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Fingrid **in brief**

- Established on 29 November 1996
- Started operations on 1 September 1997
- Owns the Finnish main grid and all significant cross-border connections
- Approximately 14,000 kilometres of transmission lines and 106 substations
- Customers comprise electricity producers, electricity market parties, major industrial enterprises, and regional and distribution network companies
- Revenue 382 million euros
- Balance sheet total 1,562 million euros
- Owns 20 per cent of electricity exchange Nord Pool AS
- Number of personnel at the end of the year: 249 (237 in permanent employment)

Fingrid's **mission**

As the transmission system operator in Finland, Fingrid's mission is to:

- develop the electricity transmission system
- transmit electricity reliably
- promote the functioning of the electricity market.

Fingrid's **values**

- transparency
- impartiality
- efficiency
- responsibility

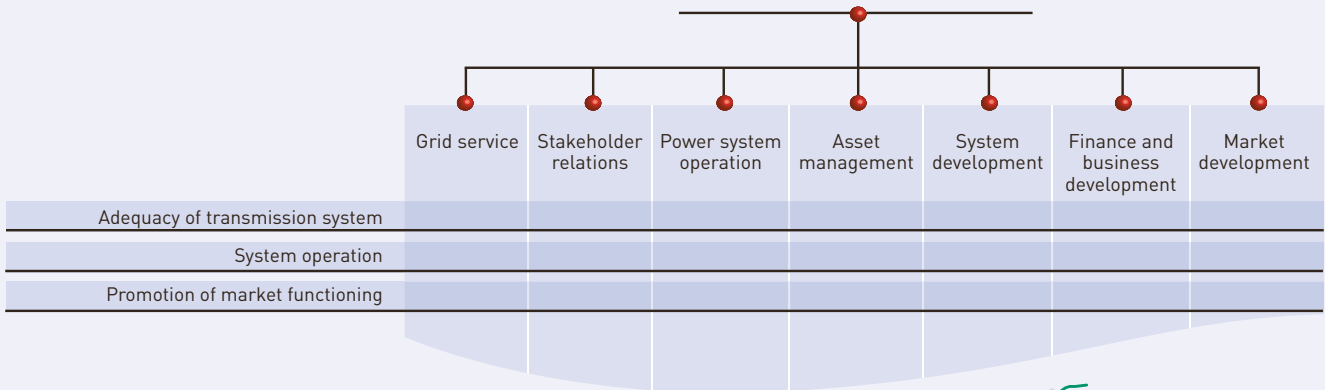
Fingrid's **vision**

Fingrid's vision is to be the international forerunner in transmission system operation.



Fingrid Oyj

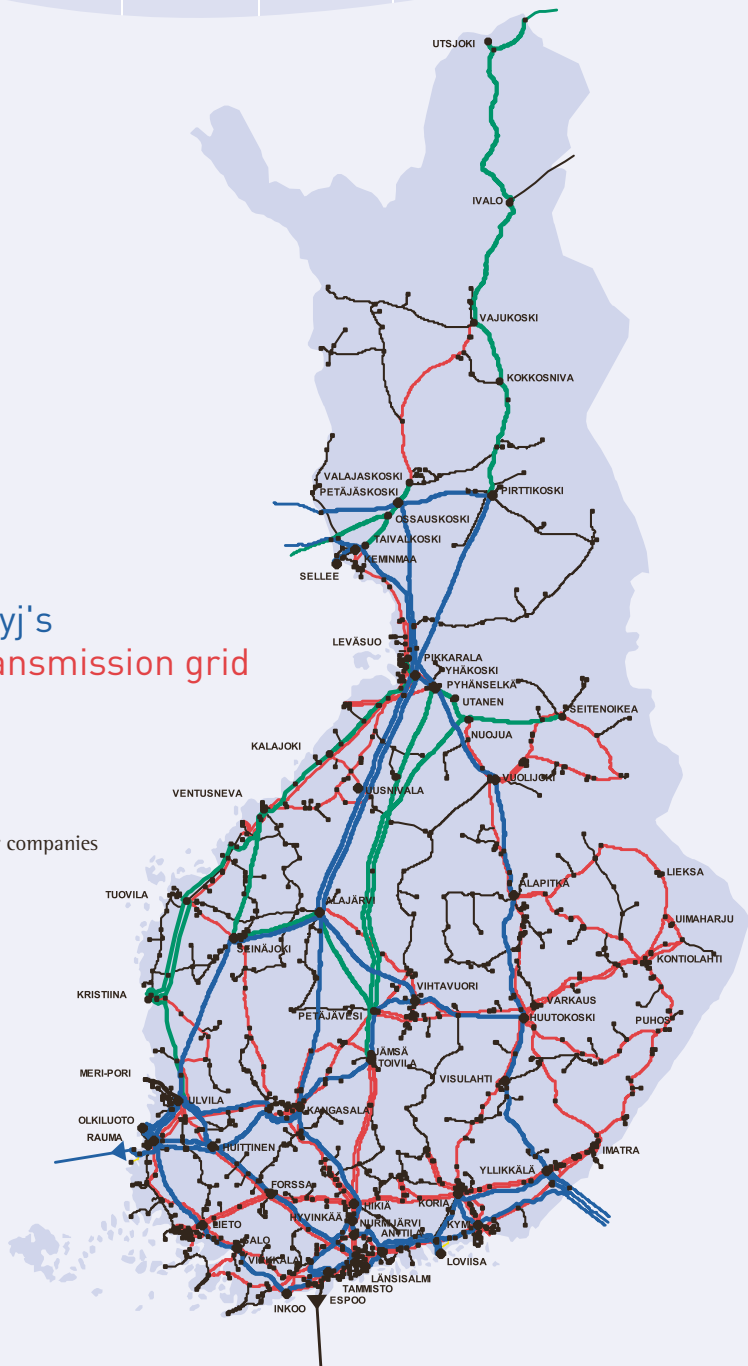
Jukka Ruusunen, President & CEO



Fingrid Oyj's power transmission grid

1 January 2009

- 400 kV grid
- 220 kV grid
- 110 kV grid
- lines of other companies



Review by the CEO



Decision-making in energy matters is shifting to the European Union to an increasing degree.

One concrete example of this was seen at the end of 2008, when an agreement was reached on the EU's energy and climate package. The EU assumed concrete control of emissions trading and imposed binding national goals on renewable energy. However, the measures for attaining the objectives concerning renewable energy were left to the national level for the time being.

The EU's climate and energy strategy has a crucial impact on Fingrid, because the implementation of the strategy is pivotally based on reliable and efficient European transmission grid infrastructure. In fact, the strategy of the EU highlights grid development. A functioning European electricity transmission grid is absolutely required so that the European synergies can be utilised to the full within the EU. It is also an essential condition for reaching the EU's ambitious objectives to increase the use of renewable energy. From the Finnish viewpoint, future grid development will mean the development of the grid in the area of the Baltic Sea rather than the Nordic grid.

Another legislative entity having significant bearing on Fingrid is the EU's third legislative package on the electricity market, which has been overshadowed by the energy and climate package. Decisions can be expected in the spring of 2009. The electricity market legislation package would bring changes to the ownership of transmission system operators (TSOs) – including Fingrid.

The package would outline a distinct architecture for EU-level market rules and technical rules for transmission grids: the Commission of the EU, authorities, and TSO organisations would have well-defined roles. This would be a considerable improvement over the present Nordic approach, for example, where co-operation is based purely on voluntary efforts and where the roles of the various players in regional decision-making are based on national legislation.

When the history of the energy business in Europe is written one day, the date 19 December 2008 will be remembered as an important milestone. It was then that the European TSOs established ENTSO-E (European Network of Transmission System Operators – Electricity). A total of 42 TSOs from 34 countries signed the charters of the organisation in Brussels. ENTSO-E will commence operations in April 2009.

