

3 2025

# FINGRID

TRANSMISSION SYSTEM OPERATOR'S MAGAZINE / RENEWING THE ENERGY SYSTEM / *fingridlehti.fi*

An aerial photograph showing a dense green forest. A dark river flows through the middle of the landscape. Several high-voltage power line towers are visible, with lines stretching across the scene. The sky is clear and blue.

## AURORA LINE

strengthens the electricity system,  
stabilises electricity prices  
and promotes the green transition.



# Moving forward together

Fingrid likes to take a customer-oriented approach, but what does this really mean?

**F**ingrid’s operations, and thereby its customer work, are based on the company’s values of openness, integrity, efficiency and responsibility.

Our aim is to build long-term partnerships with our customers. These partnerships are based on meetings and discussions in which we collaborate to promote our customers’ projects and facilitate their day-to-day work in all kinds of areas, such as operational activities or the reserve market.

We continually collect customer feedback, enter it into our systems, and plan measures to improve our operations. Positive feedback is also valuable in reinforcing best practices.

Customer satisfaction has remained at a good level over the years, and Fingrid has

“  
Easy to  
approach  
and open to  
suggestions.”

“  
More openness  
about network  
bottlenecks and  
development  
challenges.”

“  
Information is readily  
available, although  
sometimes the  
customer has to figure  
out whom to contact.”

“  
A pioneer among  
transmission system  
operators, actively  
develops new services  
and rulesets.”

“  
More preparatory  
work in cooperation  
with customers,  
and in listening  
to their needs.”

received a high net promoter score. International customers often give Fingrid good feedback on our customer service in comparison to transmission system operators in other countries. In this feedback, the term “load” may be used to refer to customers.

Working with customers also involves committees. Fingrid’s three customer committees provide perspectives on the company’s operations and service provision. There is regular rotation of the committee members, and the committees are governed by the principles of competition law.

This collaboration also includes consultations, the circulation of proposals for comment, development discussions, customer events and training sessions, and proactive communication through a variety of channels. The energy transition has led to even closer cooperation. ♦

Free-form feedback from the autumn 2025 customer satisfaction survey.



Antero Reilander (left), Customer Manager at Fingrid, is responsible for collaboration with companies such as Elenia. Lasse Sarhela, Customer Relations Manager at Elenia, says that enabling the clean transition in the electricity system requires a close partnership between Fingrid and Elenia. Sarhela describes this collaboration as agile, open and solution-oriented.

**FINGRID CUSTOMERS**  
(APPROX.)

**60**  
MAJOR ELECTRICITY  
CONSUMERS

**70**  
NETWORK OPERATORS

**60**  
ELECTRICITY PRODUCERS

IN ADDITION SEVERAL  
OTHER ELECTRICITY  
MARKET OPERATORS



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## EDITORIAL

# Could we accelerate grid construction?

IN EARLY 2020 – before the pandemic, Russia's war of aggression and other crises – my colleague Jussi Jyrinsalo asked whether we could double our investments in the main grid if necessary. At that time, our investments totalled about EUR 100 million per year.

No one could have predicted that investments would increase fivefold by 2025, and Fingrid would have well over a hundred projects in its production portfolio with a combined value of approximately EUR 1.7 billion.

In 2019, growth in wind power on the west coast in particular led to an increase in customer demand. We discussed pre-emptive connection investments, particularly 400/110-kilovolt substations, and made several decisions to invest in the Coastal Line, such as 400 kilovolt substations in Jylkä, Kärppiö and Arkkukallio.

Our 'connections first' strategy worked well, and we now have about 5,000 megawatts of wind power on the west coast and almost 9 gigawatts in Finland as a whole.

Yet at the same time, both the energy transition and the cessation of Russian imports led to an increase in transmission from the north and west to southern Finland, which in turn caused temporary restrictions on connectivity.

New investments, such as the Lowlands Line, Åback-Nokia, Huittinen-Forssa, Jylkä synchronic compensator and numerous other projects, will enable new connections for customers and help manage transmission.

However, while we are waiting for the completion of these grid

reinforcements, connection restrictions have also been necessary in southern Finland and a queuing procedure for connections has been introduced. Fingrid has other ongoing projects in addition to the aforementioned, such as Toivila-Hikiä, a 400-kilovolt cable in Helsinki, a third transformer in Tammisto and additional voltage support. These projects are worth a total of around one billion euros, and their completion will resolve grid bottlenecks in southern Finland.

Could we accelerate grid construction? Yes, we could.

Words are all well and good, but it is now much more difficult to obtain permits for grid construction.

The average time required to obtain an expropriation permit is currently between one-and-a-half and two years, when it used to be only six months. Road and rail infrastructure is suffering from a maintenance backlog of billions of euros, which is causing cost and scheduling issues

for the delivery of main transformers. Yes, we could easily shave a year off this and cut costs.

The highest demand at the moment is for data-centres, battery storage facilities and the electrification of urban heating systems. We will do our best to ensure sufficient capacity for consumption and production in spite of the mismatches in project schedules.

It's encouraging to note that the Aurora Line is now finished, as it will increase transmission capacity between Sweden and Finland by around 30 per cent.

**Timo Kiiveri**  
Executive Vice President  
Fingrid



*Finland's road and rail infrastructure is posing challenges to scheduling.*

## FINGRID

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FINGRID

# Aurora Line to improve electricity availability this winter

**F**ingrid estimates that sufficient electricity will be available over the coming winter, assuming normal operation of Finnish power plants and transmission links.

The Aurora Line transmission link between Finland and Northern Sweden will improve electricity availability. However, Finland must still take further measures to ensure a sufficient supply of electricity in the longer term. ♦

## Restrictions on the connection of grid energy storage facilities to continue in southern Finland

**RESTRICTIONS** on the connection of new grid energy storage facilities in southern Finland will continue until 2029. Location is of little importance for the commercial operation of grid energy storage facilities, and there are plenty of connection opportunities for grid energy storage elsewhere in Finland.

Fingrid's objective is to ensure that southern Finland's very limited connection capacity is sufficient to meet growth in electricity consumption over the coming years in households, the service sector and industry, as well as new industrial investments that generate economic growth.

## CUSTOMER SATISFACTION REMAINS AT A GOOD LEVEL

**A**N annual survey carried out in the autumn yielded a favourable Net Promoter Score (NPS) of

**48.5**

This figure is, however, down on last year. The survey had a response rate of 20 per cent.



## 15-minute trading period

**T**HE day-ahead electricity market switched to a 15-minute trading period at the turn of September/October. This change was introduced simultaneously throughout Europe.

A 15-minute trading period enables more accurate, market-based balancing of the electricity system, as trading is carried out to an accuracy level of 15-minute intervals.

[fingrid.fi/en/news/news](https://fingrid.fi/en/news/news)

## PROFILE

# Congestion management

Antti Raininko tackles the key challenges of the energy transition.

