

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

The Consumer Ombudsman may bring the class action, for instance, against a network operator or gas supplier and act as the representative of the class in a general court of law.

### **6.2.2 Appropriate treatment of vulnerable customers**

According to the Natural Gas Market Act (Chapter 4 Section 1) the supplier in a dominant market position in a natural gas network shall supply natural gas at a reasonable price upon the request of a customer connected to the network, if the customer has no other economically competitive options to purchase natural gas through a natural gas network (obligation to sup-

ply). The Energy Market Authority may order the natural gas retailer to supply natural gas to the natural gas consumer, if the latter has no other possibility to obtain natural gas.

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

Data on the number of disconnections for non payment in 2009 is not available.

### **6.2.3 End-user price supervision of gas**

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

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

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

In March 2008 the Energy Market Authority made a decision on whether the pricing of wholesale supply of natural gas had been reasonable. The decision dealt with the pricing 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. The Market Court's decision can be appealed to the Supreme Administrative Court. Gasum has appealed the Market Court's decision to the Supreme Administrative Court that is the final instance for appeal.

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

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

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