The establishment of the organisation is related to the EU's third legislative package on the electricity market and to the EU's energy and climate package, which require active co-operation from TSOs. The organisation aims to promote electricity market integration within the EU and create market rules and security of supply rules related to transmission grids in co-operation with the Commission of the EU and with ACER (Agency for Cooperation of Energy Regulators). ENTSO-E is also to draw up ten-year plans for grid development, monitor the trend in security of supply, and prepare shared procedures to support grid operation.

The earlier co-operation organisations will merge with ENTSO-E during 2009. In the Nordic countries, this means that Nordel's last annual meeting will be held in Helsinki in June 2009. In practice, Nordic co-operation will continue within regional groups in the new ENTSO-E organisation.

Fingrid has contributed actively to the establishment of ENTSO-E from the very beginning. In the words of the Finnish Foreign Minister: "The EU does not provide service to tables." The best way to present the Finnish and Nordic viewpoints is to work actively in the new organisation. For Finns, the establishment of ENTSO-E means that the pan-European aspects will be considered more broadly in the development of the electricity market and grid planning and use. From the viewpoint of the Nordic countries, the establishment of the organisation comes at an excellent time: over the past years we have come to notice that the Nordic countries together are too small an area when regional grid development plans are being drawn up and when an international electricity market is being developed.

The Finnish Government published its own climate and energy strategy towards the end of 2008. The main objective in the strategy is to achieve self-sufficiency in terms of electric energy and power. From the point of view of the Finnish grid, the primary generation investments concern the connection of additional nuclear power capacity and 2,000 megawatts of wind power to the transmission grid. Fingrid considers that the strategy contains many positive ele-

ments. Fingrid is concerned over the sufficiency of power in the future; the fact is that electricity generation must equal its consumption at all times. The Finnish Government has also stated that Finland does not produce sufficient peak power at market terms.

Fingrid is working responsibly so that the objectives specified in the strategy can be attained in Finland. In accordance with the company's long-term strategy, Fingrid's total capital expenditure in the grid and reserve power will total 1,600 million euros in the next 10 years, enabling the generation investments conforming to the climate and energy strategy. The next 10 years will constitute a new chapter in the development of the Finnish grid: Fingrid's capital expenditure programme of 1,600 million euros represents almost half of the replacement value of Fingrid's present power system! This work is already in full progress.

The strategy will also require us to enhance grid operation to conform to the new operating environment. Here, the connection of the Olkiluoto 3 nuclear power unit to the grid will be a significant landmark. We will also increase the volume of reserves by constructing our own reserve power capacity and by signing contracts for electricity generation and consumption solutions in co-operation with our customers.

Improving the inter-Nordic Elbas market and regulating power market has a crucial role in the development of the electricity market. Promoting market-focused demand response is also impor-

tant. It is good to remember that wind power, for example, needs to be backed up by a functioning electricity market.

Related to the control means, we have launched preparations for managing the feed-in tariff system and for the transparent reporting of subsidies. Here, too, Fingrid regards transparency as an important consideration. In this way, we promote efficiency and work in the best possible manner to benefit our customers.

Co-operation with our customers has been excellent. We have improved customer co-operation through Fingrid's Advisory Committee, as a result of which we established three customer committees in accordance with our main duties: Grid Committee, Operations Committee and Market Committee. Based on the same structure, we arranged three customer events which received a very positive welcome. On this basis, we are well equipped to prepare anticipating efforts, no matter whether the matters at hand concern Finland, the Nordic countries, or the whole of Europe.

Fingrid has had a great year. As the main coach, I would like to thank the Fingrid team for its excellent work input. Together, we have defined a long and interesting road which runs in the very core of Finnish society and at the same time as part of international developments. On this road, we are guided by our solid shared values and our objective to retain the high level of system security and well-functioning electricity market – to benefit the Finnish society.

Jukka Ruusunen
President & CEO

• Market Place and Cathedral in Helsinki in evening lighting.



Power system operation	2008	2007	2006	2005
Electricity consumption in Finland TWh	86.9	90.3	90.0	84.7
Fingrid's transmission volume TWh	65.4	68.2	67.3	62.3
Electricity transmissions Finland-Sweden				
exports to Sweden TWh	4.2	3.7	3.8	1.4
imports from Sweden TWh	3.7	4.0	3.4	7.0
Electricity transmissions Finland-Estonia				
imports from Estonia TWh	2.3	1.9		
Electricity transmissions Finland-Russia				
imports from Russia TWh	10.9	10.2	11.5	11.3

Power System Operation

There were no significant disturbances in the Finnish transmission grid in 2008. However, a notice of a strained power situation had to be given on 5 January as a result of the difficult operating situation following a disturbance in the Olkiluoto 2 nuclear power unit.

In 2008, electricity consumption in Finland decreased by 3.8 per cent on the previous year, to 86.9 terawatt hours (90.3 terawatt hours in 2007). The winter with exceptionally mild weather decreased electricity consumption. The economic recession in the autumn also decreased the need for electricity by industries. A total of 65.4 terawatt hours (68.2) of electricity was transmitted in Fingrid's grid, representing 75 per cent of the electricity consumption in Finland.

Because of the mild winter, the electricity consumption peak of 13,770 megawatts was 10 per cent below the consumption peak in previous years (14,914 megawatts in 2007). Peak power subject to the Power Reserve Act was not started on a single occasion.

The second nuclear power unit at Olkiluoto tripped from the grid on 5 January 2008, as a result of which imports from Sweden rose to the full transmission capacity. Electricity consumption on that day was not significantly high (peaking at approx. 13,000 megawatts). Despite this, Fingrid issued a notice of a strained power situation in the evening, because the re-starting of the Olkiluoto unit was delayed and because there were no domestic regulating bids available to cover the increase in consumption resulting from night-rate electricity loads. More electricity production capacity became available after the notice, and the situation did not escalate into a power shortage.

Electricity transmissions between Finland and Sweden mainly consisted of imports from Sweden into Finland during the early part of the year. From mid-April, the direction of transmissions varied, with exports from Finland being dominant from the late summer until the end of the year. Service and construction work on the grid did not really reduce the transmis-

sion capacity made available to the market. A total of 3.7 terawatt hours of electricity was imported from Sweden into Finland (4 terawatt hours in 2007), and 4.2 terawatt hours (3.7) was exported from Finland into Sweden in 2008.

Electricity transmissions from the Baltic countries on the Estlink connection from Estonia mainly consisted of imports into Finland. The import volume on this connection was 2.3 terawatt hours (1.9). The transmission grid in Estonia occasionally restricted the transmission capacity made available from Finland to Estonia. Fingrid took care of the operation of the Estlink connection together with Põhivõrk, the transmission grid operator in Estonia.

Electricity imports from Russia into Finland totalled 10.9 terawatt hours (10.2) in 2008. The import capacity on the Russian transmission connection was restricted by maintenance work in Russia until the end of March.

During the review period, there were no significant extensive faults in the grid. There were some short-term disturbances on the Russian cross-border connection in the early autumn, resulting from the grid in Russia. At worst, these decreased the import capacity by 900 megawatts. The falling of a transmission line tower in Paimio in mid-February as a result of guy corrosion caused a transmission interruption of a couple of weeks on the Lieto-Salo 400 kilovolt transmission line. The event did not cause damage to the environment or interruptions in electricity supply.

Fingrid is making preparations for increasing the volume of fast disturbance reserve in the coming years. The fast disturbance reserve secures the functioning of the power system for example in the event of disturbances in power plants, and it is

The consumption peak in the winter was reached in January; however, in 2008 the consumption peak was about 10 per cent below that of previous years.

used for restoring the power system to a normal state as soon as possible. In 2008, Fingrid signed a right of use contract on the use of the Hinkismäki 40 megawatt gas turbine as a reserve power plant.