TEXT MINNA SAANO  
PHOTO TOMI PARKKONEN

**I** joined Fingrid's Market Solutions unit in 2022, and have since worked as a project manager in various projects, such as outsourcing of Fingrid's reserve market surveillance and introduction Long-Term Transmission Right products between Finnish and Estonian bidding zone border.

This spring, I switched to the Power System Operations function as a program manager. Fingrid has launched a Congestion Management program that includes several sub-projects in addition to process development. I'm coordinating this program as a whole.

Congestion management involves managing bottle necks in the electricity grid. Most of the new power generating facilities are being built in the north and on the west coast, while consumption is growing in the south. Despite new grid investments, electricity transmission needs may increase to the extent that all the produced electricity cannot fit to the grid in some situations. Resolving these congestions requires flexibility from both consumption and production.

These issues lie at the heart of the electricity system and main grid operations – how do we connect as many customers as possible to the grid and thereby enable new investments and jobs in Finland. At the same time, we need to guarantee the security of supply in order to keep the lights on and customers satisfied all across the country – and all this must be done in an economically sustainable way. ♦

## WHO?

Antti Raininko

## WORK

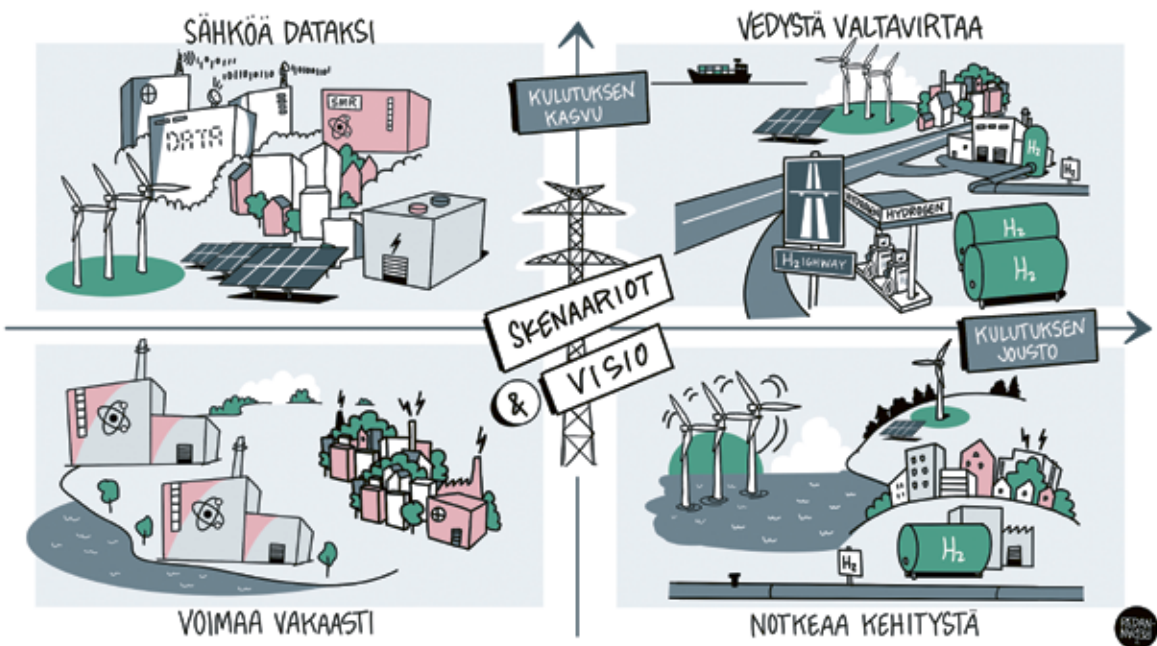
Program Manager

## FAMILY

Partner

## FREE TIME

Sailing, football and floorball



# Visions of an electrified Finland in 2040

**F**ingrid's final report on its electricity system vision for 2040 was published in October. Finland is well placed to attract both electricity-intensive industry and considerable new investments in electricity consumption and production. Growth will require reinforcements to the main grid

and new ways of using it efficiently with our customers, as well as a stable and predictable operating environment that enables investments to be made. ♦

[fingrid.fi/en/grid/development/electricity-system-vision-2025](https://fingrid.fi/en/grid/development/electricity-system-vision-2025)

## Grid service fees rise as electricity system costs increase

**MAIN** grid service fees will rise by eight per cent as of the beginning of 2026. This increase is being driven by Fingrid's extensive programme of investments aimed at pre-empting customers' future needs coupled with the rising costs of the expanding electricity system. Main grid connection fees will also be increased in line with cost developments.

Fingrid's investments have added more than 10,000 megawatts of clean electricity production to the power system of Finland, which has contributed to lower electricity prices. In 2025, Finland had the cheapest electricity in Europe.

## Market Court rulings



**THE** Market Court has given its rulings on Olkiluoto 3 grid load limitation, the collateral model for balance responsible parties, and the Energy Authority's new regulatory model.

[fingrid.fi/en/news/news](https://fingrid.fi/en/news/news)

## PRACTICAL QUESTION

# Should we be concerned about the health impacts of transmission lines?



As electricity use increases, so do the number of transmission lines. Maria Arola, Specialist from Fingrid, says that it's safe to live near transmission lines.

TEXT MARJO TIIRIKKA / PHOTO FINGRID

## 1 Should people living near transmission lines be concerned about their health impacts?

Studies have not found any links to health impacts caused by field intensities below the recommended maximum values, which means it's safe to live near transmission lines.

For reasons relating to electrical safety, there is a construction restriction zone in the immediate vicinity of a transmission line (aka the transmission line area). We do, however, aim to avoid the construction of transmission lines in the immediate vicinity of homes, kindergartens and schools.

The electric field intensity outside the transmission line area is always at a safe level. Low-frequency magnetic fields will also occur in the vicinity of transmission lines in addition to electric fields. A decree issued by the Ministry of Social Affairs and Health has set the threshold value for magnetic fields at 200 microtesla (μT), a value that won't be exceeded even directly under a 400-kilo-volt transmission line.

**The electric field intensity outside the transmission line area is always at a safe level.**

## 2 Are there any situations in which electric and magnetic fields can have an effect?

They can potentially affect implants inside the body, such as pacemakers.

Although the risk of such interference is low, people with pacemakers are not encouraged to spend long periods directly below 400-kilovolt transmission lines. The recommended location for passing beneath transmission lines is by the pylons, as this is where the conductors are at their highest point.

**According to current data, a high-voltage transmission line is safe regardless of whether it is an overhead line or an underground cable.**

## 3 Is an underground high-voltage cable safer than an overhead line?

According to current data, a high-voltage transmission line is safe regardless of whether it is an overhead line or an underground cable.

