

549/652/2007

31.7.2007

Annual Report to the European Commission

Finland

| | |
|--|-----------|
| 1. Foreword | 4 |
| 2. Major Developments in the last year | 6 |
| 2.1 The Regulatory Authority | 6 |
| 2.1.1 Organization and legal basis of the regulatory authority | 6 |
| 2.1.2 Main tasks, statutory objectives and legal powers | 6 |
| 2.1.3 Independence and accountability | 7 |
| 2.1.4 Overlapping jurisdictions | 8 |
| 2.2 Main developments in the gas and electricity markets | 8 |
| 2.2.1 Electricity market | 8 |
| 2.2.2 Natural gas market | 11 |
| 2.3 Major issues dealt with by the regulator | 11 |
| 2.3.1 Electricity | 11 |
| 2.3.2 Natural gas | 13 |
| 2.3.3 Emissions trading | 14 |
| 3. Regulation and Performance of the Electricity Market | 16 |
| 3.1 Regulatory Issues | 16 |
| 3.1.1 General | 16 |
| 3.1.2 Management and Allocation of interconnection capacity and mechanisms to deal with congestion | 17 |
| 3.1.3 The regulation of the tasks of transmission and distribution companies | 22 |
| 3.1.4 Effective unbundling | 32 |
| 3.2 Competition Issues | 35 |
| 3.2.1 Description of the wholesale market | 35 |
| 3.2.2 Description of the retail market..... | 41 |
| 3.2.3 Measures to avoid abuses of dominance | 44 |
| 4. Regulation and Performance of the Natural Gas market | 47 |
| 4.1 Regulatory Issues | 47 |
| 4.1.1 General | 47 |
| 4.1.2 Management and allocation of interconnection capacity and mechanisms to deal with congestion | 48 |
| 4.1.3 The regulation of the tasks of transmission and distribution companies | 49 |
| 4.1.4 Effective Unbundling | 51 |
| 4.2 Competition Issues | 53 |
| 4.2.1 Description of the wholesale market | 53 |
| 4.2.2 Description of the retail market..... | 53 |
| 5. Security of supply | 55 |
| 5.1 Electricity | 55 |
| 5.1.1 Supply-demand situation during the peak load | 55 |
| 5.1.2 Generation capacity..... | 56 |
| 5.1.3 Role of regulatory authorities..... | 57 |
| 5.1.4 Major infrastructure projects on interconnections..... | 58 |
| 5.1.5 TSO and security of supply issues | 59 |
| 5.2 Gas | 61 |
| 6. Public Service Issues | 62 |
| 6.1 Electricity | 62 |
| 6.1.1 Obligations of market participants | 62 |
| 6.1.2 The implementation of labelling for primary energy source | 62 |
| 6.1.3 The implementation of Directive Annex A criteria..... | 63 |

| | | |
|------------|---|-----------|
| 6.1.4 | Appropriate treatment of vulnerable customers | 65 |
| 6.1.5 | Disconnections for non-payment in 2006..... | 66 |
| 6.1.6 | No end-user price regulation of electricity in Finland..... | 66 |
| 6.2 | Gas..... | 67 |
| 6.2.1 | The implementation of Directive Annex A criteria..... | 67 |
| 6.2.2 | Appropriate treatment of vulnerable customers | 68 |
| 6.2.3 | No end-user price regulation of gas | 68 |
| 6.2.4 | The activities of regulators in ensuring transparency of the terms and conditions of supply | 69 |

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 third 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.

During the year 2006 and the first half of 2007 the development in the electricity sector has been twofold. The development in the electricity network business and regulation has been very stable. The Energy Market Authority continued to regulate electricity network operation in an established manner based on ex ante regulation, which was introduced at the beginning of 2005. The first three-year period is running from 2005 until the end of 2007 and the Authority was busy engaged in developing new guidelines for the second regulatory period. The major changes to the present methodology will be the introduction of firm-specific efficiency targets and taking into account the quality of electricity being supplied.

The wholesale and retail electricity markets have experienced a period of fluctuating prices, and following that, a lot of interest has been paid to the markets and its functioning by electricity users, market operators and relevant authorities. The prices were affected by the level of water reservoirs and the related effect on electricity supplied by hydro-power generators as well as the price of emissions rights. The first half of 2006 saw decreasing prices whereas due to low precipitation in the summer autumn of 2007 was characterized by rising prices. However, autumn rains raised levels in water reservoirs and lowered the market price at the end of the year. The first half of 2007 has seen low prices due to abundant supply of hydro power and low prices of emissions rights. To improve the possibility of household customers to compare electricity retail prices and choose their supplier the Energy Market Authority launched in February 2006 an Internet-based tariff calculator. It has been very popular and so far more than 1.8 million searches have been made using the IT system.

The balance between demand and supply of electricity during the peak hour has been deteriorating due to modest but stable increase in electricity consumption combined with the low level of generation investment activity. The generation capacity is expected to grow significantly only after the new Olkiluoto nuclear power plant unit has been completed at the end of 2010. The peak hourly demand was reached on the 8th of February 2007 when consumption in Finland totalled 14,955 MW. The domestic generation capacity and electricity imports from the other Nordic countries and Russia were sufficient to cover consumption.

Two new temporary systems to improve security of electricity supply have been introduced through legislation in 2006 and 2007. Large peat condensing power plants over 120 MVA can get limited feed in tariff during years 2007 – 2010 due to security of supply reasons. Feed in tariff system is limited for total capacity of about 400 MW peat power and at maximum for 3,900 hours per year. Feed in tariff will depend on prices of coal and CO₂-emissions and it is

paid by the TSO to the peat power plants and charged from network users by the TSO. The system is overseen by the Energy Market Authority.

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

To further develop the Nordic electricity market integration the Nordic TSOs, ministries, regulators and other relevant authorities continued their co-operation and efforts. The focus has been on the development of the transmission network, common Nordic balancing mechanism, congestion management and certain aspects of market oversight. Furthermore, active work to integrate the Nordic market with the continental one was carried out within the framework of ERGEG Northern Electricity Regional Initiative, which concentrated at this stage on transparency issues and the use of the interconnectors between the Nordel area and the continent.

The development in the natural gas sector has been stable. The regulation of the natural gas network services is carried out by the Energy Market Authority by applying an ex ante regulation scheme, which is based on 4-year regulatory periods. The first period extends from the beginning of 2006 until the end of 2009.

As the Finnish natural gas network is not connected to the EU-wide interconnected natural gas network, Finland has been granted derogation from the Natural Gas Directive to open its natural gas market. The consumption of natural gas amounted to 4.5 billion cubic metres in 2006. The development of the natural gas sector will be significantly affected by the realisation or non-realisation of certain projects which include the construction of a pipeline branch in the western Finland and a connection to the Baltic States.

Asta Sihvonon-Punkka
Director General
Energy Market Authority

2. Major Developments in the last year

2.1 The Regulatory Authority

2.1.1 Organization and legal basis of the regulatory authority

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

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

As per the 1st of July 2007, the total number of staff in Energy Market Authority amounted to 29 of which 24 were permanent. Of this number, 11 were occupied with the electricity market issues, 4 with natural gas market issues and 8 with emissions trading issues. The remaining staff was involved in all of these three areas providing assistance for IT, general administration and secretarial services. The total expenses for 2006 were 3.1 million euros whereof 1.1 million euros were used for the activities related to emissions trade.

2.1.2 Main tasks, statutory objectives and legal powers

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

As regards the electricity market, the Energy Market Authority shall

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

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

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

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

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

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

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

The administrative regulations cover the following issues:

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

2.1.3 Independence and accountability

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

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

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

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

2.1.4 Overlapping jurisdictions

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

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

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

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

2.2 Main developments in the gas and electricity markets

2.2.1 Electricity market

Transmission

Finland belongs to the Nordic electricity market and congestions across the borders are managed by implicit auctions in the day-ahead market in power exchange Nord Pool. This fulfills the requirements set in the Congestion Management Guidelines. Remaining transmission capacity after day-ahead allocation is set for intra-day and balancing markets. Finland is considered as a single price area within Nordic market and congestions within Finland and after spot market closure are managed by counter-trade. In year 2006 about 93 percent of time Finland was part of Nordic market without congestions on Finnish borders.

To decrease congestion on interconnectors between Finland and Sweden the TSOs have launched an investment project to build a new DC interconnection Fenno-Skan 2 between Finland and Sweden. The investment decision is part of the five prioritised Nordic cross-

section reinforcements agreed by the Nordic TSOs in June 2004. The capacity of the inter-connection will be 800 MW and it will be commissioned in the year 2010.

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

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

Electricity distribution

According to the amendments to the Electricity Market Act that entered into force at the end of 2004, electricity network operations must be legally unbundled from electricity trade operations and electricity generation, if the annual quantity of electricity transmitted to customers through the network operator's 400 V distribution network has been 200 gigawatt-hours or more during three calendar years. The arrangements were to be implemented no later than the beginning of 2007

During 2006 and at the beginning of the current year, distribution network operations were converted into separate companies, and a total of 16 operators submitted applications for new electricity network licences to the Energy Market Authority. The Energy Market Authority supervised 89 distribution network operators, 13 regional network operators and one transmission system operator at the beginning of 2007. Electricity companies converted also electricity trade operations into separate companies.

Development of electricity distribution prices has been stable for several years already, and distribution prices remained practically unchanged in 2006. Household customers paid on average half a percentage point more for electricity distribution than a year ago, and the distribution prices paid by industrial users fell by one per cent. The electricity tax of industry was reduced as of 1 January 2007.

Nordic market integration

The Finnish electricity market has been an integrated part of the Nordic electricity market since the latter half of the 1990's. The work to further develop the Nordic electricity market continued in a strong path in 2006. In September 2006 the Nordic energy ministers set the next milestones for the further development of the Nordic electricity market in their meeting in Norway. These objectives and the related tasks were commissioned to the Nordic transmission system operators, ministries, regulators and other relevant authorities. The Nordic Energy Regulators NordREG were assigned to review the common Nordic balance settlement, regulation of the Nordic TSOs, monitoring of the regulation power market and the costs and benefits of the common Nordic end-user market. The reporting on the tasks was scheduled for the spring of 2007.

Electricity supply and consumption

Electricity consumption in Finland amounted to almost 90 terawatt-hours in 2006. Absolute growth was 5.5 terawatt-hours last year, i.e. the increase from the previous year was 6.5 per cent. Industry and the construction sector used a good half of electricity, household and agriculture one fourth and services and the public sector around twenty per cent. Transmission and distribution losses accounted for a good three per cent. A record peak load was reached in February 2007 when hourly demand amounted to 14,955 MW.