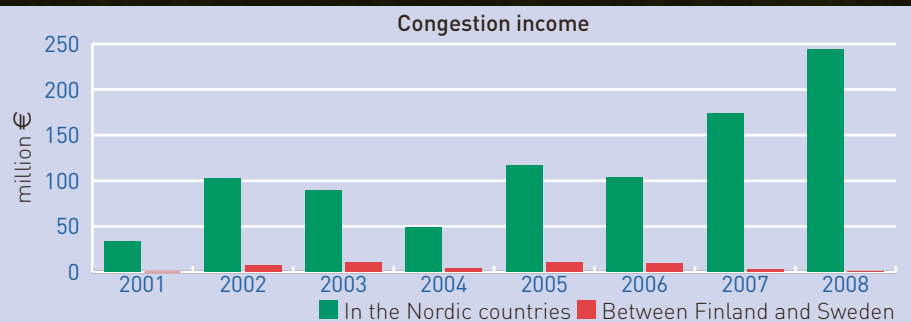
Losses are always involved in electricity transmission. The losses in the Finnish electricity transmission grid total just over 1 terawatt hour per year, which accounts for about 1 per cent of all electricity consumption in Finland. Second only to depreciations, loss energy purchases are Fingrid's biggest single cost item; 50 million euros in 2008. In May, Fingrid signed a three-year contract on portfolio management services for Fingrid's loss energy procurement.

Contingency planning is also essentially related to system security management. The Power and District Heat Pool continued its work for taking care of readiness in the power supply sector through an agreement between Fingrid and the state of Finland. The Power and District Heat Pool is one of 24 pools which attend to contingency planning by industry and commerce for crises, applying the principle of public-private partnership. In addition to the transmission system operator, power producers and distributors are also represented in the pool.

The international co-operation environment for power system operation is changing considerably, because the European organisations have established a new co-operation organisation ENTSO-E. In the future, ENTSO will define the level of European security of supply and consolidate co-operation in power system operation. The close co-operation for the Nordic interconnected grid will continue, now through ENTSO's regional group and functional groups. ●

• Kuopio with its 92,000 inhabitants is the 9th biggest town in Finland. In 2008, electricity consumption in the area of the electricity network of Kuopion Energia was about 570 gigawatt hours.

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In December, the European transmission system operators established a new co-operation organisation ENTSO-E to promote electricity market integration and other transmission system co-operation.

Promotion of Electricity Market

The transparency of the electricity market was enhanced in 2008, and Fingrid increased the amount of electricity market information published on its website.

The area prices in the Nordic wholesale market of electricity differed greatly from each other. In the early part of the year, the spot price of electricity in Finland was occasionally up to four times as high as the corresponding price in Southern Norway. This was so because congestions in the transmission grid in Southern Scandinavia resulting from technical faults complicated the supply of Norwegian hydro-power to the Nordic market. There was a uniform price in the entire Nordic electricity market area for only 9 per cent of the hours of 2008.

The most significant restrictions in the available electricity transmission capacity existed in the cables running at the bottom of the Oslo Fjord and on the Skagerrak connection between Southern Norway and Jutland in Denmark. Instead, there were no problems in the transmission connections between Finland and Sweden. In practice, the two countries constituted a uniform wholesale market area of electricity, with the same spot price for 98 per cent of the time. Only 0.5 per cent of all congestion income accumulated on the border between Finland and Sweden. This income totalled more than 240 million euros in the Nordic countries.

The average price of electricity on the spot market in 2008 was 45 euros per megawatt hour (28 €/MWh in 2007), while transmission congestions raised the area price in Finland to a level of 51 €/MWh (30 €/MWh).

The integration of the European electricity market is progressing swiftly in line with the establishment of the new European organisation ENTSO-E (European Network of Transmission System Operators – Electricity). From the transmission system operators (TSOs), the new organisation calls for greater input in the development of the market and market rules

in Europe. TSO co-operation will now have a more official nature and also more resources. ENTSO-E continues the development of regional markets, and also contributes to the enhancement of rules between various areas.

The transparency of the market was improved considerably. Fingrid increased the amount of electricity market information published on its website. The new items include congestion income, electricity production forecast, and volumes and prices of balance power and regulating power. Nord Pool Spot also published additional information, as did the European ETSOVista service of TSOs.

In September, the Nordic energy ministers decided on measures for the improvement of the electricity market. The ministers requested the Nordic TSOs to take action for dividing the inter-Nordic electricity exchange area into more numerous price and/or bidding areas than at present. Based on this, Fingrid launched an analysis into potentially dividing Finland into two areas.

An agreement on the harmonisation of balance service was reached between the Nordic countries, and the new procedure was introduced at the beginning of 2009. The main changes include the handling of electricity balances in two different balances – production and consumption balance – and the harmonisation of costs included in balance service. A so-called two-price model is applied to the balance deviation in the production balance, and a single-price model is applied to the balance deviation in the consumption balance. Another major change was that produc-

tion plans and regulating power bids must now be submitted 45 minutes before the beginning of each hour. A new data system was introduced in the nation-wide balance settlement process in Finland.

The wholesale market for electricity in Northern Europe will be integrated once European Market Coupling Company (EMCC), which combines the Nordic and German spot exchange areas for electricity, will launch actual operations. EMCC integrates the bidding books of the Nordic and German exchange areas and optimises electricity transmissions between the exchange areas. The transmission capacity will be used more efficiently, and the transactions will always take place from an area of a more inexpensive market price to an area of a more expensive market price. However, technical problems shifted the launching of EMCC from the autumn of 2008 to the next year.

Together with the Russian and Estonian TSOs, Fingrid examined the opportunities to introduce increasingly market-focused electricity trading, which utilises the electricity exchange, in cross-border electricity transmission. The Russian parties have been interested in importing electricity from Finland, and the TSOs analysed preliminarily how the present connection could be converted partly into a two-way link. However, the facilities in the neighbouring countries have not enabled any progress in the matter.

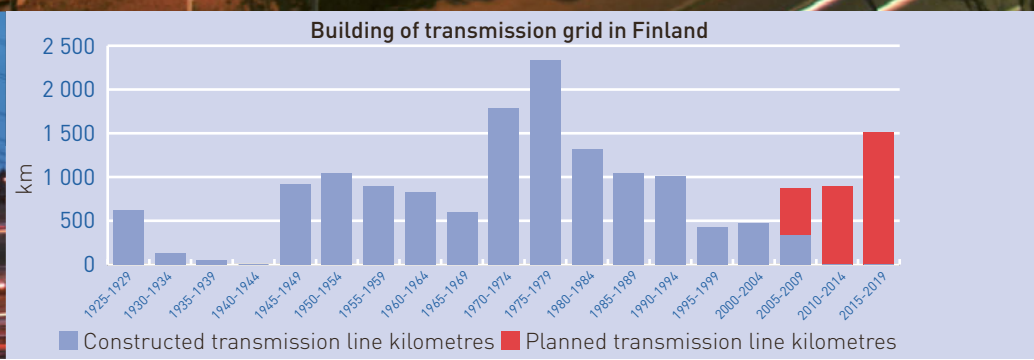
So as to make peak power specified in the Finnish power reserve act available to the market, Fingrid reached an agreement with Svenska Kraftnät and Nord Pool Spot on new procedures which conform to Nordel's recommendations. ●

Electricity market	2008	2007	2006	2005
Nord Pool system price, average price €/MWh	44.74	27.93	48.59	29.33
Area price in Finland, average price €/MWh	51.02	30.01	48.57	30.53

● The Port of Kotka is one of the busiest export ports in Finland. In 2008, almost 11.6 million tonnes of goods were carried through it.