Low-frequency electric and magnetic fields are always present in the immediate vicinity of both overhead lines and underground cables, and their field intensities decrease with distance. Overhead lines are further away from the ground surface than underground cables, which is why the magnetic field intensities of underground cables are often reduced by, for example, placing the cables inside a metal sheath and using triangular installation. ♦



# THE MOST IMPORTANT LINK OF THE DECADE

The Aurora Line is an electricity transmission link from Messaure in Swedish Lapland to Muhos in North Ostrobothnia, Finland. It will increase north-south electricity transmission and improve security of supply. The Aurora Line will also support Europe’s climate objectives by enabling the production of more renewable electricity and boosting the efficiency of the European electricity market.

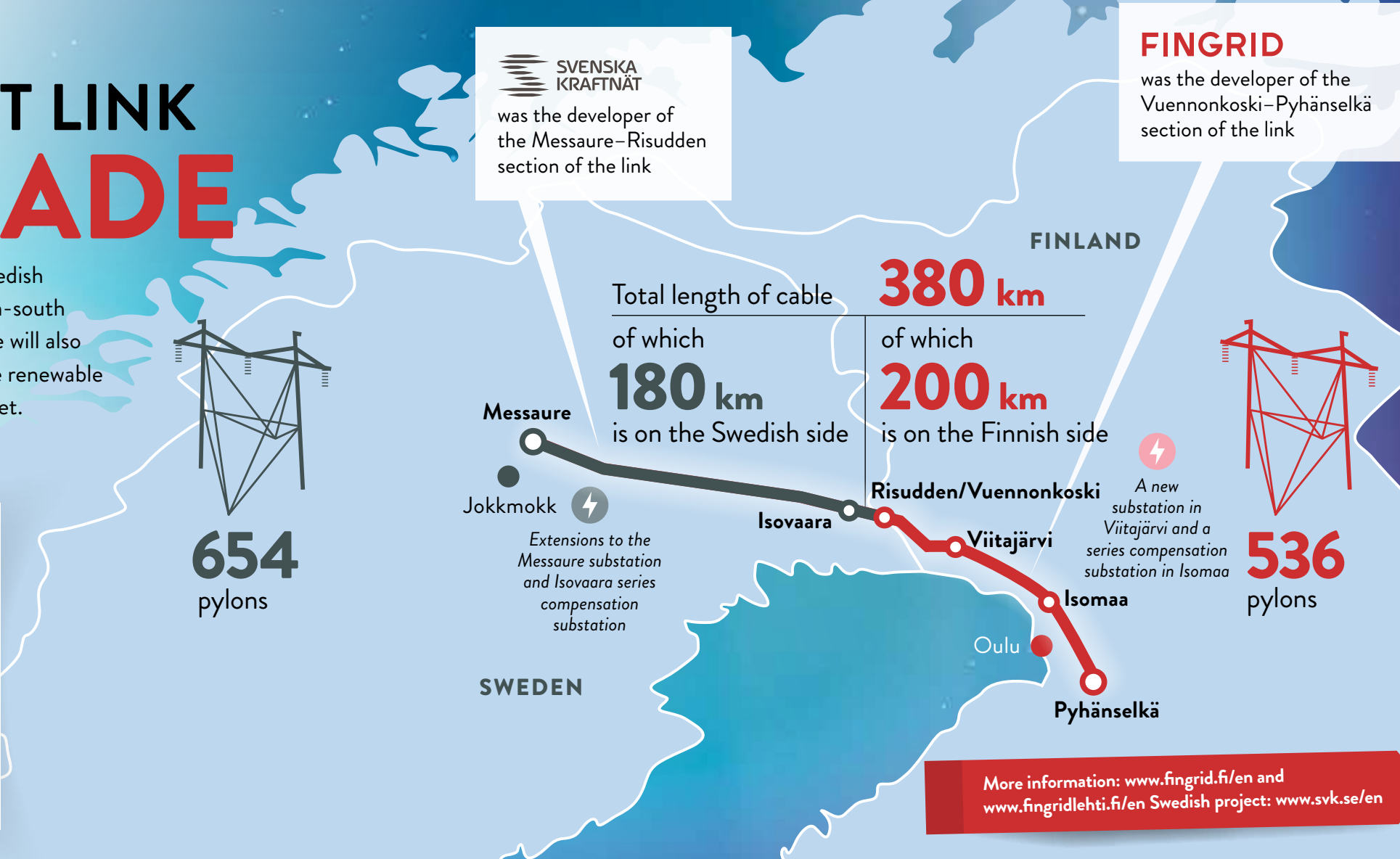
COMPILED RITVA LAINE / INFOGRAPHIC LAURA YLIKAHRI

A **400 kV** transmission link

Transmission capacity in both import and export directions

**1,900 MW**

The available capacity will vary according to the current state of the electricity system.



	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Project milestones	Fingrid and Svenska kraftnät decide to move forward with the project	The project is granted PCI* status		~ EUR 4 million in EU funding*** for the project's technical feasibility study	EU funding*** wasn't granted for construction, preparation of the project continues		EUR 127 million in EU funding for the entire project's*** construction phase			The Aurora Line is completed ahead of time, Commissioning 13.11.2025
Viitajärvi–Pyhänselkä		EIA**			General planning	Tendering and construction				Commissioning 12/2024
						Project permit 3/21	Expropriation permit 4/22			
Vuennonkoski–Viitajärvi			EIA**			General planning	Tendering and construction			Commissioning 11/2025
						Project permit (border zone permit) 10/21	Expropriation permit 10/23			

\*Projects of Common Interest, that is, projects whose facilitation and implementation are of common interest to the European Union.

\*\*Environmental Impact Assessment procedure

\*\*\* Co-financed by the Connecting Europe Facility of the European Union

# FINGRID PREPARES FOR FINLAND'S SUCCESS

Finland's electricity consumption is expected to double over the next ten years. Fingrid's main grid development plan shows how electricity transmission capacity will be increased to meet the needs of growing production and consumption.

TEXT SUSANNA CYGNEL / PHOTOS SAMPO KORHONEN AND FINGRID

**T**he power grid will require considerable reinforcement over the coming years to accommodate both growth in domestic consumption and new international investments.

"The doubling of electricity consumption by 2035 is a huge change, which is being driven by both the electrification of industry and the increasing use of electricity for heating in particular," says Planning Manager **Aki Laurila**.

The main grid development plan is Fingrid's primary tool for assessing and scheduling future development needs in the electricity network. The transition from fossil fuels to clean electricity may attract new electricity-intensive industries to Finland, and the main grid must enable these developments.

"Finland is an attractive country for electricity-intensive industry, but there is fierce competition for investments. Fingrid will make sure that Finland's electricity network is a competitive advantage, not an obstacle," says Laurila.

## A PLAN FOR THE NEXT TEN YEARS

In accordance with the Electricity Market Act, the main grid development plan contains the measures that the transmission system operator will employ over the next ten years to meet its development obligations and quality requirements. A report is published every two years, and its appendices include a comprehensive forecast of electricity consumption and production.