Last year, combined heat and power production (CHP) accounted for one third of electricity consumption, nuclear power for a good 24 per cent, hydro power for 13 per cent and coal-based and other conventional condensate electricity for approximately 19 per cent. Wind power accounted for 0.2 per cent. Net imports of electricity decreased by one third and covered slightly less than 13 per cent of electricity consumption.

Development of electricity retail market

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

An IT system intended for consumers, linked to the Energy Market Authority's website was introduced in February 2006. It has enabled household customers in particular to compare electricity suppliers' offers. Consumers have been using the IT system diligently. So far more than 1.8 million searches had been made within the IT system, which means that several hundreds of thousands of people have visited the website.

The Energy Market Authority has launched a regular collection of supplier switching information in 2007. According to it 4 per cent of electricity consumers changed their supplier in 2006. Most active have been those consumers who consume more than 10,000 kWh per year since 8 per cent of consumers in this category had changed their supplier in 2006.

In January 2007, the consumer price level of electric energy was approximately 14 % higher than in January 2006. The price development was fluctuating. It seemed likely in the first half of 2006 that increases in the retail prices of electric energy would remain roughly in the same range as in the year before, i.e. that the growth rate would be about five per cent. The emission allowance price fell sharply in the spring, due to which also the wholesale market price of electricity plummeted.

Drought was causing problems in the summer of 2006, and in August the market prices rose to a level which was high for that time of year. Autumn rains raised levels in water reservoirs and lowered the market price of electricity at the end of the year. The water situation improved too late, however, to affect the increase in retail prices. The increases in the retail prices of electric energy became sharper early in the autumn and the price increases did not halt before the end of the year.

2.2.2 Natural gas market

In 2006, natural gas consumption in Finland totalled 4.5 bcm (45 TWh), increased approximately seven per cent from the previous year. Consumption of natural gas is expected to grow in Finland in the next few years. Total consumption is estimated to be approx. 47 TWh in 2007. The increase in consumption will be due to, inter alia, an expansion of Neste Oil Oyj's Porvoo refinery, an expansion of Fortum Espoo Oy's Suomenoja power plant and new power plant project in the Turku economic area, of which the latter one is still waiting for final decision. All natural gas consumed in Finland is imported from Russia.

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

The wholesale prices of natural gas energy decreased by approximately 6 per cent, the transmission prices increased by approximately 5 per cent, and the total price of natural gas decreased by 3 per cent during 2006.

The TSO, Gasum Ltd, has plans to expand its natural gas transmission pipeline to the western part of Finland. Total of 75 km parallel new gas transmission pipeline was completed in 2006. At the moment a new parallel gas transmission pipeline is under construction between Luumäki and Anjalankoski in the Eastern Finland. Today the total length of the transmission network is 1,102 km.

2.3 Major issues dealt with by the regulator

2.3.1 Electricity

In the field of electricity, the Energy Market Authority is responsible for regulating 89 distribution network operators, 13 regional network operators and one transmission system operator. Furthermore, the Authority is mandated with the supervision of altogether 71 electricity retailers with the obligation to supply. The legal unbundling of electricity network operations from electricity supply and generation activities was required by the beginning of 2007 from the electricity distribution system operators in whose 400 V electricity network the annually transmitted quantity of electricity had been at least 200 GWh during the years 2004 – 2006. Also some distribution system operators under this threshold value have legally unbundled network activities. In June 2007 a total of 47 distribution system operators were legally unbundled in Finland.

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

The first regulatory period conforming to the new regulation model commenced at the beginning of 2005 and will expire at the end of 2007. At the very end of 2004, the Energy Market Authority confirmed with its decisions the methods of determining the rates of return for elec-

tricity network operators and the charges to be collected for network services in the years 2005 – 2007. A total of 76 electricity network system operators of 105 filed appeals with the Market Court in January 2005 against those decisions. The Market Court issued decisions on the appeals in December 2006. All parties approved the Market Court's decisions and decided not to file appeals against them with the Supreme Administrative Court, due to which the confirmation decisions changed by the Market Court became non-appealable. Some of the companies filed no appeals against the Energy Market Authority's confirmation decisions concerning them, due to which some of the Authority's original decisions became non-appealable as such, as early as the end of January 2005.

In spite of the appeals lodged, some distribution system operators had adjusted their distribution prices to better correspond to the methods confirmed by the Energy Market Authority. As a result of the price adjustments, the prices of electricity distribution fell in 2005 on average by 1.4 per cent in 2005. Electricity distribution prices rose on average by 0.5 per cent in 2006.

In its rulings, the Market Court changed some aspects of the Energy Market Authority's confirmation decisions concerning the companies that had filed appeals. The changes made by the Market Court were related to the principles of calculating a reasonable rate of return on the capital invested in electricity network operation. There was no statement in the Court's rulings to the effect that the Authority would have acted illegally while making the confirmation decisions. Therefore, the changes in the confirmation decisions made by the Market Court could rather be regarded as an assessment of the expedience of the Energy Market Authority's policy guidelines than of their illegality.

After the end of the first regulatory period the Energy Market Authority will issue in 2008 supervision decisions confirming for each network operator the earnings accrued during the whole regulatory period and the absolute amount by which the said earnings exceed or fall below the earnings level that is deemed reasonable. In 2006 the Energy Market Authority calculated and notified network operators preliminary numbers of the actual profit and reasonable earnings from electricity network operations on the basis of financial statements and other information from 2005. The preliminary calculations of the Energy Market Authority were not administrative decisions with respect to which the concerned network operators were entitled to appeal against and which imposed duties on network operators. According those calculations a total of 14 electricity system operators of 104 made in 2005 higher actual profit than what was deemed reasonable.

In 2006 the Energy Market Authority prepared guidelines for assessing reasonableness in pricing of electricity network operations for the second regulatory period which were published in July 2007. The Energy Market Authority will confirm in autumn 2007 the methods of determining the rates of return for electricity network operators and the charges to be collected for network services in the years 2008 – 2011.

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

Energy Market Authority launched at the beginning of February 2006 a website, where retail consumers can compare sales offers from suppliers and see statistics of retail price changes. To enhance the availability of the price information in this website the Energy Market Authority has given a regulation according to which every supplier shall inform the prices for fixed-term contracts and contracts for the time being through this web-based system.

The amendments made to the Electricity Market Act charged the Energy Market Authority with a new task of monitoring the security of electricity supply. To facilitate the carrying out of the task, the Authority established a power plant registry. As a consequence of the new task, the Energy Market Authority published its second report on the security of electricity and natural gas supply in December 2006.

2.3.2 Natural gas

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

The Natural Gas Market Act, which came into force in August 2000, was enacted to implement the Natural Gas Market Directive (No. 98/30/EC). The Act was amended at the beginning of 2005 to implement the requirements of the new Directive (2003/55/EC). Finland has availed itself of the possibility of an exemption allowed by the previous and present Natural Gas Market Directives. Accordingly, the natural gas market has not been opened in the manner specified in the directives. As regards Finland, the directives allow for exemptions from licence procedure, unbundling of network operations and market opening, i.e. from the rules for defining the customers which are eligible. The 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.

The Natural Gas Market Act aims to improve the functioning of the natural gas market and to prepare the natural gas sector for the integration of the 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 has been established for trading on the secondary market. Trade in the secondary market is about one percent of total gas demand in Finland.

The most important need to amend the Natural Gas Market Act of Finland, resulting from the latest Natural Gas Market Directive, was related to the regulatory model of network pricing. In the new Directive, ex-ante approval of the pricing methodology of network services is required. This means that the regulator will approve in advance at least the methods that all network operators will use to calculate the pricing of network services; the previous ex-post and case-specific regulation had thus to be replaced in Finland.

According to the amendment to the Natural Gas Market Act that entered into force at the start of 2005, the Energy Market Authority shall issue a decision confirming the methods that the network operator must follow when determining the level of return for the network services and the charges to be collected for network services during the regulatory period. In the natu-

ral gas sector, the Parliament ended up postponing the introduction of the new regulation model by a year. Thus the Energy Market Authority issued the network operator-specific confirmation decisions on the methodology for the pricing of natural gas network services in May and June 2005. The first four-year regulatory period commenced at the beginning of 2006 and will come to an end at the end of 2009.

The amendments made to the Natural Gas Market Act charged the Energy Market Authority with a new task of monitoring the security of gas supply. As a consequence, the Energy Market Authority published its second report on the security of electricity and natural gas supply in December 2006.

To evaluate the development of the natural gas market in Finland and the related legislation and to map the possible development needs in legislation and regulatory control, the Energy Market Authority prepared a discussion paper on these themes during late 2006 and early 2007. The paper deals with regulatory options that are possible in respect of the development of the natural gas market, starting from an extension of the exemption allowed by the Natural Gas Market Directive, all the way to the sections of laws that the Energy Market Authority interprets in its regulatory work. The discussion paper will be finalised by the autumn of 2007 on the basis of the comments received from a public consultation process.

2.3.3 Emissions trading

The first EU internal emissions trading period 2005 – 2007 started also in Finland at the turn of the year 2005. Today, a total of 577 installations and plants falling within the scope of emissions trading in Finland are monitoring their carbon dioxide emissions in accordance with the monitoring plans inspected and approved by the Energy Market Authority. As the national emissions trading authority of Finland, the Energy Market Authority is responsible for issuing emissions permits to installations within the scope of the emissions trading scheme.

Emissions trading registry - an important element of emissions trading scheme

The registration system which makes emissions trading possible has been used in Finland since the beginning of 2005. The allowances granted to installations for 2006 (the so-called EUA2006 allowances) were registered in installation-specific accounts by the end of February 2006.

Parties outside the emission trading scheme, for example private individuals, can also open allowance accounts in the registry. In the registry they are able to acquire allowances, trade in them or cancel them. Finland's emissions trading registry can be found at www.paastokaupparekisteri.fi.

Arrangements for verification

Energy Market Authority is the authority that approves the national emissions trading verifiers. A precondition for the approval is that the party willing to become a verifier can prove with a reliable outside assessment that it fulfils the requirements set in the Finnish Emissions Trading Act. This assessment has to be applied for and is given by the Finnish Accreditation

Service (FINAS) of the Centre for Meteorology and Accreditation. The competence of verifiers is testified with a statement or an accreditation decision by FINAS. The criteria for assessing the competence of verifiers are defined in a ministerial decree. Energy Market Authority takes into account the statement or the accreditation decision given by FINAS when granting a permit to a verifier.