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Grid Development and Maintenance

Fingrid published its plans to reinforce the Finnish transmission grid. The capital expenditure in the grid and reserve power will total 1,600 million euros by 2020.

Construction of the Finnish grid continued actively throughout the year. Fingrid's capital expenditure in 2008 totalled 88 million euros (79 million euros in 2007). There will also be significant construction projects in the coming years, because Fingrid is making capital investments totalling 1,600 million euros in the transmission grid and reserve power over the next 10 years. This will enable the connection of one large nuclear power unit and 2,000 megawatts of geographically decentralised wind power capacity to the Finnish grid by 2020 as well as the renewal of ageing parts of the grid.

One of the foremost projects completed in 2008 was the Ulvila-Kangasala 400 kilovolt transmission connection. This will reinforce electricity transmission from the west coast to Pirkanmaa. Moreover, the 110 kilovolt line between Kankaanpää and Lålby in Western Finland was renewed. In all, some 40 construction projects on the main grid were in progress.

Several significant procurement contracts were signed during 2008. The submarine cable for the new direct current link between Finland and Sweden (Fenno-Skan 2) will be supplied by Nexans Norway AS, and the construction of the converter stations by ABB Ab. The total value of these is approx. 260 million euros, half of which will be covered by Fingrid. The construction of Fenno-Skan 2 started in 2008, and it is projected to be ready by the end of 2011.

Other significant procurement decisions made in 2008 included the procurement of the Isoniemi 220/110/20 kilovolt substation, Isoniemi-Vajukoski 220 kilovolt transmission line, Asmunti and Tuome-la 400 kilovolt series capacitor stations, Kopula 400/110 kilovolt substation, Petäjäsoski 400 kilovolt and Valajäskos-

ki 220 kilovolt substations, expansion of the Keminmaa substation, and purchases for the Katerma-Kuhmo 110 kilovolt transmission line.

The Nordic TSOs continued their efforts to eliminate transmission congestions in the grid. Of the five projects suggested earlier by Nordel, four are already being engineered or constructed, and a letter of intent exists for the fifth. In the spring of 2008, Nordel presented a plan concerning new projects scheduled for implementation after 2015. The new Grid Master Plan together with national capital expenditure projects will double the Nordic grid investments to an annual level of 600–800 million euros.

Alongside the Nordic analysis, the viability of three transmission connections between the Baltic countries and Poland as well as between the Baltic countries and the Nordic countries was studied. The first stage of the study was completed at the turn of 2008 and 2009. The study concerned a new transmission connection Estlink 2 between Finland and Estonia, a link between Sweden and the Baltic countries, and a connection between Lithuania and Poland. In order to maintain the security of electricity supply in the Baltic area, the EU established a group consisting of the EU member states in the area of the Baltic Sea to think of ways in which to develop the electricity market and transmission connections in the area over a long time span (Baltic Interconnection Plan). Fingrid contributes actively to the work of this group.

As a result of the establishment of ENTSO-E, grid planning co-operation will expand to cover the area of the entire Europe. In practice, this means the drawing up of future scenarios and specification of transmission needs over an increasingly large geographical area.

The Finnish grid has been constructed in several stages – the most recent chapter in the development of the Finnish grid was started. By 2018, Fingrid will build more than 2,700 kilometres of new transmission lines and about 30 new substations.

It will also enable the wide-spread application of the Nordic market-driven grid planning approach. From Fingrid's viewpoint, the most crucial thing is to develop the grid surrounding the Baltic Sea.

Fingrid is making preparations for increasing the volume of fast disturbance reserves by 100 to 400 megawatts in the coming years. The company is studying whether the present generation capacity in Finland has plant units applicable to reserve power operation, and whether there are industrial loads which can be shed and which can therefore reduce the need to construct new reserve power capacity. Relating to this project, environmental impact assessments for the new reserve power plants were launched in six locations in the late summer.

The three-year contracts for the maintenance management of substations, transmission lines and reserve power were subjected to competitive bidding and signed in 2008. 16 million euros (16 million euros in 2007) were spent on the maintenance management of the ageing grid. Approximately 7 (6) million euros were used for the renovations and maintenance of Fingrid's gas turbine plants. ●



In its Grid Day on 9 September, Fingrid published a wind power survey which examined the impacts of additional wind power generation on the Finnish transmission grid in view of system security, adequacy of transmission capacity, and the electricity market.

As a result of consolidation of municipalities, Jyväskylä became the 7th biggest town in Finland at the beginning of 2009. The photograph shows the Ylistö bridge in evening lighting.



Fingrid participated again in the Farmari and Metko fairs in 2008. Both events are important to Fingrid because they provide an opportunity to meet landowners and other stakeholders face to face and to conduct discussions on issues such as multipurpose uses of transmission line areas, and new construction projects.

Fingrid ensures interaction with its stakeholders by applying a new committee structure. The company has four committees and co-operation forums, with more than 60 representatives of customers and stakeholders participating in their work.

Customers and Stakeholders

Fingrid revised its customer committee structure in 2008. The Operations Committee, Grid Committee and Market Committee provide arenas for close interaction. Interaction was also enhanced with the other stakeholders.

The transmission system operator has a highly varied range of stakeholders, because its operations have an indirect impact on the life of all Finns. During 2008, there were close contacts not only with Fingrid's customers but also with the electricity market parties, authorities, landowners, research and educational establishments, and the media.

The technology forum assembled twice, focusing on information exchange between the parties and on the further processing of R&D projects which had derived their ideas from within Fingrid. The forum on transmission lines and the natural environment discussed birdlife and scenery issues related to transmission lines. The forum on transmission lines and environmental legislation reviewed Fingrid's disturbance reserves and transmission line projects in the near future. Landowners were met at the presentations of various projects and also at two special fairs.

Towards the end of 2008, Fingrid surveyed its stakeholders' views of the company's performance. The feedback was encouraging. Fingrid's operations were considered to be responsible, transparent and cost-effective. The company's operations also attracted appreciation in the various groups. Landowners hoped to have more say in decisions concerning transmission lines. On the other hand, a majority of them thought that they had obtained sufficient information on the construction of a new transmission line, and most landowners

did not suffer significant inconvenience during the construction period.

To its customers, Fingrid offers transmission services and electricity market services. The transmission services cover connection to the grid, electricity transmission, and development of the grid. The electricity market services encompass the electricity market infrastructure, electricity market information, and balance services.

The new four-year contract period for the transmission service commenced at the beginning of 2008. The price level of the transmission service was raised by an average of 4.5 per cent. The main reasons for the price increase are the company's extensive capital expenditure programme and a rise in general cost level. The terms of the grid service were specified concerning mutual liabilities for damages. The liability for damages was expanded to cover material damage and personal injury inflicted on electricity users connected to a regional network.

The Energy Market Authority supervises the reasonableness of proceeds from the transmission grid business. During the supervision period of 2005–2007, the proceeds from Fingrid's business were approx. 100 million euros below the permitted level. The present supervision period covers years 2008–2011.

The Energy Market Authority confirmed the updated general terms of connection to the grid, the pricing principles of

the connections, and system technology requirements concerning power plants.

The new balance service model introduced at the beginning of 2009 was presented to the balance providers. A seminar on this topic was arranged for balance service customers. Three other seminar days were also arranged in 2008 for customers and stakeholders: Electricity Market Day, Grid Day and System Security Day. These events discussed topical themes related to the electricity market, Fingrid's capital expenditure, and system security.

The one-year agreements for electricity imports from Russia were confirmed for 2009. The objective is to amend the transmission terms for electricity imports from Russia so that they serve the electricity market better than now. There is ongoing development work, and the goal is to introduce the new, increasingly market-focused import conditions in early 2009.