"The development plan does not include detailed investments. It merely indicates which grid reinforcements would be required if ambitious electricity consumption forecasts are realised," says Grid Planning Expert **Kaisa Nykänen**.





“Fingrid will make sure that Finland’s electricity network is a competitive advantage, not an obstacle.”

Aki Laurila  
Grid Planning Manager  
Fingrid

“This imbalance highlights a need to strengthen north–south and west–south backbone connections,” says Nykänen.

The forecasts given in the main grid development plan are purposefully ambitious, so that any potential problems can be identified in good time. The plan is flexible and regularly updated on the basis of changing needs.

“In any case, it’s clear that as demand for electricity doubles, the main grid must be developed at an accelerating pace,” says Nykänen.

**OBJECTIVE: ALL CONNECTIONS CAN BE IMPLEMENTED**

Large-scale transmission line projects take between seven and eight years to complete, so the future must be planned for well in advance.

The actual investment decisions will be made flexibly, depending on the progress of customer projects.

“We maintain continuous dialogue with our customers to ensure that investments in the grid are directed to where they are most needed at the time. This also allows us to address timetable challenges, such as the electrification of heating, which is progressing much faster than new transmission lines can be built,” says Laurila.

The connections needed for electric boiler investments in particular require flexibility and rapidly implemented grid reinforcements – and even then, the grid connection may not be completed within the customer’s desired timeframe. Whereas large-scale wind farm projects are usually completed in parallel with grid construction.

“Our operating environment is changing rapidly, and new projects can emerge unexpectedly.

“In the main grid development plan, we’re aiming to ensure that all green-lit projects can be connected to the main grid,” say Fingrid’s Aki Laurila and Kaisa Nykänen.

Finland currently consumes around 83 terawatt hours of electricity per year, and consumption is expected to rise to more than 150 terawatt hours by 2035. This growth will be driven by both the use of renewable energy and investments in industries that require electricity.

The increase in consumption will not, however, be evenly distributed. Electricity consumption is concentrated on large cities in southern Finland: two-thirds of the country’s electricity consumption is now located to the south of Tampere. Facilities for generating renewable electricity, mainly wind power, are also being built in large numbers in northern Finland and on the west coast.

However, our main grid development plan is a means of ensuring that all green-lit projects can be connected to the grid. We are also simultaneously planning the development of regional networks,” says Nykänen.

**BILLIONS OF EUROS INVESTED IN THE MAIN GRID**

Fingrid is investing more than ever in the main grid. In 2025–2028, investments will increase to 2.0 billion euros. Looking up to 2035, the total amount of investments will increase to an estimated 5.2 billion euros.

Investments will strengthen north–south and west–south backbone connections in particular. Several new main grid connections will be completed in southern Finland by the end of the decade. Eastern Finland is also preparing for growth.

“We are launching an environmental impact assessment for a new 400-kilovolt transmission link between Huutokoski and Kontiolahti. It would improve electricity transmission connections in North Karelia in particular, and would

also create opportunities for clean electricity,” says Laurila.

Grid development is not only focused on new transmission lines – Fingrid is also looking for new and flexible solutions to speed up customer projects.

For example, conditional connection agreements will provide added security for major industrial projects during the decision-making process, as a connection agreement can now be signed at an earlier stage.

Hybrid connections and flexible arrangements can speed up the connection of new facilities.

In a hybrid connection, electricity consumption and production are both connected to the main grid via one connection point, thereby reducing transmission needs. Flexible grid connection agreements enable more flexible connection solutions, and may thereby allow the required grid reinforcements to be postponed during the initial stages of a new connection.

The final version of Fingrid’s main grid development plan will be published at the end of the year.

“Our operating environment is changing rapidly, and new projects can emerge unexpectedly.”

Kaisa Nykänen  
Grid Planning Expert  
Fingrid



# Electricity networks dictate project progress

Fingrid’s main grid development plan and the dialogue that accompanies it are key tools for developing regional electricity networks, says Lauri Siltanen from Savon Voima Verkko.

**ELECTRICITY NETWORKS** play a critical role when new projects are being planned all across Finland. “The first question is always whether there is enough electricity and when it will be available,” says **Lauri Siltanen**, CEO of Savon Voima Verkko Oy. Fingrid’s main grid development plan provides the electricity distribution company with a vision of the direction in which the regional network should be developed. “Few projects are located at existing main grid connection points, so it’s the regional electricity distribution system’s task to bring electricity to the customer.” Siltanen says that there are several ongoing clean transition projects in Savon Voima’s area, including wind power, solar power, grid energy storage, and datacentres of various sizes. “The production of clean electricity attracts industrial projects to the area, so it’s important that new energy investments are made in eastern Finland.”

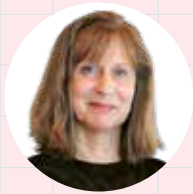


**“The production of clean electricity attracts industrial projects to the area.”**

**Lauri Siltanen**  
CEO  
Savon Voima Verkko Oy

**COOPERATION AND FORESIGHT ARE VITAL** Savon Voima Verkko works closely with Fingrid to ensure that regional and national investments move forward with the same objectives and at the same pace. “Dialogue is vital, and we need to keep abreast of developments. For example, challenges with the main grid will alter investment schedules, so we need to know in good time. And Fingrid must likewise be clearly informed of any increase in customer needs in our region,” Siltanen says. One challenge is that target timetables for customer projects are sometimes faster than it is feasible to build an electricity network. For example, it may take less time to build an entire grid energy storage project than to deliver certain electricity network components. “We need to ensure that we have the financial capacity to make bold and proactive investments in the regional distribution network. This will create room and capacity for customer projects,” says Siltanen.

**EASTERN FINLAND – A LAND OF OPPORTUNITY** Siltanen calls for political courage to support the even distribution of renewable energy projects across the country. “More onshore wind power is needed in eastern Finland. This would create the conditions required for new investments in the clean transition. We must make it our policy that eastern Finland also wants important projects. All this will increase the vitality of the region,” says Siltanen. Savon Voima Verkko’s area of operation is currently being developed by Fingrid, and includes the construction of the Lake Line. Other important reinforcements are also on the way as per the development plan, such as the Ridge Line and Huutokoski-Kontiolahti line. ♦




# Does EU’s trans-European networks policy need a rehaul?

**THE ENERGY** sector is characterised by four macro trends: first, industry decarbonisation means faster electrification of our economy; it is also the best way to implement the energy efficiency first principle. Second, as up to 80% of new renewables are connected at the local level, distribution networks and their interaction with transmission will gain in importance. Third, variability of production and prices has increased considerably in recent years and puts new requirements on system stability and management. And finally, the new geopolitics has considerably increased risks as witnessed in the Baltic Sea region. Common to these trends is the urgent need for more investments in grids, in smartening and digitalisation and in measures to protect physical and cyber threats. The European Commission estimates that 584 bn€ should be invested by 2030 in electricity grids alone, two or three times more than today. The regulation on trans-European networks for energy (TEN-E) provides since 2013 a robust approach to plan European grids which is based on top-down planning. Therefore, the first recommendation is that priority should be put on implementation of the TEN-E and the identified PCIs, including Fingrid’s Aurora Lines 1 & 2 and Estlink 3.