IT system for EU ETS – A pioneering system in the EU

As the first EU regulator, the Energy Market Authority introduced an IT system for the verification of carbon dioxide emissions at the beginning of 2006. By means of this IT system, operators can access the pre-completed emissions report forms of their installations and send their annual emissions reports to verifiers for inspection. Verifiers can also fill in statements and submit them through the IT system. The IT system is intended for voluntary use by both verifiers and operators.

The IT system considerably clarifies and standardises the activities of both operators and verifiers and speeds up the verification process. The labour input into reporting and applying for permits will also diminish, because the data included in an emissions permit can automatically be utilised in pre-completing an emission inventory or when applying for a permit amendment.

Towards the end of the year 2006, the IT system was developed further: now also applications for emissions permits and permit amendments can be submitted through it. On the basis of the feedback received, a link to the emissions trading registry was also added to the IT system so that the measures taken within the IT system do not have to be repeated in the emissions trading registry.

As the IT system was deployed, informative events were arranged for the operators and verifiers. By now, all the verifiers and operators in Finland have announced that they use the IT system.

In addition to the Finnish operators falling within the scope of emissions trading, the IT system has also aroused interest in other EU countries and within the EU Commission, because the Energy Market Authority's IT system helps standardise verification practices and emissions reporting and improves the reliability of the emissions trading system.

The website of the IT system for EU ETS is www.paastolupa.fi.

3. Regulation and Performance of the Electricity Market

3.1 Regulatory Issues

3.1.1 General

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

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

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

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

Table 1. Development of market opening.

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

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

Congestion management

Finland is a part of synchronously operated Nordic power system. It has 400 kV and 220 kV AC interconnectors to Sweden and one 220 kV AC interconnector to Norway. Furthermore there exists Fenno-Skan DC line between Finland and Sweden. Finland has also interconnectors to Russia (back-to-back DC converter station at Vyborg and a 400 kV and two 110 kV AC interconnectors synchronised to Finnish power system). At the beginning of 2007, a new 350 MW DC interconnector Estlink between Finland and Estonia was commissioned. Transmission capacities on interconnectors within Nordic power system are presented in Figure 1.

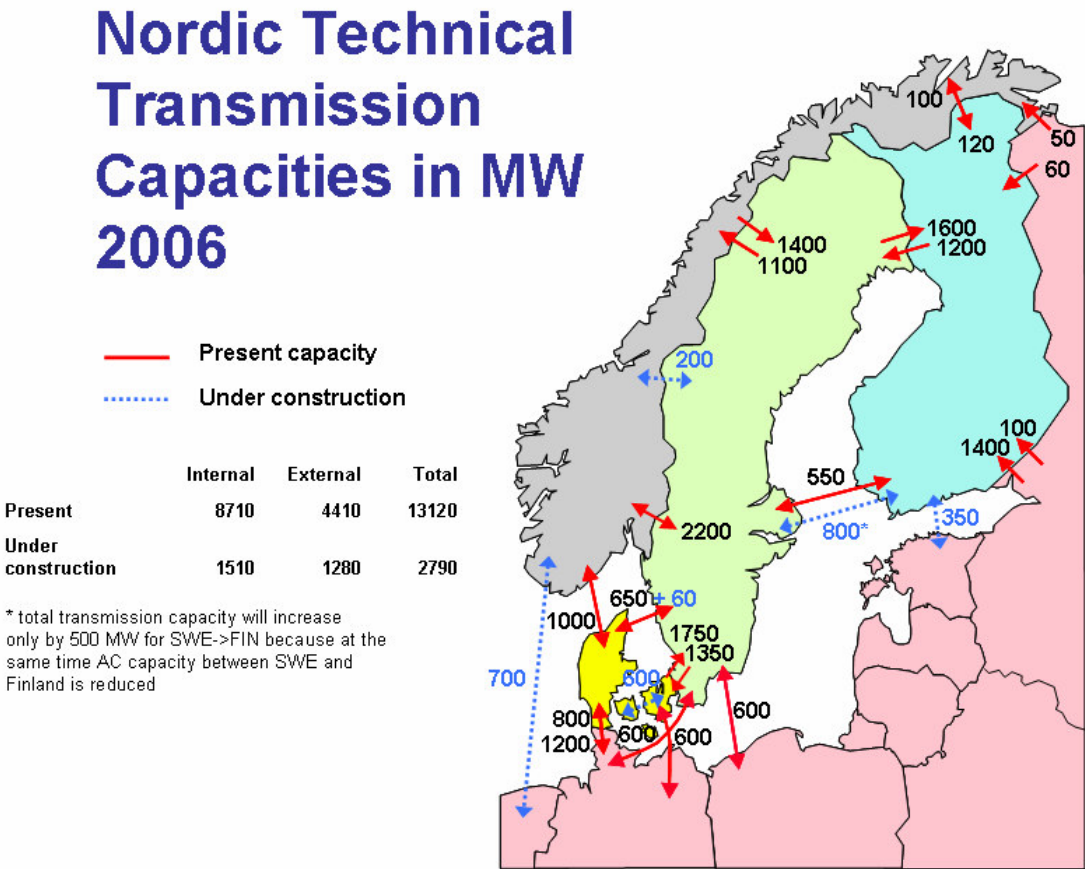


Figure 1. Transmission capacities on interconnectors between Nordic countries (Source: Fingrid Plc).

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

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

The Nordic market is normally split into six price areas: Finland (Helsinki), Sweden (Stockholm), West Denmark (Jutland), East Denmark (Zealand), South Norway (Oslo) and North Norway (Tromso). Moreover, Norway can sometimes be split into more than two price areas. Figure 2 presents amount of hours in percent during the year when a separate price area existed.

Bottlenecks 2006 (% of time)

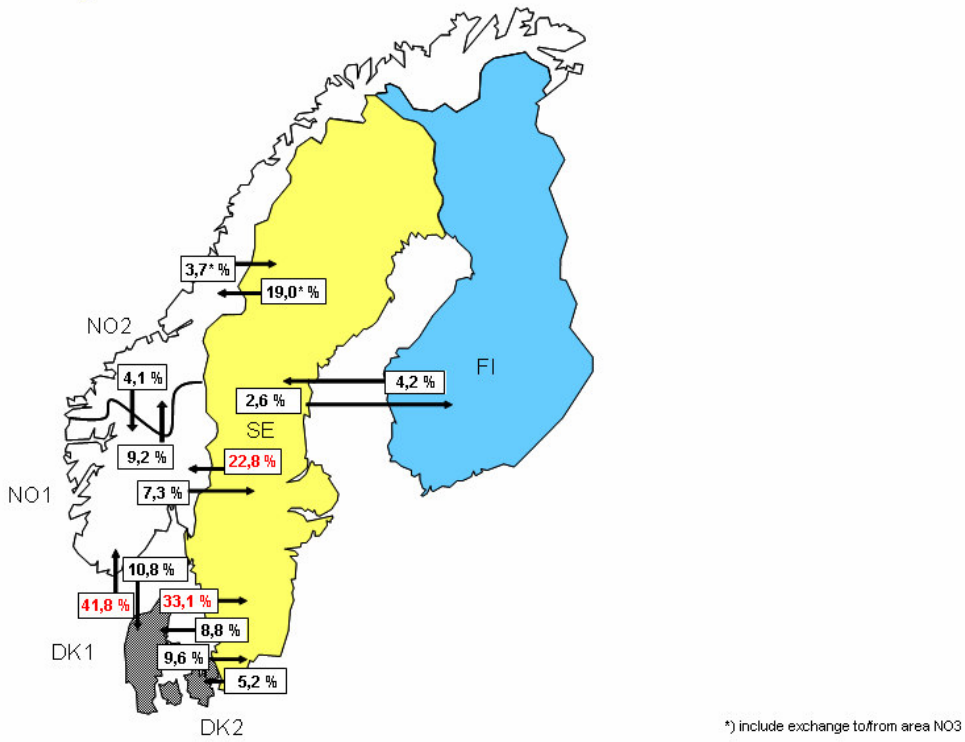


Figure 2. Time in percent when a separate price area has existed (Source: Fingrid Plc, Nord Pool).

Finland may form own price area, especially during relatively dry water years in other Nordic countries. This leads to increased export from Finland to other Nordic countries, (e.g. in years 2000 and 2003). Finland may form a common price area with Sweden especially when hydro power is abundant in other Nordic countries. In year 2006 about 93 percent of time Finland was part of Nordic market without congestions on Finnish borders as seen in Figure 2.

Counter trade is used to relieve both national and inter-regional congestions during the daily network operation. Costs of the counter trade are paid by TSO. Table 2 shows the costs of the counter trade paid by the Finnish TSO during the years 2000 - 2006.

Table 2. Costs of counter trade in Finland during the years 2000 - 2006 in million euros.

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-------|------|------|------|------|------|------|------|
| Costs | 1.0 | 0.8 | 1.4 | 0.3 | 0.07 | 0.86 | 0.48 |

Source Nordel, Fingrid Plc.

To decrease the congestions on interconnectors between Finland and Sweden the TSOs (Fingrid and Svenska Kraftnät) have launched an investment project to build the DC interconnection Fenno-Skan 2 between Finland and Sweden. The investment decision is part of the five prioritised Nordic cross-section reinforcements set by Nordel in June 2004. The capacity of the interconnection will be 800 MW and it will be commissioned in the year 2010.

Implementation of the Regulation 1228/2003 and congestion management guidelines

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

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

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

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

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

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

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

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

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

During the year 2006 congestion management revenues collected by the Finnish TSO (Fingrid Plc) totalled 13.1 million euros. During the period 1.7 – 31.12.2006 congestion management revenues amounted to 7.8 million euros and during the period 1.1 – 30.6.2007 congestion management revenues totalled 4.5 million euros respectively.

Nordic regulators aim at publishing during the autumn of 2007 the first compliance report evaluating the current status of compliance and set out the further work in the Northern Europe region to ensure compliance with the CM guidelines.

Transmission capacity calculation

The Nordic TSOs have agreed within Nordel on common principles for determining the transfer capacity in the Nordic power market. These principles for determining the capacities and margins are described in the System Operation Agreement between the Nordic TSOs and a

separate Nordel document¹. The Nordic TSOs use definitions for transfer capacity, which are in line with the definitions used in the association of European Transmission System Operators (www.etso-net.org).

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

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

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

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

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

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

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

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

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

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

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.