Fingrid has heard the voice of customers and market players since its establishment. The composition and duties of the customer committees and the Advisory Committee were revised in 2008. The Advisory Committee constitutes a strategic interaction channel for the CEO of the company with the representatives of the customers. The Grid Committee, Operations Committee and Market Committee, which were launched in the autumn, focus on topical issues and operative practices in the respective areas. ●

• The population of Helsinki is approaching 575,000. In 2008, Helsinki consumed some 4.67 terawatt hours of electricity.



Occupational safety is a main consideration for Fingrid. In 2008, the company and its service providers paid special attention to the systematic use of personal protective equipment. When moving within work sites and switching stations, everyone must wear a helmet and high-visibility clothing.



At the end of 2008, Fingrid employed 249 people, 237 of whom were permanent employees. The number of personnel corresponds well to the company's needs.

Personnel and Expertise

Fingrid started tailored training programmes in management and supervisory duties in 2008. At the same time, there was workplace community training, internal technical training and language training for the entire personnel, and the employees' vocational supplementary training was supported.

Fingrid's personnel policy relies on the corporate values: transparency, impartiality, efficiency and responsibility. The employees' welfare is highlighted in the way the company is led. The expanding and increasingly versatile duties together with an operating environment which is more demanding than before provide a challenge for change. The personnel motto "Current flows" calls for a well-functioning workplace community, which makes sustainable input in the enhancement and good management of personnel resources and expertise.

Sufficient personnel training and various services promoting welfare at work create the foundation for a good workplace atmosphere and efficient performance. Changes in the workplace atmosphere and workload are surveyed annually through questionnaire studies. The feedback given by the personnel has been encouraging in recent years, and this provides a good basis for continuing operational development. In an atmosphere survey conducted by the Finnish Institute of Occupational Health, Fingrid's person-


nel gave the company a general grade of 8.5 on a scale of 4 to 10 in 2008 for its performance as an employer. Overall, the results of the atmosphere survey were very good, with Fingrid attaining top-ranking grades as compared to many other Finnish enterprises.

Personnel training stems from every employees' responsibility for welfare at work and for operational results. In 2008, the personnel development process encompassed tailored training programmes to improve the work of the Board of Directors and executive management group as well the work of supervisors. Workplace community training intended for the entire personnel was launched in the spring during a personnel day, and it will be continued systematically in the coming years in smaller groups. Correspondingly, training of supervisors will continue in accordance with a tailored two-year programme drawn up for Fingrid. Training targeted for specialists also consists of packages put together specifically for Fingrid. The criteria of a specialist's career, applied by Fingrid, were updated in 2008. The goal

is to enable constant improvement as a specialist through transparent and uniform criteria.

Fingrid's efficient and successful performance is backed by a shared view and understanding of the personnel concerning the values, strategy and objectives guiding the operations. This calls for efficient communications and interaction. Fingrid arranges three personnel days annually. These are used for discussing issues such as appraisal interviews with the employees, operational planning, and the company's operations.

The number of personnel in Fingrid remained at the same level as in 2007. At the end of 2008, Fingrid employed 249 people, 237 of whom were permanent employees. Fingrid's number of personnel corresponds well to the present needs and scope of the company's business. Some of the personnel will reach retirement age in the coming years, or approach this age. The company is putting more and more focus on transferring the expertise of these age classes to the younger employees. ●



• A view across the river Tornionjoki in Lapland. Electricity consumption by Outokumpu Stainless Oy, the biggest employer in Tornio, is almost ten times as high as other electricity consumption in Tornio. Outokumpu's Tornio steel mill consumes more than 2.1 terawatt hours of electricity per year.

Research and Development

Fingrid's research and development efforts aim to devise new methods for maintaining the high system security of the transmission grid, and at the same time utilise the full transmission capacity of the grid. Moreover, R&D endeavours to develop the electricity market, adapt the grid to its environment, and promote expertise in co-operation with the stakeholders.

Fingrid has some 55 ongoing R&D projects, which account for approx. 1 million euros of the company's R&D input. Moreover, Fingrid sponsors a professorship in electricity transmission systems at the Helsinki University of Technology as well as the work of the electrical research and environmental pools. The projects supported Fingrid's three main business processes, i.e. adequacy of transmission system, system operation, and promotion of market functioning. As in the previous years, several projects involved a Master's thesis or a doctoral thesis written within Fingrid or through its sponsorship. The donated professorship was utilised in the supervision of several Master's theses. Many projects were also implemented through co-operation between the Nordic transmission system operators.

A significant portion of the R&D input was used for long-term projects related to the monitoring and control of low-frequency power oscillations. These projects have enabled a significant increase in the transmission capacity of the grid. A doctoral thesis is being written on this topic, and there is also an inter-Nordic project which utilises synchronised measuring instruments installed in the various parts of the Nordel grid.

Projects aiming at a more detailed specification of system security, improved system security, and establishing the impacts of wind power on the power system progressed through post-graduate studies. Two doctoral dissertations are being written on these topics. Calculation methodology developed earlier was also applied to practical network planning.

Fingrid together with the Energy Market Authority launched a shared R&D project for updating the consumption type parameters required in the calculation of disadvantages inflicted by electricity transmission interruptions on the national economy. This project will be brought to conclusion in the early part of 2009.

The suitability of new methods, such as ground penetrating radar, for studying the foundations of transmission line towers was surveyed in co-operation with service providers in 2008. The results suggested, however, that the new methods are better suited for ground surveys at substations.

Related to promoting the functioning of the electricity market, Fingrid participated in the project "Future of Finnish energy technology" shared by several Finnish parties. The project focuses on issues such as trends in electricity demand and

Fingrid's research and development input totalled approx. one million euros. The R&D projects supported the company's business processes.

supply in Finland and its neighbouring countries.

Research pertaining to electromagnetic fields continued within several different projects. A project surveying computing programs suited for the theoretical calculation of these fields was concluded in the early part of 2008. Based on the results, it was decided to procure a new tool for assessing electric and magnetic fields. Voltages induced in cattle wires in transmission line areas were studied in the summer. Moreover, a representative of Fingrid participated in an international group drawing up a standard concerning the exposure of workers to electromagnetic fields. ●



Electricity Museum Elektra had a theme weekend on electrical inventions and their inventors for the entire family in early August. In a mind-inspiring competition, children could design an electricity-consuming invention of their own. The children were able to use the museum exhibition "From amber to technology" to aid their creative endeavours.

• Vaasa with its 58,600 inhabitants has an annual electricity consumption of approx. 579 gigawatt hours.



A long-term study by the University of Jyväskylä indicated that butterflies thrive in transmission line areas which provide an alternative to natural mires as a habitat. The number of butterflies can be influenced by clearing transmission line areas in mires as frequently as such areas in forest land. As a result of the research findings, Fingrid decided to shorten its clearing cycle at mires.

Environment

Fingrid carries responsibility for the environment in all its efforts. Adherence to legislative obligations and guidelines together with stakeholder interaction and research efforts constitute the cornerstones for environmental management by Fingrid.

The environmental impact assessment (EIA) processes for the 400 kilovolt transmission lines between Länsisalmi in Vantaa and Vuosaari in Helsinki as well as between Hikiä in Hausjärvi and Hyvinkää were completed in 2008. Before the actual permit procedure is launched, Fingrid updated the EIA report for the second 400 kilovolt connection planned between Ylikkälä in Lappeenranta and Huutokoski in Joroinen. The report was originally drawn up in 1998.