*More investments are urgently needed in networks, smart systems, digitalisation, and combatting both physical and cyber threats.*

The unnecessary bureaucracy should be removed from the PCI selection process. Scenarios for both grid planning and adequacy assessment should better reflect possible futures and risks and be coherent. Regional cooperation should be put in the centre, as a stepping stone for a European approach, to build common understanding of bottlenecks and to agree on prioritisation of projects and solutions, as well as to ensure effective follow-up of project implementation. The existing High Level Groups, like BEMIP that involves Fingrid, should be reinforced to this effect. One important question remains open: How to really share costs? The main challenges being uncertainty of the future, different outcomes from different scenarios, and political implications. It is therefore recommended to look into the broader question on whether the current framework (tariffs, congestion rents, inter-TSO compensation mechanism, cost sharing, EU funding...) is optimal. A bigger EU support would make cost sharing easier and hence speed up implementation. However, more tariff and private financing will nevertheless be needed. Therefore, the EIB could be tasked to develop financial instruments in the form of e.g. guarantees, interest rate rebates, equity. ♦

  
**Catharina Sikow-Magny**  
Part-time professor  
Florence School of Regulation



### Updating the technical requirements for consumption

**FINGRID** is in the process of updating its system requirements for consumption.

The specifications are based on the European Network Code, to which Fingrid has made national additions and clarifications.

The European Network Code aims to guarantee equal and non-discriminatory conditions for competition on the internal energy market, to ensure system security, and to create harmonised connection terms and conditions for grid connections.

# NEW PROVISIONS FOR GRID CONNECTIONS

Transmission and distribution systems can sometimes suffer from a lack of grid connection capacity. To make things easier in the future, Fingrid has introduced a conditional connection agreement and will be improving the flow of information concerning connection plans.

TEXT VESA VILLE MATTILA / PHOTOS SHUTTERSTOCK AND FINGRID

**E**lectricity consumption and weather-dependent electricity production will increase, while regional adjustable electricity production will decrease in southern Finland in particular.

Both transmission and distribution systems may experience regional and temporary shortages of grid connection capacity until major main grid investments have been completed. This will mainly affect connection capacity for production on the west coast and connection capacity for consumption in southern Finland.

According to **Petri Parviainen**, Fingrid's Unit Manager for Main Grid Services, no new customers on the west coast or in southern Finland can

be connected to the main grid until 2027 at the earliest.

"We have received enquiries for 500,000 megawatts of production and consumption grid connections, yet our current peak consumption is 15,000 megawatts. All customers are seeking to secure their connection to the main grid, even though some are still unsure whether or not their projects will go ahead," says **Jussi Jyrinsalo**, Senior Vice President at Fingrid.

#### CAPACITY CONFIRMED IN ADVANCE

In principle, Fingrid will only make agreements on grid connection capacity for customer projects once their permits are legally valid. However, the

**"We have received enquiries for 500,000 megawatts of production and consumption grid connections, yet our current peak consumption is 15,000 megawatts."**

**Jussi Jyrinsalo**  
Senior Vice President, Customers and Main Grid Planning  
Fingrid



type and size of project will influence the content and duration of the permit process.

Fingrid has now introduced a conditional connection agreement in order to enable and streamline large-scale consumption projects with lengthy permit processes. It is intended for industrial consumption projects to be connected to the 400 kV grid with the size of at least 250 megawatts, which often take 5–10 years to complete.

“A conditional connection agreement can be signed once the customer has received a reasoned conclusion from the project’s EIA procedure, the environmental permit process has been initiated, and the customer has acquired or leased the land for the project site. The network investments required for the customer’s connection must also be both technically and economically feasible within a reasonable timeframe,” says Parviainen.

A conditional connection agreement sets out the terms and conditions for the connection of the customer’s project. The customer pays the connection fee and Fingrid will make provisions for the customer’s power requirements in its investment plan.

“The customer receives early confirmation of their required capacity, which is essential for making the final decision on the investment and moving forward with the project,” says Parviainen.

“With a conditional connection agreement, both Fingrid and the customer move from a request to a project, and checkpoints are created to track its progress,” says Jyrinsalo.

**MORE INFORMATION AND GREATER ACCURACY**

In order to better anticipate the need for connections to the electricity network, Fingrid will also be improving the flow of information concerning connection plans.

In the future, Fingrid will store information in a standard format. This data will cover large-scale consumption and grid energy storage connections that are being planned by both distribution system operators and industrial projects that will be directly connected to the main grid. The procedure will apply to consumption connections of more than 2–10 megawatts in southern Finland and to grid energy storage connections of 1–5 megawatts throughout the country. The lower limits will vary from region to region.

“This approach will give us more accurate information about the needs of those in need of grid connection as well as distribution system operators and, and also about future growth in electricity production and consumption,” says Jyrinsalo.

“It will be easier to calculate the main grid’s available capacity for the coming years, and

**Backing for industrial start-ups**

**BLASTR** Green Steel is planning a steel mill and integrated clean hydrogen production plant in Inkoo. The aim is to produce 2.5 million tonnes of steel products per annum, and to reduce carbon dioxide emissions throughout the production chain to a tenth in comparison to conventional steelmaking.