3.1.3 The regulation of the tasks of transmission and distribution companies

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

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

The network operators have various obligations:

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

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

1. the network to be built is an electricity consumer's service line with which the consumption site is connected to the electricity network of the distribution network operator of the area of responsibility;

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

The Energy Market Authority has issued electricity distribution network licenses with geographical area of responsibility to 89 distribution network operators. At the Finnish electricity market legislation electricity distribution network have been defined as network below 110 kV level. Some of the electricity distribution network operators have also 110 kV lines. There were in June 2007 also 13 regional network companies having only 110 kV lines.

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

Due to the Electricity Market Directive and also due to the experiences from the past ex-post supervision of network activities, the regulation of network tariffs was changed at the beginning of 2005. The regulation model of network tariffs has been reformed from the previous ex-post regulation towards a partial ex-ante regulation. At the present regulatory system 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 covers years 2005-2007. Prior to con-

firming the methodology, the regulator publishes the guidelines³ on the details of the methodology and organises a public consultation on the guidelines with the stakeholders. The Energy Market Authority has confirmed the methodology of setting network tariffs in 2005-2007 in December 2004.

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

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

The confirmed methodology for setting network tariffs during the years 2005-2007 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. The net present value of the network will be updated annually by taking into account depreciation and investments. Approved rate of return on capital is determined using a WACC-model (Weighted Average Cost of Capital) and will be updated annually. The Energy Market Authority has benchmarked DSOs on a yearly basis by using a DEA-model (Data Envelopment Analysis) to assess cost efficiency since 1999. However, the Energy Market Authority has not set company-specific efficiency goals for the first regulatory period. Instead, only a general efficiency improvement goal, which is the same to all electricity distribution companies, has been set. The Energy Market Authority started in 2005 development projects aiming to set company-specific efficiency improvement goals for the next regulatory period covering the years 2008-2011.

In 2006 the Energy Market Authority prepared the guidelines for assessing the reasonableness of the pricing of electricity distribution and transmission network services in 2008-2011 which were published⁴ in July 2007. Following those guidelines the Energy Market Authority will confirm in autumn 2007 for each electricity distribution and transmission system operator the methods of determining the rates of return for electricity network operations and the charges to be collected for network services in the years 2008-2011. According to those guidelines the Energy Market Authority will set from the second regulatory period for each electricity distribution system operator a company-specific efficiency target based on benchmarking results. The Energy Market Authority will set from year 2008 for the electricity system operators also incentives to improve security of supply in electricity networks.

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 ob-

³ Unofficial English translations of the guidelines for assessing the reasonableness of the pricing of electricity distribution and transmission network services in 2005-2007 are available on the Energy Market Authority's website at www.energiamarkkinavirasto.fi.

⁴ Guidelines are published in Finnish. Unofficial translations of the guidelines in English will be available in autumn 2007 on the Energy Market Authority's website at www.energiamarkkinavirasto.fi.

ligation 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.

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 76 electricity system operators filed appeals with the Market Court in January 2005 against the methods for the first regulatory period confirmed by the Energy Market Authority. The Market Court issued decisions on the appeals in December 2006. All parties approved the Market Court's decisions and decided not to file appeals against them with the Supreme Administrative Court, due to which the confirmation decisions changed by the Market Court became non-appealable. Some of the system operators filed no appeals against the Energy Market Authority's confirmation decisions concerning them, due to which some of the Authority's original decisions became non-appealable as such, as early as at the end of January 2005.

In its rulings, the Market Court changed some aspects of the Energy Market Authority's confirmation decisions concerning the electricity system operators that had filed appeals. The changes made by the Market Court were related to the principles of calculating a reasonable rate of return on the capital invested in electricity network operation. There was no statement in the Court's rulings to the effect that the Authority would have acted illegally while making the confirmation decisions. Therefore, the changes in the confirmation decisions made by the Market Court could rather be regarded as an assessment of the expedience of the Energy Market Authority's policy guidelines than of their illegality.

The rulings of the Market Court raised the reasonable rate of return, to be determined on the capital invested in electricity network operation by approx. 0.4 to 0.8 percentage points. The effect of the Market Court's rulings was clearly smaller than the increases of two or three percentage points in the allowed rate of return demanded by the electricity system operators that filed appeals against the Energy Market Authority's decisions.

In 2006 the Energy Market Authority calculated and notified network system operators preliminary results of the actual profit and reasonable earnings from electricity network operations on the basis of financial statements and other information from 2005. The preliminary calculations of the Energy Market Authority are not administrative decisions with respect to which the concerned system operators are entitled to appeal against and which imposed duties on system operators. According those calculations majority of electricity system operators had in 2005 lower earnings from network operations than allowed and only a total of 14 electricity system operators made higher actual profit than what was deemed reasonable.

Estimated national average network access charges as per the 1st of January 2007 for reference customers are shown in Table 3. Prices are excluding all taxes and VAT. During 2006 network access charges rose on average 0.5 per cent..

Table 3. Estimated national average network charges as per January 1st, 2007 excluding taxes and VAT.⁵

| | Number of regulated companies | Approx network access charge (euro/MWh) | | |
|--------------|-------------------------------|---|-------|--------|
| | | Ig | Ib | Dc |
| Transmission | 1 | 2.25 (average) | | |
| Distribution | 89 (+ 13 regional) | 11.73 | 28.37 | 37.63, |

Interruptions of delivery and compensations from non-delivery

Table 4 shows interruptions in transmission and distribution networks during the years 1999-2006. 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 4. Interruptions in transmission and distribution networks in 1999-2006.⁶

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

According to the Amendment to the Electricity Market Act, which came into force in September 1st, 2003, the electricity network operators have to pay fixed compensations to the customers if the interruption time is 12 hours or more. If the interruption time is at least 12 hours the fixed compensation is 10 per cent of the customer's annual network access charges. The

⁵ Definitions for reference customers are: (Dc) household customer with annual consumption of 3,500 kWh/year, (Ib) commercial customer with annual consumption of 50 MWh/year, subscribed maximum power 50 kW and (Ig) commercial customer with annual consumption of 24 GWh/year, subscribed maximum power 4000 kW.

⁶Distribution data for interruptions has been corrected after cross-checking.

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 2006 electricity distribution system operators paid fixed compensation payments because of long interruptions to about 50 000 customers a total sum of 2.6 million euros.

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-values⁷.

General description of the transmission tariff structure

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

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

⁷ ERGEG advice to the European Commission “Guidelines on Transmission Tarification” July 2005, available at ERGEG website: www.ergeg.org;
ERGEG report, “Reporting to the European Commission on TSO charging structure and values of ‘annual national G’”, December 2006, available at ERGEG website: www.ergeg.org

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 2006 were as follows:

- Consumption fee / consumption: 2.20 €/ MWh, winter period
1.10 €/MWh, other times
- Use of grid fee: 0.65 €/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 2006.

Average G charge for year 2006

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 2006 in Finland was around 0.3 €/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 (Elspot) has closed.

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

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

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

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

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

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 51.5 €/MWh (year 2005: 33.3 €/MWh) and down-regulation was 45.6 €/MWh (year 2005: 28.5 €/MWh) in Finland in year 2006. The volumes traded in regulation market were for up-regulation 148.6 GWh (year 2005: 217,2 GWh) and for down-regulation 123.5 GWh (year 2005:151.7 GWh) in Finland during the year 2006 (Source: Fingrid Plc.).

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 regulatory period (years 2005 – 2007) the Energy Market Authority shall execute joint supervision of both network and system operation (including balancing services) in the price regulation of the TSO. Furthermore, the Energy Market Authority shall accept terms and conditions of TSO’s balancing services (i.e. standard balance agreement) when they are to be renewed. The Energy Market Authority approved terms and conditions for TSO balancing services in February 2007.

The balance service costs related to the national energy consumption were in Finland 23 euro/GWh in year 2006 when costs of regulation power and costs of reserves are excluded. The total annual income for TSO from the balance fees in year 2006 was 1.9 million euros. Fees are charged from every balance responsible party (21 balance responsible parties in Finland in July 2007).

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

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

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

Nordel has agreed on harmonised principles for the balance management in February 2007. The harmonised principles are planned to be implemented by the 1st of January 2009 across the Nordic countries. The harmonisation within the Nordel decision applies to cost base, calculation and pricing of the imbalances and fee structure. Cost base of the balancing activity will be defined according to the equal principles. Same cost elements are included although absolute cost levels may vary between countries. Calculation of imbalances will be based on two balances: one production balance and one consumption balance. The first one is settled according to two price system while the consumption balance is based on one price settlement. Objective of harmonised fee structure is that market players in competitive situation pay same fees for their imbalances. As these fees are not sufficient to cover TSOs' all balancing costs, additional flat fees for producers and consumers are needed.

The implementation of harmonised principles is subject to approval by the national regulators. Nordic regulators within NordREG have analysed the principles and emphasised the importance to reach a common political view on the proposal by the Nordic energy ministers at the next ministerial meeting as some amendments in legislation/regulations are foreseen in some Nordic countries (Denmark, Norway). Furthermore, NordREG will continue with the analysis of the cost base and criteria and publish the outcome of this work in a report that is due in December 2007. The December 2007 report will be an important element in the national regulatory authorities' review and approval processes when the TSOs have submitted their draft balance agreements for ex-ante approval to their regulatory authorities as required by the national legislation.

It is foreseen that the TSOs submit the draft balance agreements for approval at the beginning of 2008 to allow the national regulatory authorities enough time for the approval process. The approval process will include a national consultation of relevant stakeholders in each country, and additionally, a consultation of the other regulatory authorities to ensure a harmonised approach in all the four countries. Depending on the receipt of the applications the approval of the draft balance agreements should be finalised in late fall of 2008 to allow the TSOs to enter into new balance agreements with their balance responsible parties which should be in force by the first of January 2009.

3.1.4 Effective unbundling

In Finland the transmission system operator, Fingrid Plc, is legally unbundled. The legal unbundling of network operations from electricity supply and generation activities is 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, 31 distribution system operators of 89 are 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 2007 a total of 47 distribution system operators were legally unbundled. Since the end of 2004 one distribution system operator has exceeded this threshold value. This system operator shall execute a change in the corporate structure within two years from the end of the calendar year during which the threshold value has been reached.

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. In most cases the legally unbundled distribution system operators belong to a group of companies and 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. 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.