New EIA processes were launched for the 400 kilovolt transmission line between Tahkoluoto in Pori and Kristiinankaupunki as well as for the 400 +

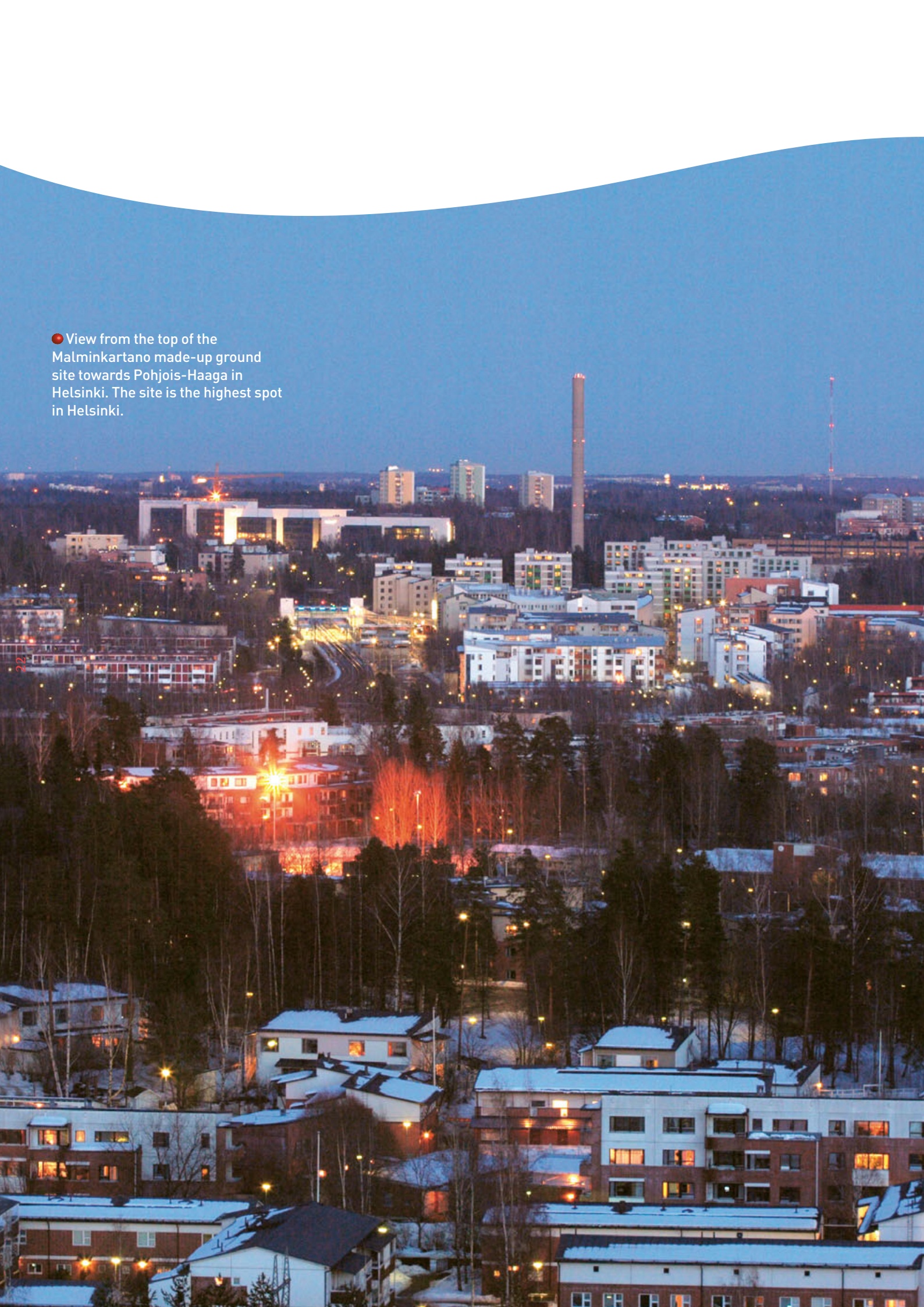
110 kilovolt transmission line project between Hikiä in Hausjärvi and Forssa. The environmental impact assessment reports for both of these projects were announced towards the end of 2008. An EIA process for additional reserve power capacity was also initiated at six potential locations. Environmental reports of three different 110 kilovolt line projects were completed last year.

About a dozen background reports were drawn up for regional councils so that planned transmission line routes could be included in regional land use plans. Moreover, some 140 statements concerning master plans and local plans were given to local administrations.

The University of Jyväskylä has conducted a study over several years into transmission line areas serving as alternative habitats which can replace natural mires. This study was brought to conclusion in 2008, and it also led to concrete action. Fingrid decided to shorten its clearing cycle at mires to 5–7 years. Other environmental studies completed in 2008 included monitoring of collision risk of birds in Hyvinkää, follow-up of habitats of Russian flying squirrels in the vicinity of Fingrid's transmission lines, identification of meadow-like transmission line areas using a remote surveying method, and impacts of transmission lines on the value of rural landscapes. ●



● View from the top of the Malminkartano made-up ground site towards Pohjois-Haaga in Helsinki. The site is the highest spot in Helsinki.



Corporate Finances

The financial position of the Group continued to be satisfactory despite the international crisis in the financial market.

Revenue of the Fingrid Group in 2008 was 382 million euros (335 million euros in 2007). Grid revenue decreased slightly despite the 4.5 per cent tariff increase carried out at the beginning of the financial year. This was mainly due to the rapid decline in global economy, which is why electricity consumption by Finnish industries went down quickly towards the end of the year.

The IFRS operating profit of the Group was 68 (91) million euros. Fingrid introduced hedge accounting in Group reporting for electricity derivatives as of 1 July 2007. The Group's profit for the year was 28 (42) million euros. The return on investment was 5.8 (7.3) per cent and the return on equity 6.6 (10.3)

per cent. The equity ratio was 26.7 (27.5) per cent at the end of the review period.

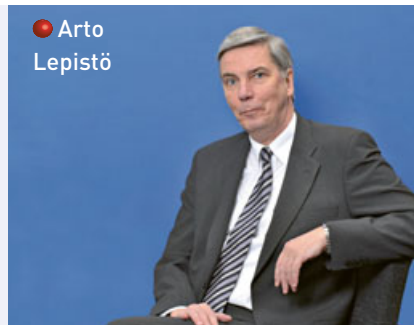
The financial position of the Group continued to be satisfactory. The international crisis in the financial market has raised the margins of corporate funding considerably. Fingrid did not issue new bonds or withdraw long-term loans in 2008. As a result of the global recession, both short-term and long-term interest rates decreased during the last quarter of the financial year. The uncertain situation in the money and capital markets continues, and it is difficult to anticipate its duration. The net financial costs excluding the change in the fair value of derivatives decreased to 29 (31) million euros during the review period.

Industrial electricity consumption in Finland decreased rapidly towards the end of 2008 as a result of the decline in global economy.

The company acquired financing from the international and domestic money and capital markets. The company covers the need for short-term funding with the Euro Commercial Paper Programme, and long-term funding has been arranged through the international Debt Issuance Programme. ●



Board of Directors



Chairman
Industrial Counsellor, Head of the Energy Market Division, Ministry of Employment and the Economy

Involved in the development of the energy market and related regulations in various duties. Participated in the work of various committees and task forces as their chairman and member, and served as Finland's representative in the organisations of the EU and IEA.



1st Deputy Chairman
President & CEO, Pohjolan Voima Oy

Deputy Chairman of the Board of Teollisuuden Voima Oy. Chairman of the Boards of Oy Alholmens Kraft Ab and the subsidiaries of Pohjolan Voima Oy. Chairman of the Energy Policy Committee of the Confederation of Finnish Industries EK, member of the National Board of Economic Defence and its Central Section, member of the Board of the Finnish Section of the International Chamber of Commerce (ICC), member of the Economic Policy Committee of the Central Chamber of Commerce of Finland, member of the Board of Savon Voima Oyj.