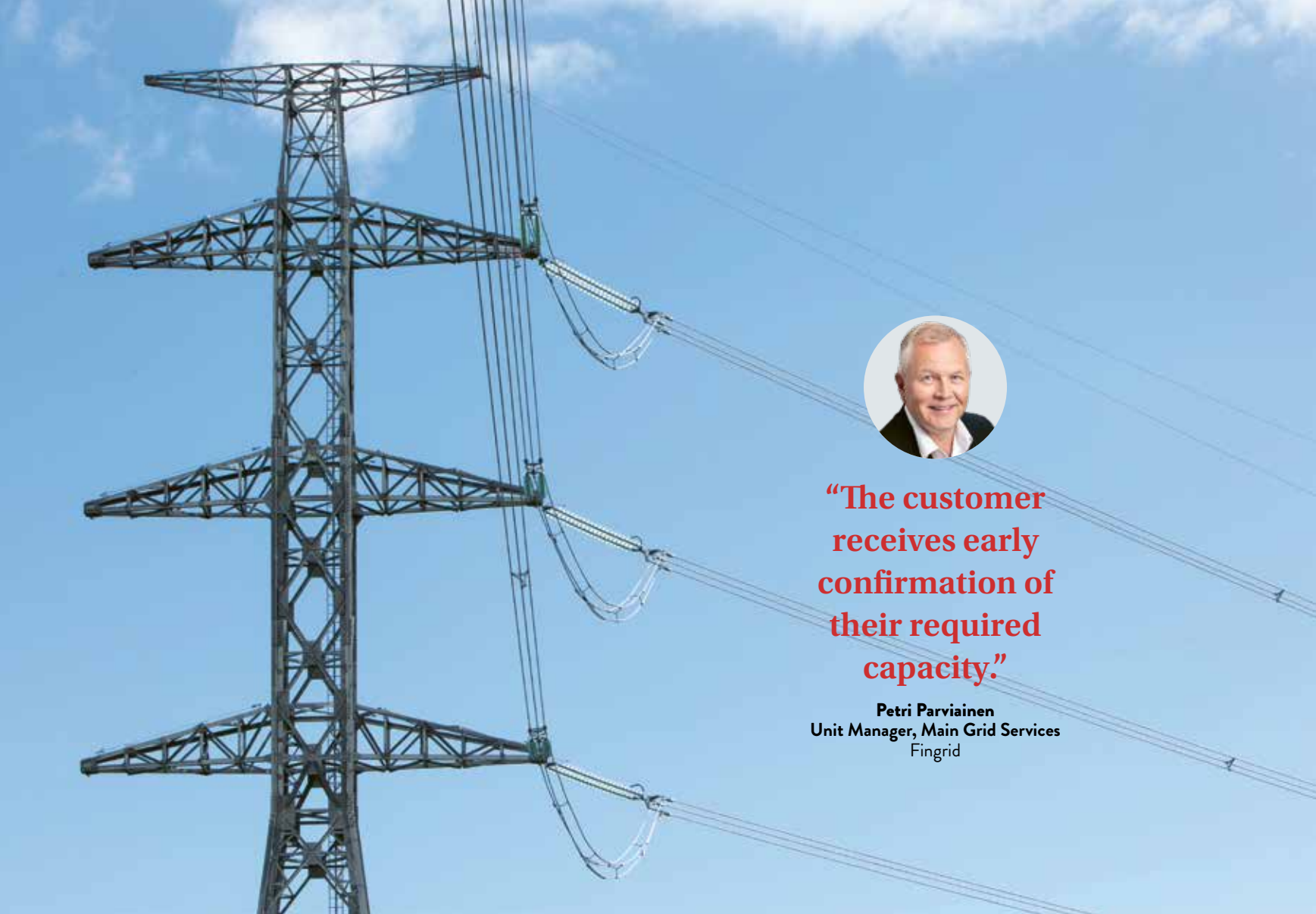
It is estimated that the plant will use nine terawatt hours of electricity per year. Most of this will be con-

sumed by the production and heating of the hydrogen that is required for the direct reduction of iron, and by the electric-arc furnace used in steel production.

“We’re still ironing out the details of our conditional agreement with Fingrid. For an energy-intensive industrial start-up like ours, an agreement like this will provide early backing and credibility during the project financing phase,” says **Antti**

**Kaikkonen**, Managing Director of Blastr Green Steel in Finland.

“The strict contractual terms and conditions coupled with project completion checkpoints will pose a challenge for us, but will also spur us on to drive the project forward. We currently expect to launch production in 2030.”



**“The customer receives early confirmation of their required capacity.”**

**Petri Parviainen**  
Unit Manager, Main Grid Services  
Fingrid

thereby offer as many customers as possible the opportunity to connect to the transmission and distribution systems,” says Parviainen.

The requirements for connecting to the main grid will remain unchanged. Approval must be sought from Fingrid when customers want to sign a connection agreement for new consumption or grid electricity storage, or would like to increase the capacity, also in case of an existing distribution grid connection agreement.

**ALTERNATIVE IDEAS AND APPROACHES TO USAGE**

Additional measures will be needed to manage grid connection capacity. Jyrinsalo gives three examples.

“We will introduce a flexible connection agreement when the amended Electricity Market Act comes into force. Customers who sign it will agree

to be flexible with their consumption when there is a lack of grid capacity.

This flexibility will allow customers to get connected to the grid even before the necessary grid reinforcements have been completed.

“It would also be a good idea to make this model permanently available to customers who are naturally flexible,” says Jyrinsalo.

He notes that Finland should also consider prioritising customer needs at some point.

“Will we continue to operate on a first-come, first-served basis, or will we prioritise industrial projects or urban heating projects?”

Jyrinsalo says that we should also consider the future possibility of Fingrid guiding the geographical location of some customer projects. For example, a battery-based energy storage facility could be located where it would not prevent or slow down the implementation of a major industrial project. ♦



# Landowners TO RECEIVE HIGHER COMPENSATION FOR EXPROPRIATION

Finland’s Act on the Redemption of Immoveable Property and Special Rights was amended at the beginning of August. Fingrid will now pay an additional 25 per cent for expropriation on top of the full compensation based on market value.

TEXT SUSANNA CYGNEL / PHOTOS FINGRID AND SHUTTERSTOCK

**T**he main grid’s transmission lines are mostly located in privately owned forests, and Fingrid expropriates the right to use this land. Compensation is determined by the land’s market value, as calculated by the National Land Survey of Finland on the basis of tree stand sales and the value of the growing timber.

“Although ‘market value’ is a new term in Finland’s expropriation legislation, in practice it means the same as the previously used term ‘fair value.’ It’s therefore just a case of updating a 1970s term,” says **Mauri Asmundela**, Director of Expropriation and Valuation at the National Land Survey of Finland.

**“The 25 per cent increase was introduced to ensure that land-owners won’t lose out.”**

**Jari Salila**  
Senior Ministerial Adviser  
Ministry of Justice

The amendment will also grant landowners an additional 25 per cent compensation on top of the market value.

“Determining property values is always a little imprecise, so the 25 per cent increase was introduced to ensure that landowners won’t lose out,” says Senior Ministerial Adviser **Jari Salila** from the Ministry of Justice.

## LEGISLATIVE AMENDMENT ARISES FROM DISCONTENT

The Ministry of Justice spent ten years preparing legislative amendments to the compensation criteria for expropriation.

“Landowners had been unhappy with the compensation for expropriation. The compensation paid for land expropriated for transmission lines was also considered inadequate,” says Salila.

Growing investments in the energy sector, and especially the construction of transmission lines from wind farms to the main grid, put the government under greater pressure to make changes.

“As a large number of landowners are affected by expropriation, it created the political will to improve their position, that is, to increase the compensation payable in these situations,” says Asmundela.



**“The value of land is always assessed on a case-by-case basis.”**

**Mauri Asmundela**  
Director of Expropriation and Valuation  
National Land Survey of Finland

The previous government proposed a 15 per cent increase in compensation for expropriation, but the bill did not make it to Parliament.