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

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

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

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

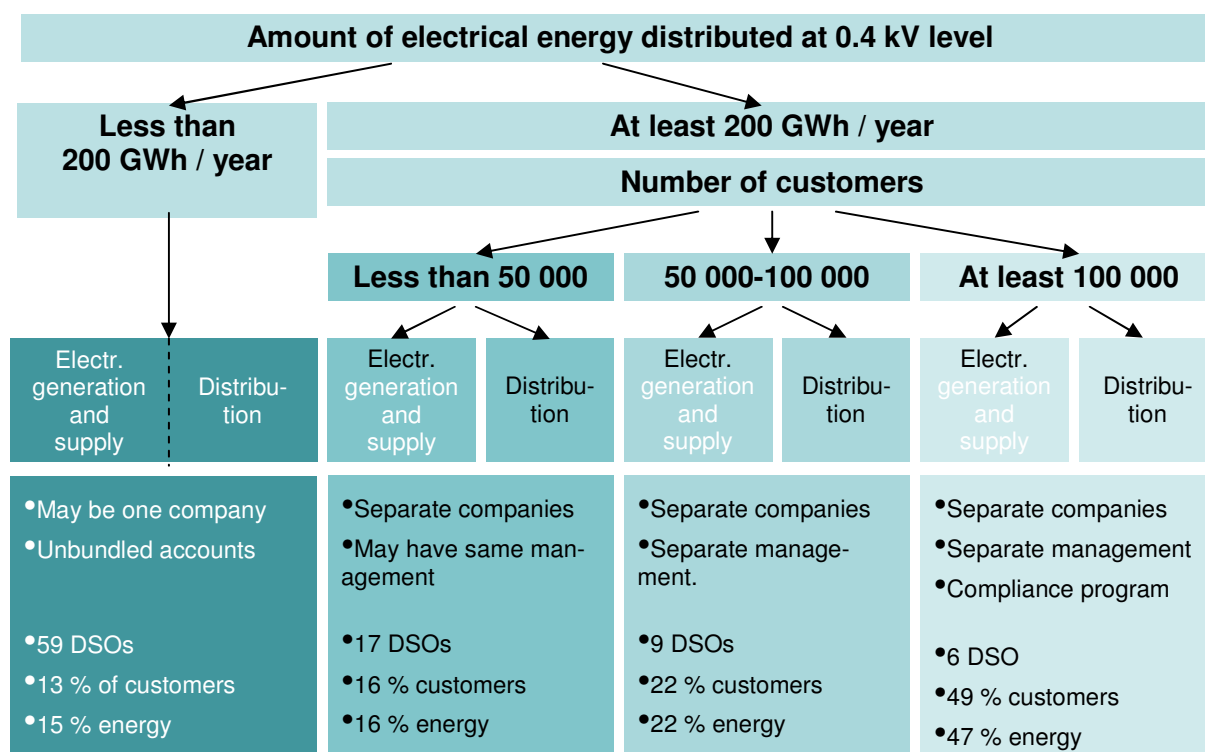


Figure 4. Requirements for unbundling of electricity business activities.

The accounting unbundling applies to the rest of electricity system operators, which are not required to be legally unbundled. The accounting unbundling is also required in the legally unbundled companies, which have other activities besides network business. Accounting unbundling requirements are specified with the ministerial degree and the Energy Market Authority has issued the guidelines on the compilation of unbundled financial statements in 2005. These guidelines are not legally binding but they show the procedure the Energy Market Authority considers fulfil the requirements of the legislation. Both the distribution system operators and the transmission system operator are under the obligation to publish unbundled accounts with certain formula. They shall publish the unbundled financial statements as a part of the statutory financial statement, annual report or corresponding other public document available to the stakeholders.

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

The Energy Market Authority supervises that the network companies are fulfilling the unbundling requirements. The Energy Market Authority has started the regular unbundling inspections to the electricity system operators in 2006. The Authority has also powers to oblige the companies to correct mistakes or omissions. A conditional fine may be imposed to make decisions effective. As a final mean the Energy Market Authority may also withdraw the electricity network licence from the company.

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

3.2 Competition Issues

3.2.1 Description of the wholesale market

Market structure and integration to Nordic wholesale market

Finland consumed 90.1 TWh of electricity in 2006, about 6.5 per cent up on the previous year. The increase was mainly due to the six-week paper industry dispute in 2005, which lowered the consumption in 2005. Cogeneration of heat and power covered 18 per cent of the consumption of electricity, nuclear power nearly 24 per cent, hydro power 13 per cent and coal-based and other conventional condensing power a good 20 per cent. Wind power accounted for 0.2 per cent and other renewable power 11.8 per cent. Electricity was imported from Russia to Finland nearly according to the maximum capacity of the import connection. Also electricity imports from the Nordic market were high. Net imports of electricity covered 13 per cent of electricity consumption. Decline in electricity imports and increase in exports meant that condensing power production increased compared to the previous year's level. In 2006, the quantity of energy produced from coal was doubled compared to 2005. Carbon dioxide emissions from energy generation from coal, natural gas, peat and oil were some 29 million tonnes, increasing on the previous year by approx. 57 per cent. The peak demand amounted to 14,955 MW. Table 5 shows electricity net production, imports and exports in Finland in 1999 – 2006.

Table 5. Electricity net production, imports and exports (TWh) in Finland.

| TWh | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---------------------------|------|------|------|------|------|------|------|------|
| GROSS PRODUCTION | 69,4 | 70,0 | 74,3 | 74,9 | 84,3 | 85,8 | 70,5 | 81,9 |
| Consumpt. in power plants | 2,8 | 2,7 | 3,1 | 3,3 | 3,9 | 3,6 | 2,7 | 3,3 |
| PRODUCTION | 66,7 | 67,3 | 71,2 | 71,6 | 80,4 | 82,2 | 67,9 | 78,6 |
| Hydro power | 12,5 | 14,5 | 13,0 | 10,6 | 9,5 | 14,9 | 13,6 | 11,3 |
| Wind power | 0,0 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,2 | 0,1 |
| Nuclear power | 22,1 | 21,6 | 21,9 | 21,4 | 21,8 | 21,8 | 22,3 | 22,0 |
| Conv. thermal power | 32,0 | 31,2 | 36,3 | 39,5 | 49,0 | 45,4 | 31,8 | 45,1 |
| Co-generation, CHP | 24,8 | 24,5 | 25,7 | 27,2 | 28,0 | 28,2 | 26,1 | 27,6 |
| district heating | 12,8 | 12,7 | 14,1 | 14,9 | 15,3 | 15,1 | 14,4 | 14,5 |
| industry | 12,0 | 11,7 | 11,6 | 12,3 | 12,7 | 13,0 | 11,6 | 13,1 |
| Condense etc. | 7,2 | 6,7 | 10,6 | 12,4 | 21,0 | 17,2 | 5,7 | 17,5 |
| conventional | 7,2 | 6,7 | 10,6 | 12,3 | 21,0 | 17,2 | 5,7 | 17,5 |
| gasturbine etc. | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| IMPORTS from | 11,4 | 12,2 | 11,8 | 13,5 | 11,9 | 11,7 | 17,9 | 15,4 |
| Sweden | 6,0 | 7,6 | 4,1 | 5,4 | 0,5 | 0,4 | 6,4 | 3,7 |
| Norway | 0,1 | 0,1 | 0,0 | 0,1 | 0,1 | 0,1 | 0,2 | 0,2 |
| Russia | 5,2 | 4,5 | 7,7 | 7,9 | 11,3 | 11,1 | 11,3 | 11,6 |
| TOTAL SUPPLY | 78,0 | 79,5 | 83,0 | 85,1 | 92,3 | 93,8 | 85,8 | 94,0 |
| EXPORTS to | 0,2 | 0,3 | 1,8 | 1,5 | 7,0 | 6,8 | 0,9 | 3,8 |
| Sweden | 0,1 | 0,2 | 1,6 | 1,4 | 6,9 | 6,6 | 0,8 | 3,7 |
| Norway | 0,1 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,1 | 0,1 |
| Russia | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| GROSS CONSUMPTION | 77,8 | 79,2 | 81,2 | 83,5 | 85,2 | 87,0 | 84,9 | 90,1 |
| Incl. electric boilers | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 |

Source: Adato Energia Ltd, Statistics Finland, Nordel

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

The total installed capacity⁹ at the end of 2006 was 16,544 MW consisting of traditional thermal power (8,409 MW), nuclear power (2,671 MW), hydro power (3,044 MW) and capacity based on renewable energy sources like bio fuels, waste and wind (2,420 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.

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

⁹ Source: Nordel annual statistics 2006, S1 Installerad effekt den 31 december 2006, MW and Energy Market Authority's power plant registry.

Denmark electricity generation is mainly based on conventional thermal power with an increasing amount of wind power. Figure 5 shows the marginal cost of production in the Nordic countries.

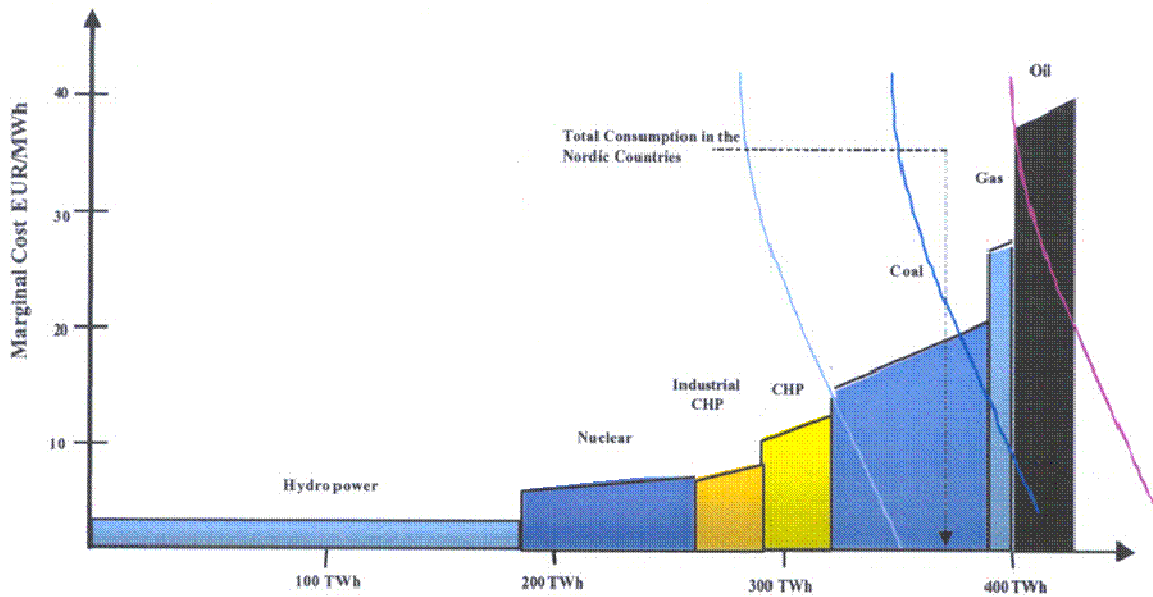


Figure 5. Marginal cost of production in the Nordic countries. (Source: Kesikallio, Lindholm: The Nordic Electric Power market. Ministry of Trade and Industry Finland report 11/2003).