Senior Vice President, Energy Business Area, UPM-Kymmene Oyj

Since 2004 worked at UPM-Kymmene Oyj as Senior Vice President, Energy, and from 2008 as Senior Vice President, Energy Business Area. Before UPM worked in several positions within the energy industry in Finland and abroad, in management consulting, and at the Ministry of Trade and Industry of Finland. Member of the Supervisory Board of Kemijoki Oy, and member of the Boards of various subsidiaries of Pohjolan Voima Oy. Member of the National Board of Economic Defence, Energy Sector. Member of the National Emergency Supply Council established by the Government in 2008, member of the Energy Policy Committee of the Confederation of Finnish Industries EK, Chairperson of the Energy Committee of the Finnish Forest Industries Federation, Vice Chairperson of CEPI Energy Committee.



• Timo
Karttinen

2nd Deputy Chairman
Senior Vice President, Fortum Oyj, responsible for the company's heat business, research and development, and purchasing

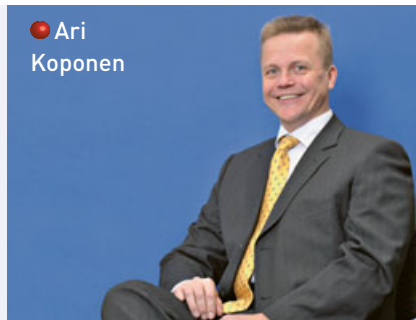
Chairman of the Board of AB Fortum Värme Holding (co-owned with the City of Stockholm), Deputy Chairman of the Board of Association of Finnish Energy Industries, member of the Supervisory Board of Gasum Oy, member of the Supervisory Board of AS Eesti Gaas, member of the Trade Policy Committee and Energy Committee of the Confederation of Finnish Industries EK, member of the Commission of the Finnish Section of the International Chamber of Commerce (ICC), member of the Board of Energy Forum.



• Jorma
Tammenaho

Portfolio Manager,
Ilmarinen Mutual Pension Insurance Company, investments in private equity funds and unlisted shares in Finland; appointed by investor shareholders

Member of the Board of Enfo Oyj, Osuuskunta KPY and Leverator Oy, deputy member of the Board of Tornator Oy. Previously worked e.g. as Director, Investment Operations, and as the deputy Managing Director of Finnfund.



• Ari
Koponen

Managing Director
Fortum Sähkösiirto Oy

Managing Director and member of the Board of Fortum Sähkösiirto Oy and Fortum Espoo Distribution Oy. Chairman of the Supervisory Board of Fortum Elekter AS. Country Senior Executive of Fortum in Finland, and responsible for network assets in the Nordic countries and Estonia.



• Ritva
Nirkkonen

Managing Director
Jyväskylä Regional Development Company Jykes Oy

Since 1995, served as the Business Director for the Jyväskylä region and as the Managing Director of Jykes Oy. Worked previously at the Ministry of Trade and Industry as Commercial Counsellor responsible for international expansion of enterprises. Honorary Consul of the Federal Republic of Germany in Central Finland, member of the Board and Working Committee of EURADA (European Association of Development Agencies), member of the Supervisory Board of the Finnish Tourist Board, Chairperson of Fingrid's audit committee, deputy member of the Boards of the University of Jyväskylä and Invest in Finland, member of the Industrial Committee of the Chamber of Commerce of Central Finland.



• Tarmo
Rantalankila

Secretary of the Board
General Counsel,
Fingrid Oyj

Deputy members of the Board

Timo Ritonummi, Senior Engineer, Ministry of Employment and the Economy
Jussi Hintikka, Executive Vice President, Pohjolan Voima Oy
Juha Laaksonen, Chief Financial Officer, Fortum Oyj
Kari Koivuranta, Senior Adviser, Fortum Sähkösiirto Oy
Pekka Kettunen, Senior Specialist, Prime Minister's Office, State ownership steering
Jukka Mikkonen, Director, Energy Finland, Stora Enso Oyj
Risto Autio, Director, Alternatives, appointed by investor shareholders

Executive Management Group



● POWER SYSTEM OPERATION

Reima Päivinen

Senior Vice President, responsible for power system operation, M.Sc. (Tech.), born in 1958

Served in the present position since 2005. Before that, worked at Fingrid, IVO Voimansiirto Oy and Imatran Voima Oy in various grid operation and maintenance duties since 1983.

Positions of trust: Chairman of Fingrid's Operations Committee 2008–, member of Nordel's Operations Committee 2005–, Chairman of Power and District Heat Pool 2009.

● GRID SERVICE

Pertti Kuronen

Senior Vice President, responsible for grid service, M.Sc. (Tech.), born in 1953

Served in the present position since 2003. Before that, worked at IVO Voimansiirto Oy and at Imatran Voima Oy as well as in grid operation and planning duties at Fingrid.

Positions of trust: Member of Nordel's Planning Committee 2000–, member of the Board of Porvoon Alueverkko Oy.

● FINANCE AND BUSINESS DEVELOPMENT

Tom Pippingsköld

Chief Financial Officer, B.Sc., MBA, born in 1960

Served in the present position since 2001. Before that, worked at Fingrid as Financial Manager and Financial Director 1999–2001, at Postipankki Bank's investment bank as Investment Analyst and in project financing as Financial Manager 1990–1994, and at the European Bank for Reconstruction and Development (EBRD) in London as Principal Evaluation Officer 1994–1998.

Positions of trust: Deputy member of the Board of Nord Pool Spot AS.

● ASSET MANAGEMENT

Kari Kuusela

Executive Vice President, responsible for asset management, M.Sc. (Tech.), born in 1955

Been responsible for Fingrid's asset management since 1999. Before that, worked at Fingrid as Technical Director and Construction Manager, as Engineering Manager at IVO Voimansiirto Oy 1993–1997 and IVO International Oy 1991–1993, at IVO Transmission Engineering Oy 1988–1991 as Chief Engineer, at Imatran Voima Oy as Relay Protection and Cable Specialist 1983–1987, and at Nokia Metalliteollisuus (Kaapeli) as Development Engineer 1981–1983.

Positions of trust: Finland's representative in Cigre (Conseil International des Grands Réseaux Electriques) Study Committee B3, "Substations" 2000–2006, member of Cigre working group B3 WG



01 1999–2005, member of Finergy’s Network Committee 2003, member of the Board of Electric Power Department (SIL-S) of the Association of Electrical Engineers in Finland 1990–1992.

● **PRESIDENT & CEO**

Jukka Ruusunen

President & CEO,
Doctor of Technology, born in 1958

Served in the present position since 2007. Before that, served in various duties at the Helsinki University of Technology and Helsinki School of Economics since 1982. Worked as specialist at the Department of Strategic Planning at Imatran Voima Oy in 1996–1998, and as Vice President for Development at Fortum Power and Heat Oy in 1998–2006.

Positions of trust: Involved in the work of several energy organisations in Europe, the Nordic countries and Finland (Nordel, Eurelectric, Nordenergi, Baltrel, Association of Finnish Energy Industries). Deputy President of ENTSO-E, member of the Board of Association of Finnish Energy Industries. Adjunct Professor at the Helsinki University of Technology and Helsinki School of Economics.

● **MARKET DEVELOPMENT**

Juha Kekkonen

Executive Vice President,
responsible for market development,
M.Sc. (Tech.), born in 1950

Served in the present position since 1997. Before that, worked at the Energy Department of the Finnish Ministry of Trade and Industry in specialist duties and as Head of Office 1975–1988, at Finland’s permanent representative office at the OECD as Industrial Counsellor 1988–1990, and at the Energy Department of the Ministry of Trade and Industry as Head of Group 1990–1996.