“Based on the information available during the preparatory stage, a 25 per cent increase was deemed sufficient to address any inaccuracies in market value assessments,” says Salila.

It has been publicly suggested that compensation for transmission line expropriation should be based on the wind farm’s ground rent. On the basis of court rulings on compensation, Asmundela does not see any justification for such a systematic increase in the market value.

“The fact that some power generating facilities have higher rent levels than the yield from a forest does not mean that all Finnish woodland is worth the same. The value of land is always assessed on a case-by-case basis,” says Asmundela.

## FINGRID PAYS WHAT THE LAW DICTATES

Fingrid has a neutral opinion of the legislative amendment, even though it will have to pay 25 per cent higher compensation in the future.

“The transmission system operator has a public function to ensure the security and functionality of Finland’s electricity system. Fingrid believes that it is up to society to determine the level of compensation. Increased compensation will definitely streamline transmission line projects,” says **Mikko Kuoppala**, Senior Expert at Fingrid.

Fingrid puts out a competitive tender for any timber that needs to be removed for a transmission line project.

“Our aim is to make a separate agreement with forest owners for the sale of their growing —→





“By signing this agreement, landowners agree to the installation of the transmission line on their property.”

Mikko Kuoppala  
Senior Expert  
Fingrid



timber, and the forest owners will then receive a competitive price for the timber on the basis of that agreement. Fingrid has already been paying a 25 per cent higher purchase price for timber since early summer,” says Kuoppala.

Other matters involving expropriation will remain unchanged at Fingrid: The National Land Survey of Finland will continue to provide compensation calculations and, whenever possible, will also obtain the landowners’ bank account numbers for making payments. Fingrid adds the statutory interest rate of six per cent to the calculations.

As an additional ‘carrot,’ Fingrid offers landowners a preliminary expropriation agreement that pays a special compensation rate of ten per cent.

“By signing this agreement, landowners agree to the installation of the transmission line on their property, and most landowners do,” says Kuoppala.

**GREATER FREEDOM OF CONTRACT**

As a result of the amendment, the expropriation committee will no longer examine the reasona-

bleness of agreements between landowners and expropriators. The amendment therefore places more responsibility on the contractual parties to understand what they are agreeing to.

“The expropriation committee used to ensure that landowners did not make bad deals for themselves, but these deals are no longer examined separately. So landowners can inadvertently do themselves a disservice,” says Asmundela.

However, he adds that with Fingrid as the other party, landowners can be confident that the expropriation agreement will be fair, as they are dealing with a professional operator.

“It’s unlikely that an expropriator will be seeking to act unfairly on purpose, but these are complex matters and not every party will be sufficiently familiar with all the ins and outs of expropriation,” says Asmundela.

The legislative amendment entered into force on 1 August 2025, and will impact all expropriations that are already being processed by the National Land Survey of Finland. Around 800 cases will be reviewed and have their market values increased by 25 per cent. ♦

The new normal for the electricity market:  
**more automation, more forecasting and more flexibility**

Balancing market in the Nordic electricity system was overhauled in March. The balancing of production and consumption is now separately done for each bidding zone, whereas balancing was previously done for the Nordic synchronous area as a whole. There is an increased need for balancing in the Finnish electricity system, and price spikes have become more common.

TEXT MATTI VÄLIMÄKI AND MARIA JOKI-PESOLA / ILLUSTRATION SHUTTERSTOCK



The 15-minute market time unit has allowed more real-time balancing, which is reflected in varying balancing needs and more frequent changes in the direction of regulation, that is, the need to increase and decrease power varies.

**Maria Joki-Pesola**, Head of Balance Service and Balancing Markets at Fingrid, explains that previously, the imbalances in the Finnish electricity system were balanced using Nordic resources for example from Sweden whereas now the balancing is increasingly done using local resources.



“These days, balancing in the Finnish bidding zone is done with Finnish resources, which has increased the volatility of both the market and electricity prices. We have seen high prices, which have significantly increased balance responsible parties’ imbalance costs.”

Finland has about 70 balance responsible parties who forecast and plan their own balances for each quarter of an hour as accurately as possible.

**MINIMISING IMBALANCES IS MORE IMPORTANT THAN EVER**

The market incentivise balance responsible parties to make increasingly accurate forecasts in order to minimise imbalances. Continuous imbalance management is now increasingly important. Automation, robotics and the development of forecasting models can help market participants to minimise the costs

arising from imbalances. It is increasingly important for market parties to proactively offer as much flexible capacity as possible, both on the intraday market and the mFRR and aFRR energy markets.

“It’s a good idea to try to correct your own imbalances through the market, but you can’t do that if no one is offering flexible capacity. Ensuring sufficient supply in the mFRR and aFRR energy markets under all circumstances will also help to curb the price spikes that determine imbalance prices,” says Joki-Pesola.

Fingrid is also taking measures that will affect the cost of power imbalances.

“For example, we’re developing our own forecasting tools and also market rules to make balancing activations more accurate. We’re also analysing the correct relationship between the components that determine the imbalance price and, if necessary, will change the way the imbalance price is formulated.”

**GOOD NEWS AND PROGRESS IN THE RIGHT DIRECTION**

The imbalance price is currently a strong driving force in the market.

“Positive signs are already visible. Finland’s net imbalances have slowly begun to decrease. Our balance is systematically no longer a surplus, as it was a year ago. We’ll monitor the situation over the winter, and let’s hope that this is a permanent trend,” says Maria Joki-Pesola. ♦



Check whether you are adequately prepared: [72tuntia.fi/en/](https://72tuntia.fi/en/)

TEXT HANNA-KAISA LIIKANEN / PHOTO FINGRID

# CRISES

## STRIKE WITHOUT WARNING, BUT YOU CAN PREPARE FOR THEM

Fingrid's mission is to guarantee a reliable supply of electricity for society. This means ensuring the disruption-free availability of electricity under all circumstances. It is therefore wise to prepare for potential crises, and this preparedness is also expected from the population at large.

Safeguarding the functionality of Finland's electricity system requires Fingrid to implement a broad range of systematic precautionary measures, which the company has already been doing for a long time. Our comprehensive contingency plans include everything from risk identification and protective measures to systems, guidelines, training and practical drills.

A crisis often strikes when you least expect it. Contingency planning enables us to reduce uncertainty and lay the foundations for an effective crisis response.

### COOPERATION AS THE BACKBONE OF CRISIS RESILIENCE

The new threats brought by geopolitical changes and the ever-evolving dimensions of cybersecurity have forced Fingrid and other critical infrastructure operators to review their preparedness and protective measures.

As uncertainty and unpredictability increase, precautionary measures for protecting critical infrastructure will require more and more resources, both human and financial. However, these precautionary measures will quickly pay for themselves in the event of a crisis. Fingrid is not the only one responsible for protecting

critical infrastructure, as a society's overall crisis resilience can only be achieved through extensive cooperation between a broad range of operators and authorities. All energy companies should therefore identify the risks to their operations and ensure their resilience in the event of a crisis.