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 includes 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).

As regards the Nordic countries, Finland is physically connected to Sweden and Norway. The transmission capacity from Finland to Sweden is 1,750 MW and from Sweden to Finland 2,150 MW. The transmission capacity between Finland and Norway is 100 MW to both directions. Outside the Nordel area, Finland has an interconnector capacity of 1,500 MW on the Russian border and at the beginning of year 2007 commissioned 350 MW DC interconnector Estlink between Finland and Estonia. The total import capacity of the interconnectors between Finland and the Nordel countries as well as Russia and Estonia is 4,100 MW. The import capacity as a percentage of the total installed capacity is nearly 25 per cent. Taking only the interconnectors between Finland and the Nordel area (Sweden and Norway) into consideration the corresponding percentage amounts to nearly 14 per cent.

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

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

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

The total number of companies trading at Nord Pool Spot AS – sellers and buyers – was 295 at the end of 2006.

In 2006, the volume of electricity traded in Nord Pool Spot AS amounted to 251 TWh with a significant increase from the previous year (176 TWh in 2005). The market share of Nord Pool Spot AS rose to 61 per cent compared to 45 per cent in 2005. The market share of Nord Pool Spot AS is more than 40 per cent in all the Nordic countries, which can be considered as a sign of a truly integrated Nordic marketplace.

The share of electricity bought from the power exchange in relation to the Finnish electricity consumption has increased considerably since Finland joined the Nordic power market area in June 1998. From the share of 5 per cent the share of electricity bought from the Nordic power exchange has increased to cover 42 per cent of the Finnish consumption (46 per cent in 2005). Figure 6 presents the share of electricity bought from Nord Pool Spot AS in relation to the electricity consumption in Finland during the years 1998-2006.

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

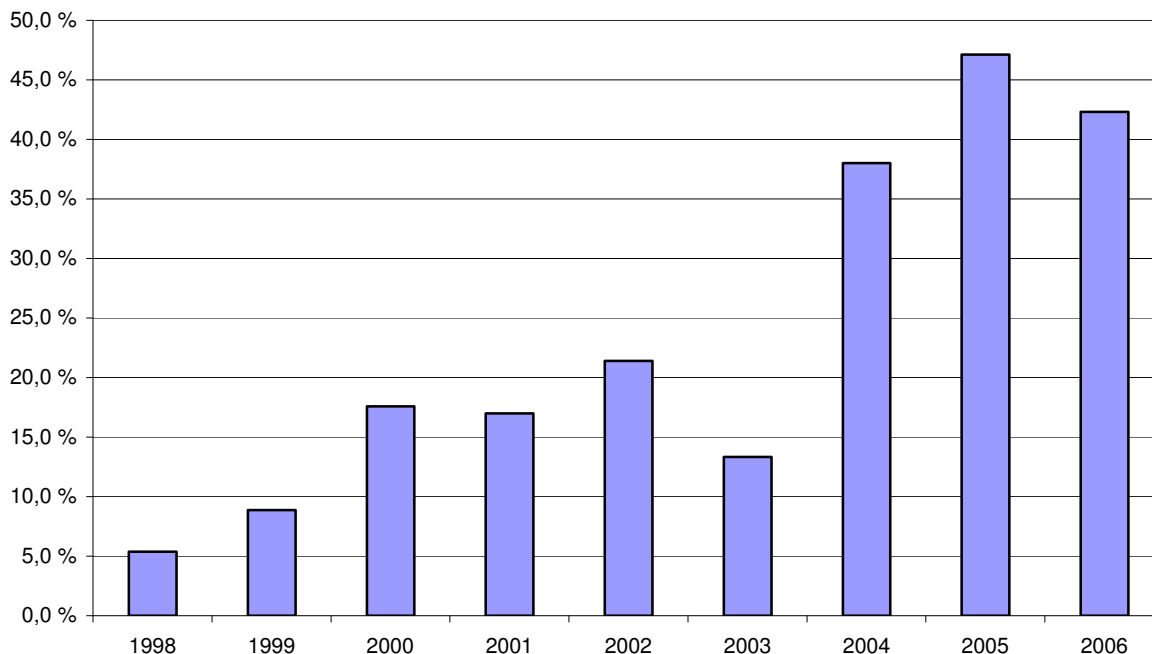


Figure 6. The share of electricity bought from power exchange in relation to the electricity consumption in Finland. (Source: Nord Pool Finland Ltd)

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

Ancillary services

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

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

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

The participation of electricity producers and others in the maintenance of the reserves as a service provider is fully voluntary. The TSO has established a "reserve bank" where companies owning controllable capacity can register their resources. The resource owners maintain

the agreed and measured properties at their power plants in the agreed manner and receive the compensation from the TSO.

As far as the agreements concerning the maintenance of primary reserves (frequency controlled normal operation reserve and frequency controlled disturbance reserve) are concerned, the terms, contents and compensations specified in the agreements are identical for all service providers.

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

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

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

Acquisitions and mergers

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

According to the Finnish Competition Authority 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 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. Without the conditions imposed by the Finnish Competition Authority, Fortum's dominant position would have been further strengthened because both parties to the deal operate in the Finnish electricity production and wholesale market.

Fortum has lodged an appeal with Market Court against the conditions imposed by the Finnish Competition Authority. During the period July 1st 2006 and July 1st 2007 the Finnish Competition Authority has done several statements for the Market Court considering Fortum's appeal. In autumn 2007 there is going to be an oral hearing considering the case. The decision of the Market Court might be available in the spring 2008.

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 70 electricity retailers having the obligation to supply within at least one distribution network area of responsibility. Many of the electricity retailers are part of companies involved in the network business. On July 1st, 2007 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 5 electricity retailers with a larger than 5 per cent share of market. 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 6).

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 20-25 per cent.

In addition to the 70 electricity retail suppliers with an obligation to supply, there are a few electricity retailers in the Finnish electricity retailer market acting only in the competitive part of the retail supply market. These retailers are fully independent from network companies. The market share of these companies is quite small.

Table 6. The largest companies in the electricity retail market (market shares according to energy sold to end users connected to the distribution network).

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

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

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

In the Finnish electricity retail supply market about 11 per cent of household customers have changed the supplier by the year 2004. The number has increased a bit as in 2002 the equivalent share was 5 per cent and in 2000 it was 2 per cent. Taking into account also the share of negotiated contracts with the local supplier (supplier having obligation to supply), the share of electricity sold by non-local supplier or by the local supplier according to the negotiated contracts was in 2005 for household customers 30 per cent and for small and medium-sized commercial users 82 per cent. There has been a steady increase in this share since 2001 (Table 7).

Energy Market Authority has carried out a sample survey in 2007 on supplier switching. Approximately 3 per cent of small and 8 per cent of the large Finnish customers have switched supplier in 2006. In total 130 000 customers switched supplier in 2006.

Table 7. The share of energy sold by other than local suppliers or according to the renegotiated contracts¹⁰.

| | % customers having changed supplier or a negotiated contract (by energy volume) | | | |
|------|--|--------------------------------------|-----------------------------------|-------|
| | large and very large industrial | small-medium industrial and business | very small business and household | total |
| 2001 | N/A | 77 | 24 | 56 |
| 2002 | N/A | 78 | 26 | 55 |
| 2003 | N/A | 79 | 28 | 57 |
| 2004 | N/A | 82 | 30 | 59 |
| 2005 | N/A | 79 | 33 | 59 |

The estimated national average electricity prices as per January 1st, 2007 for three reference customers defined by Eurostat are shown in Table 8. Energy costs and supply margin at the table are based on public energy tariffs. Negotiated and actual energy prices might be different especially for industrial users. During 2006 total electricity prices for consumers have increased by 7 per cent on average. Energy costs and supply margin have decreased by 3.3 per cent on average during the first half of 2007. At the beginning of 2007 energy costs and supply margin was on average 14 per cent lower than a year before. Electricity tax for industrial end-users was decreased at the beginning of 2007.

Table 8. Electricity prices for reference customers as at January 1st, 2007.¹¹

| Euro/MWh | Ig | Ib | Dc |
|---------------------------------------|------|------|-------|
| Network charges (excl. levies) | 14,0 | 30,6 | 39,9 |
| Levies included in network charges | - | - | - |
| Energy costs and supply margin | 38,8 | 40,0 | 47,8 |
| Taxes (incl. Electricity tax and VAT) | 11,6 | 15,5 | 28,4 |
| Total (including all taxes) | 64,4 | 86,1 | 116,0 |

¹⁰ This information is no longer collected.

¹¹ Definitions for reference customers are: (Dc) household customer with annual consumption of 3,500 kWh/year, (Ib) commercial customer with annual consumption of 50 MWh/year, subscribed maximum power 50 kW and (Ig) commercial customer with annual consumption of 24 GWh/year, subscribed maximum power 4000 kW.

3.2.3 Measures to avoid abuses of dominance

Competition supervision

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

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

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

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

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

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

Transparency and provision of information

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

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

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

As required by the Norwegian Stock Exchange Act and the related regulations on market surveillance, Nord Pool has established its own market surveillance department. The department is responsible for monitoring trading activities and the conduct of participants both in the physical and the financial power market. The market surveillance is intended to ensure that the activities of the market actors are in line with the prevailing statutes and regulations as well as with the power exchange's own rules.¹²

All members in Nord Pool Spot have a contractual obligation to release information to Nord Pool Spot and general public on events which have a relevant effect to price formation in the Nord Pool Spot or in the financial market. Members have to report on any plans or changes of plans for maintenances or limitations of their production units. The same applies to any outage or failure concerning more than 200 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

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

reactions are applied against a market participant or participants involved in possible contraventions of the exchange rules.¹³

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

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

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

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

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

¹³ Source: Nord Pool press release No. 12/05.07.05. Nord Pool establishes own disciplinary committee and increases violation charge. http://www.nordpool.com/information/press_releases/2006-003.html

4. Regulation and Performance of the Natural Gas market

4.1 Regulatory Issues

4.1.1 General

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

The Finnish natural gas market is relatively isolated with a pipeline connection only to the importing country Russia (Figure 7). There is only one importer and wholesale supplier – Gasum Ltd – which also owns and operates the natural gas transmission network and is the TSO.