Positions of trust: Member of the Board of Kemijoki Oy 1992–1997, member of the Board of Nord Pool Spot AS 2002–, Chairman of the Board of Nord Pool Spot AS 2006–2008, member of Nordel’s Market Committee 2001–, Chairman of Nordel’s Market Committee 2004–2006, Chairman of Nordel’s Board 2006–2007, member of ENTSO Steering Committee 1999–, Chairman of ENTSO Steering Committee 2001–2003, Chairman of Power and District Heat Pool 2001–2008, Chairman of ENTSO-E’s Market Committee 2009–.

● **STAKEHOLDER RELATIONS**

Matti Tähtinen

Senior Vice President, responsible for stakeholder relations, B.Sc. (Tech.), born in 1957

Served in the present position since 2007. Before that, worked at Fingrid in the development and management of customer and stakeholder processes, and at Imatran Voima Oy as Specialist and Project Manager in international opera-

tion control projects of power companies in 1981–1997.

Positions of trust: Member of ENTSO Steering Committee 2001–2003, member of UNIPED/Eurelectric Network Regulation/Issues 1995–1999, Secretary of Fingrid’s Advisory Committee 1997–.

● **SYSTEM DEVELOPMENT**

Jussi Jyrinsalo

Senior Vice President, responsible for system development, Licentiate in Technology, born in 1964

Served in the present position since 2005. Before that, worked at Fingrid as Technology Manager, Engineering Manager and Sales Manager, at IVO Voimansiirto Oy as Sales Manager, Project Manager and Design Engineer, at the Lappeenranta University of Technology as Assistant Professor, and at the Tampere University of Technology as deputy Senior Assistant and Researcher.

Positions of trust: Chairman of Nordel’s Planning Committee 2008–, Finnish regular member of Cigre Study Committee B4 2002– and its strategy group 2005–, Chairman of Fingrid’s technology forum 2006–.

Advisory Committee



● **Matti Rintanen**
Managing Director
Pori Energia Oy

● **Risto Vesala**
Senior Vice President
Pohjolan Voima Oy

● **Karri Mäkelä**
Director, Operations
Nord Pool Finland Oy

● **Esa Hagman**
Manager, Power Transmission
Fortum Power and Heat Oy

● **Jukka Ruusunen**
President & CEO
Fingrid Oyj



● **Hannu Linna**
 Managing Director
 Vaasan Sähkö Oy (Chairman)

● **Tuula Loikkanen**
 Managing Director
 Korpelan Voima kl

● **Ilkka Latvala**
 Vice President, Energy
 M-real Oyj

● **Mikko Rintamäki**
 Vice President, Energy
 Outokumpu Oyj

● **Markus Lehtonen**
 Director of Strategic Planning,
 Helsinki Energy

● **Pertti Leppänen**
 Managing Director
 Leppäkosken Sähkö Oy

● **Pekka Tynkkynen**
 Director, Energy Markets
 UPM-Kymmene Oyj

● **Jorma Korhonen**
 Managing Director,
 Pohjois-Karjalan Sähkö Oy

● **Matti Tähtinen**
 Senior Vice President,
 Fingrid Oyj (Secretary)



Fingrid and Society



Corporate Social Responsibility

Fingrid's nation-wide grid is an integral part of the power system in Finland. Fingrid's performance has a direct impact on the functioning of Finnish society, in other words on the everyday life and welfare of all Finns. Fingrid's corporate social responsibility is characterised by the statutory nature of its business – system responsibility based on the Electricity Market Act.

The dimensions of Fingrid's corporate social responsibility are responsibility for the functioning of the power system at a national level, economic responsibility relating to the operations, and responsibility for people and the environment. The corporate values – transparency, impartiality, efficiency and responsibility – are in a key role in the company's operations.

Responsibility for the functioning of the power system

Fingrid makes sure that the electricity transmission grid in Finland works reliably. Fingrid develops the functioning of the electricity market and the grid in co-operation with the customers, electricity market parties and other transmission system operators, anticipating future electricity transmission needs. The company aims to minimise transmission congestions which disturb the market.

Fingrid focuses on the constant development of the transmission industry and maintains special expertise pertaining to grid operation in Finland. Services and operating procedures devised together with the partners ensure flexible performance in various circumstances, and they promote the functioning of the electricity market.

Economic responsibility

Fingrid ensures a stable trend in the prices of its services by planning corporate finances and capital expenditure over a long time perspective. Being engaged in a regulated business, Fingrid's primary economic responsibility is cost control. The company intends to retain the present high level of operational efficiency and continue to be among the best in international benchmarking studies concerning efficiency.

Responsibility for the environment

Fingrid works in interaction with environmental authorities and other partners. Fingrid mitigates the adverse land use and scenic impacts caused by the transmission grid through environmental planning as well as technical and scenic solutions. In the planning of line routes and maintenance of lines, Fingrid ensures that the parties concerned have an opportunity for interaction and co-operation as a neighbour of the transmission line.

Fingrid takes good care of the safety of its equipment.

Social responsibility

Fingrid actively supports the constant improvement of the professional proficiency and co-operation skills of its personnel. Adherence to the corporate values creates facilities for high work motivation and good workplace atmosphere. Occupational welfare and safety are ensured by following jointly agreed personnel and equality principles and the action plan for occupational protection, and by compiling feedback regularly.

The company adheres to the principles of Corporate Governance. The company also requires ethically responsible principles from its service providers.



Practical examples of the management of corporate social responsibility

- Fingrid received a high ranking in operational efficiency and service quality in an international benchmarking study among transmission system operators. The data was analysed in 19 sectors, and Fingrid was among the best quarter in almost all sectors. Fingrid was one of the three best performers.
- The transparency of the electricity market was enhanced by adding more electricity market information on the company's website. The new items include congestion income, electricity production forecast, and volumes and prices of balance power and regulating power.
- Fingrid's score in a customer survey was 8.6 on a scale from 4 to 10.
- Contingency planning is essentially related to system security management by Fingrid. Together with the Ministry of Defence and the Security and Defence Committee, Fingrid contributed to a guide instructing citizens on how to cope with a long blackout.
- An association of bird watchers in Southern Finland conducted a follow-up study of birds nesting in the Ritassaarensuo area and birds migrating via this area and of the flying routes of birds. There were some 140 observation hours, during which about 10,000 individual flying birds were seen. During the observation periods, birds did not collide with a transmission line on a single occasion, and only 0.05 per cent of all individual birds observed were in an imminent risk of collision.
- Fingrid contributed to the repair of a bridge on a private road in conjunction with the project of replacing aluminium towers on the Vuolijoki-Alapitkä 400 kilovolt transmission line. After the tower replacement project, the bridge will be used as a normal service road.
- In an atmosphere survey conducted by the Finnish Institute of Occupational Health in 2008, Fingrid's personnel gave the company a general grade of 8.5 on a scale of 4 to 10 for its performance as an employer. The company is participating in a benchmarking study among employers in 2009.
- Electricity transmission reliability in Fingrid's grid represents a high level on an international scale. A significant portion of the disturbance situations in the transmission grid is caused by weather reasons, such as thunder. The average length of electricity transmission interruptions caused by disturbances and experienced at the customers' connection points was 1.7 minutes in 2008.
- Corporate social responsibility involves open and comprehensive interaction with various stakeholders. This is implemented as part of Fingrid's practical work and also in stakeholder forums which enhance interaction.
- As indication of international recognition, Fingrid obtained two representatives in high positions within ENTSO-E: Jukka Ruusunen serves as the Vice President and Juha Kekkonen as the Chairman of the Market Committee.
- The performance of each Fingrid employee is measured in terms of system security, functioning of the electricity market, and cost efficiency. These indicators forming the basis of quality bonuses reflect responsibility and commitment to the functioning of the power system.





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