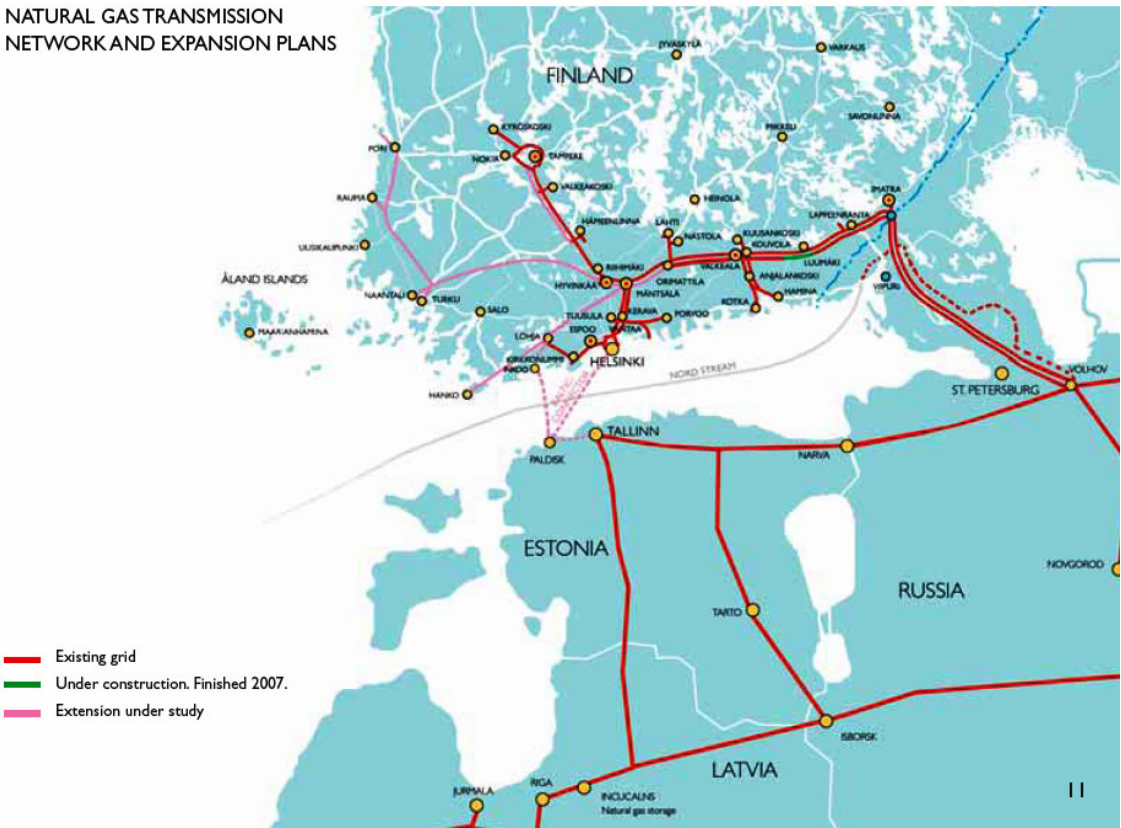


Figure 7. The natural gas transmission network in Finland and expansion plans (Source: Gasum Ltd)

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.

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

Due to the limited extent of the Finnish natural gas network the development of the Finnish natural gas market will require further extension of the pipeline system. There are plans to extend the gas pipeline to the western coast of Finland. Increasing the volume of the gas market would be important in making additional import connections economically viable. Furthermore, it would be important for Finland to be connected to the Baltic States gas network as well. When implemented, the Baltic connector linking the networks of Finland and Estonia would offer the possibility to optimise the transmission of natural gas to Finland and the Baltic States, besides 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

Due to the derogation from the Natural Gas Market Directive there is no third party access at the only cross border interconnection between Finland and Russia.

In Finland there is only one natural gas wholesale company, Gasum Ltd. The company imports natural gas and transmits it through its own transmission network to large-scale consumers and distribution companies.

On the secondary market the users of natural gas can trade the gas supplied to them by the natural gas wholesale company. There are two preconditions for the trade. Firstly, the consumption of natural gas shall be at least five million cubic metres per year, and secondly, the metering of natural gas shall be encompassed by the system of remote gas meter reading.

The secondary market was opened on the 1st of March 2001. The amount of gas sold in the secondary market consists of about one percent of natural gas demand in Finland. Monthly volumes in secondary market have varied from 11 GWh to 80 GWh during the year 2006. At the same time the system price has varied from 14.5 to 20 euro/MWh.

The volume of day-ahead product in secondary market was 373 GWh in the year 2006 and the volume of future (FUT) product was only 2.0 GWh. The volume of the bilateral trade in the secondary market was 40 GWh. In total, the volume in the secondary market was 415 GWh in the year 2006, which covered 0.92 per cent of natural gas consumption in Finland.

There is a congestion management mechanism in place for the secondary market but due the basis for the secondary market (secondary market functions within the limits of transmission capacity of the network operator) there are no congestions in the transmission system.

4.1.3 The regulation of the tasks of transmission and distribution companies

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

Network Tariffs

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

Due to the Natural Gas Market Directive and the experiences gained from the ex-post supervision of electricity and natural gas network pricing, the regulation model of network pricing has been changed from the previous ex-post regulation towards a partial ex-ante regulation. In the present regulatory system the Energy Market Authority confirms ex-ante the methodology to be used in setting both transmission and distribution network tariffs and connection charges. The Energy Market Authority has to approve ex-ante also the terms and conditions of network and connection services before the network operators are able to implement them.

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

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

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

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

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

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

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

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

As an example Table 9 shows the transmission tariffs of Gasum Ltd for reference customers from the year 2001 to the spring of 2007; the entity is euros per MW, and the customers are supposed to have a yearly consumption of 50 – 1,000 GWh, during 4,000 – 6,000 hours and peak power of 12.5-166.7 MW. Transmission tariffs have been unchanged since the year 2002 to 2005. Table 10 presents the distribution network charges for reference customers in May 2005. The data is not available for the May 2006, but distribution network charges have been increased about 15 - 25 per cent.

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

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

Table 10. Distribution network charges (cents per kWh) for reference customers in 2005.

| cnt/kWh | P1 | P2 | P3 | P4 |
|---------------|------|------|------|------|
| Average value | 2.22 | 2.05 | 1.99 | 1.81 |
| Lowest value | 1.14 | 1.14 | 1.11 | 0.98 |
| Highest value | 3.5 | 3.64 | 3.89 | 3.31 |

On the basis of statistics in year 2006 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 2006. In transmission pipeline of TSO the total forced interruption time due to disturbances were 15 minutes in year 2006.

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.

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.

4.1.4 Effective Unbundling

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

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

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

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

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

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

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

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

4.2 Competition Issues

4.2.1 Description of the wholesale market

In the year 2006, the size of the Finnish natural gas market was 4.5 bcm, which was all imported from Russia by Gasum Ltd, which is the sole wholesale supplier in Finland. Only propane is produced indigenously as it is the only gas to be stocked in small amounts by Gasum Ltd for immediate substitute for the possible lack of natural gas. The importing capacity of Gasum Ltd is estimated to be about 8 000 MW, so the maximum transmission capacity is often at use in cold winter days.

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

The wholesale supply of natural gas to the Finnish end-users and retailers is based on customer-specific contracts between Gasum Ltd and the customers. A part of the contracts are based on a public tariff, which Gasum Ltd renews at the intervals of 4 years. Another part of the contracts has been concluded before the year 1992, when the new type of competition legislation came into force prohibiting the previously used pricing methods as an example of abuse of a dominant position. In the year 2006, the share of wholesale supply sold under public tariffs will increase to some 70 per cent.¹⁴ The whole contract-based trading covers some 99.1 per cent of the wholesale market and the rest 0.9 per cent is traded in the secondary market via Gas Exchange Ltd.

Last renewal of the public tariff occurred at the beginning of year 2006. Several customers made a collective complaint to the Energy Market Authority about the new tariff-system. Energy Market Authority made a decision on March 2006 which stated that network pricing of the tariff-system was in accordance with Natural Gas Market Act. In addition Energy Market Authority shall give a decision relating to natural gas supply prices later in 2007. This is due to the fact that Energy market Authority only has ex-post power to regulate natural gas supply and accounting information on the year 2006 that is needed for the assessment has become available in May 2007.

4.2.2 Description of the retail market

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

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

¹⁴ Electrowatt-Ekono, Suomen maakaasumarkkinoiden toimivuus ja kehittämistarve (in Finnish). Report Ministry of Trade and Industry 12.11.2002.

total natural gas consumption of this segment amounts to only 1 mcm (0.02 per cent of total consumption).

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

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

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

Table 3. Natural gas price for the reference customer in February 2007.¹⁵

| | |
|--------------------------------|------|
| Cent/kWh | 14-1 |
| Network charges (excl. levies) | 0.68 |
| Energy costs and supply margin | 1.65 |
| Taxes | 0.74 |
| Total (excluding VAT) | 3.07 |

In the secondary market, consisting only about one percent of gas demand, the prices are market based. In the secondary market the price of natural gas has varied 14.5 – 20 euro/MWh during 2006.

¹⁵ Reference customer: annual consumption 150,000 MWh, 4,000 hours.

5. Security of supply

5.1 Electricity

5.1.1 Supply-demand situation during the peak load

The maximum level of peak load demand in Finland measured on the 8th of February 2007 amounted to 14,955 MW. At the same time the electricity generation capacity in Finland during the peak load period was estimated to be about 13,000 – 13,650 MW. The power reserves for system disturbances in Finland were 1,046 MW.

Total demand for electricity in Finland in 2007 is estimated to be 91.7 TWh and the corresponding peak load demand in winter 2007 - 2008 is estimated to be 15,300 MW. For the winter 2008 – 2009, the forecast for the peak load is 15,400 MW and in winter 2009 – 2010 forecast for the peak load is 15,500 MW. The peak load demand is estimated to be 15,600 MW in the winter 2010 – 2011. Total demand for electricity in Finland in 2011 is estimated to be 94.3 TWh and the forecast for the peak load for the winter 2011 – 2012 is 15,700 MW. Figure 8 presents the peak load demand and generation capacity balance during wintertime (actual and forecasts) for the years 2004/2005 – 2011/2012.

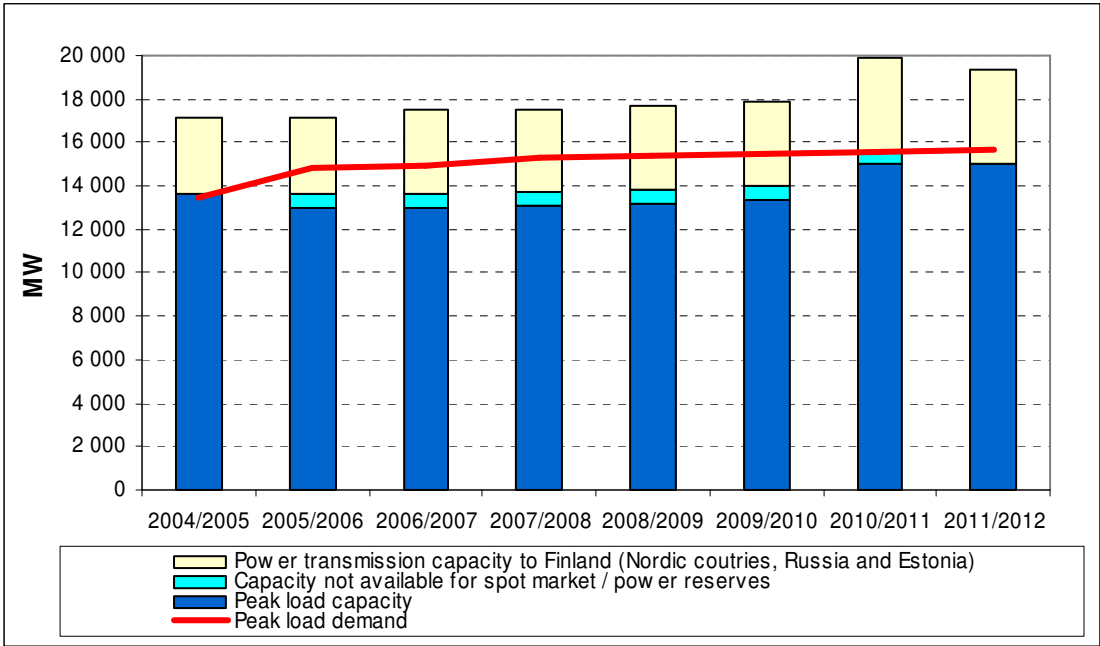


Figure 8. Peak load demand and generation capacity balance during winter seasons based on presented forecasts and forthcoming generation investment.

The import capacity of electricity in year 2006 from neighbouring countries to Finland was about 3,750 MW. Transmission capacity increased by 350 MW at the beginning of year 2007 when the Estlink DC interconnector between Estonia and Finland was commissioned.

5.1.2 Generation capacity

The total available generation capacity in the winter season 2006 – 2007 was about 13,000 – 13,650 MW in Finland. The capacity included in about 600 MW of condensing power capacity that was not available for Nordic spot market in 2006. Estimated available generation capacity in the winter season 2007 - 2008 is about 13,100 – 13,700 MW. Table 12 presents the generation capacities in peak loading by production type during the years 2000 – 2006.

Table 12. Electricity Generation Capacities in Peak Load Period, MW.¹⁶

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

Source: Statistics Finland

Generation fuel mix for capacity and energy from the year 2006 is presented in Figure 9. During the next three years (2007 – 2009) it is not expected to be any significant changes in fuel mix for power generation in Finland.

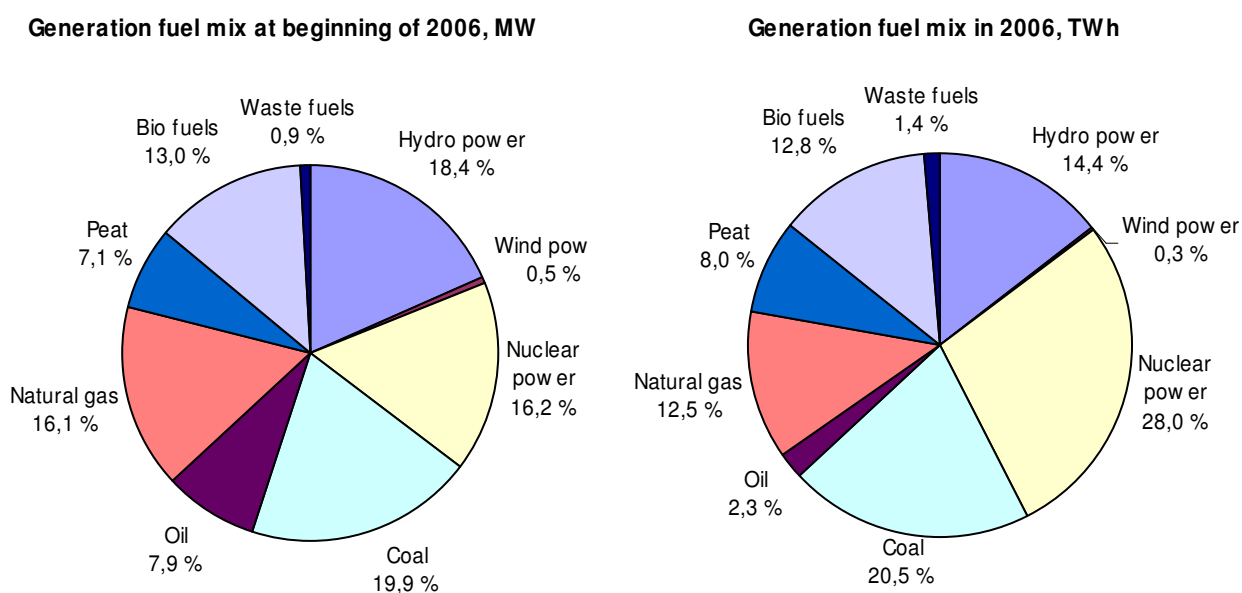


Figure 9. Generation fuel mix for capacity at beginning of 2006 (MW)¹⁷ and for energy (TWh) in 2006.

¹⁶ 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 2006 are at beginning of year.

¹⁷ Generation fuel mix for 2006 is based on data available for the moment by Statistics Finland.

Increase of power generation capacity (commissioned new capacity minus decommissioned capacity) in 2006 is presented in Table 13.

Table 13. Net new generation capacity in 2006 (in peak load period)¹⁸.

| | Plant completed minus plant closed in the year (MW) | | | | |
|------|---|-------------|-----|-----|-------|
| | Coal and oil | Natural gas | RES | CHP | Other |
| 2006 | - | - | 35 | - | 20 |

Electricity production capacities under construction at the moment are presented in Table 14. In addition, the construction project for the fifth nuclear power plant unit (Olkiluoto 3) is going ahead. The new plant is planned to be in production at beginning of 2011 with total electricity generation capacity (about 1 600 MW).

Table 14. Forthcoming new generation capacity in 2007-2009 (in peak load period).

| | Forthcoming new capacity (MW) | | | |
|------|-------------------------------|---------------|----------|------------------|
| | Hydro | CHP | | Condensing power |
| | | District heat | Industry | |
| 2007 | 11 | 4 | - | - |
| 2008 | 31 | - | 118 | - |
| 2009 | 2 | 234 | - | - |

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.

¹⁸ Availability 100%

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 over 120 MVA can get limited feed in tariff during years 2007 – 2010 due to security of supply reasons. Feed in tariff system is limited for total capacity of about 400 MW peat power and at maximum for 3900 hours per year. Feed in tariff will depend on prices of coal and CO₂-emissions and it is paid by TSO to the peat power plants and charged from network users by TSO. The system is overseen by the Energy Market Authority.

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

5.1.4 Major infrastructure projects on interconnections

Fenno-Skan 2

Fingrid Plc and Svenska Kraftnät, the transmission system operators in Finland and Sweden respectively, have decided to construct a new cross-border transmission connection between the countries. The submarine DC cable of 800 MW is due to be ready in the autumn of 2010. The companies will share the ownership and investment of the submarine cable, totalling

about 230 million euros, 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. 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. The actual construction work will commence after the license process is completed. The project will be subject to international competitive bidding.

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 Code¹⁹. 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

¹⁹ Available on website www.nordel.org.

needed in the Finnish power system. For this, TSO uses its own resources and also purchases reserve maintenance from other resource owners. Restoration of the power system from severe disturbance incidents is headed by TSO's Power System Control Centre.

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

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

Table 15. Summary of reserves for securing system operation in Finland (Source: Fingrid Plc).

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

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

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

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

5.2 Gas

All natural gas supplied in Finland is imported from Russia. There are no production or storage facilities in Finland. The natural gas consumption in 2006 was 4.5 bcm. The forecasts for the next four years are: 4.7 bcm in year 2007, 4.8 bcm in year 2008 and 2009 and 4.9 bcm in year 2010. The currently available import capacity from Russia is about 8,000 MW.

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

The TSO, Gasum Ltd, has plans to expand its natural gas transmission pipeline to the western part of Finland. Total of 75 km parallel new gas transmission pipeline was completed in 2006. At the moment new parallel gas transmission pipeline is under construction between Luumäki and Anjalankoski. In early 2007 Gasum Ltd has completed a condition survey of the Imatra-Kouvola transmission pipeline. The survey demonstrated a higher incidence of corrosion than had been known previously. The most severely damaged section of the pipeline next to Kouvola (Pajari-Valkeala) is planned to be repaired.

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.



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

6.1.3 The implementation of Directive Annex A criteria

Information to be given before concluding a contract

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

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

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

Publicising the terms and fairness of the terms

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

Regarding networks services the Section 12 of the Electricity Market Act states that the network operator shall publish the general terms of sale and the prices of its network services as well as the underlying criteria. Furthermore, Section 14 states that the sale prices and terms of the network services and the criteria according to which they are determined shall be equita-

ble 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.

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 2006

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

6.1.6 No end-user price regulation of electricity in Finland

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, so revising and updating of these price caps is not necessary. 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.

Energy Market Authority has not collected accurate information on annual switching rates, but is preparing to do that in the future; sample survey has been conducted in spring 2007. According to the sample surveys carried out by the branch organisation the Finnish Energy Industries approximately 11 per cent of household customers had changed their supplier by the end of year 2004. However, some of customers who have not switched his/hers supplier, have negotiated a new contract on competitive prices and are no more purchasing electricity within supplier's obligation to supply. According to the energy amounts sold to the household customers about 70 per cent of energy was sold within supplier's obligation to supply in 2004. The comparable figure for the small and medium-scale industrial and business users was only 18 per cent.

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 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 or a body specified by it 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 Complaint Board, which is an impartial body of experts for solving disputes between the parties. The Consumer Complaint 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.

6.2.2 Appropriate treatment of vulnerable customers

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

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

Data on the number of disconnections for non payment in the year 2006 is not available.

6.2.3 No end-user price regulation 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.

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

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

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