Both the proactive exchange of information and joint exercises for operators and authorities will improve the industry's capacity to cooperate in real-life situations.

### WE ALL HAVE OUR ROLE TO PLAY IN A CRISIS-RESILIENT SOCIETY

Preparedness is in everyone's best interests. Each of us can be the strongest – or the weakest – link.

Crisis resilience arises through a sense of community, exercises, openness and cooperation. And it's not just about planning – it's about creating a culture of action.

The same basic preparedness issues also apply to every Finnish home on a smaller scale. Households should be prepared to manage for at least three days in the event of a major power cut, for instance. Household preparedness is useful not only at an individual level, but also for the Finnish population as a whole. By preparing together, we can create a solid foundation for our society's crisis resilience. ♦

# The Iberian blackout took everyone by surprise – could it happen in Finland?

Many people were alarmed by the massive power outages in Spain and Portugal during the spring. Although Finland's electricity system has differing operating procedures that protect us from similar disruptions, no system is ever one hundred per cent secure.

TEXT MARJO TIIRIKKA / PHOTO SHUTTERSTOCK

**THE WHOLE** of Spain and Portugal, and parts of France, experienced a massive blackout on 28 April. Traffic lights, buildings and services went dark, leaving millions of people without electricity for 12–16 hours.

"Although 12 hours without electricity may seem like a very long time for consumers, dealing with such a major power outage in less than 24 hours was actually a rapid response," says **Antti-Juhani Nikkilä**, Senior Expert at Fingrid.

The ultimate cause of the disruption remains unclear. The fact that the fault originated in the distribution system rather than the transmission system is slowing down the investigation.

However, the investigation has revealed that a sudden increase in the electricity network's voltage level led to the sudden disconnection of electricity production and consumption. This in turn led to the disconnection of the Iberian Peninsula's electricity system from the rest of the European system. An extraordinary sequence of events lasting only a few minutes quickly brought the system down.

Electricity systems have evolved over the decades to meet local needs, which means that these systems usually vary slightly between countries.

"The Finnish electricity system's operating procedures appear to protect us from a disruption like the one that occurred in the Iberian Peninsula. For example, unlike in Spain, almost all grid-connected power generating facilities in Finland, with the exception of small domestic units, are required to participate in continuous voltage regulation. This protects the electricity system from rapid voltage surges."

Although a comparable major disruption is unlikely in Finland, Nikkilä notes that no system is completely reliable. That's why consumers should also have a home emergency supply kit that includes food, drink and a battery-powered radio.

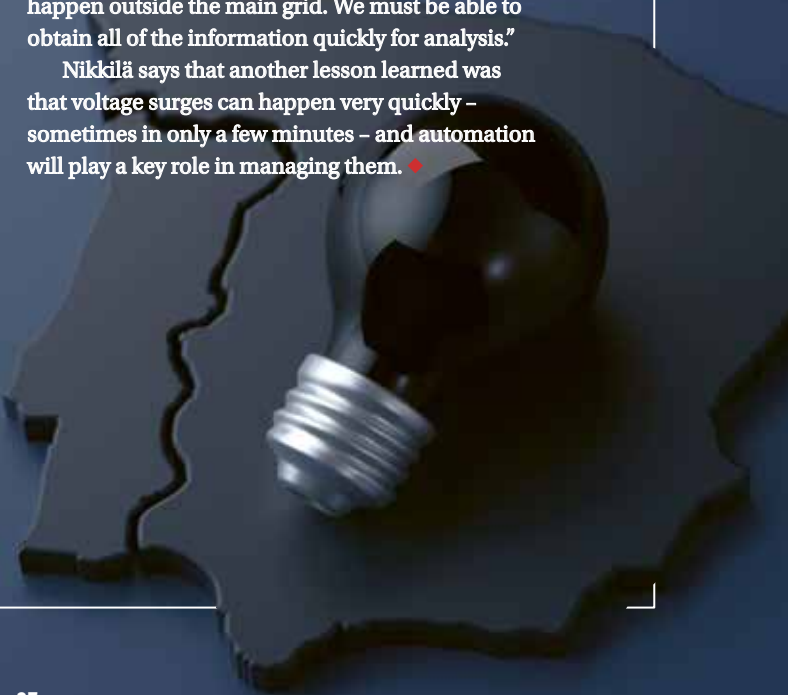
### WHAT LESSONS DID WE LEARN?

European-level cooperation takes place through ENTSO-E, the European Network of Transmission System Operators for Electricity. The first report on the blackout will be ready in October 2025, and another report on recommended measures will be published later in 2026.

Nikkilä believes that more attention should be paid to international information exchanges and transparency surrounding the electricity system's functionality.

"We're learning that important things can also happen outside the main grid. We must be able to obtain all of the information quickly for analysis."

Nikkilä says that another lesson learned was that voltage surges can happen very quickly – sometimes in only a few minutes – and automation will play a key role in managing them. ♦





TEXT MINNA SAANO / PHOTOS CONSOLIS PARMA

# Low-carbon concrete CUTS EMISSIONS

CO<sub>2</sub> emissions from the production of aluminium for transmission line conductors have been considerably reduced, and Fingrid is now turning its attention to reducing emissions from concrete. The Herva–Nuojuankangas transmission line is a pilot project in which some foundation elements are being made from low-carbon concrete.

**A**luminium, steel, concrete and copper are widely used in the construction of electricity networks, and their manufacture generates large volumes of CO<sub>2</sub> emissions. In line with its sustainability objectives, Fingrid is seeking to reduce emissions from both grid construction and other operations.

“We have switched to green aluminium for conductor aluminium, so their manufacture now uses CO<sub>2</sub>-free electricity. This has cut aluminium-related emissions to just under a third of what they used to be. We’re now turning our attention to concrete, that is, how we can reduce the carbon footprint of the concrete we use,” says Construction Manager **Keijo Välimaa** from Fingrid.

This can be achieved through the use of low-carbon concrete, which either contains a lower proportion of cement, or some of the cement is replaced by industrial by-products such as fly ash or blast furnace slag.

The Herva–Nuojuankangas transmission line in North Ostrobothnia is serving as a pilot project. The transmission line will be 117 kilometres long and the transmission line supports will have a total of about 2,000 foundation elements, half of which will be made of low-carbon concrete.

### REQUIREMENTS MET

The foundation elements for the transmission line supports will be manufactured and supplied by Consolis Parma, which has a long history of manufacturing low-carbon concrete elements for building construction.

“The construction of the Herva–Nuojuankangas transmission line is an interesting project for us, and will also open the door to manufacturing new types of infrastructure products,” says **Juha Rämö**, Technology Director at Consolis Parma.

“The foundation elements will use GWP.85 concrete, which will reduce emissions by about

15 per cent. For the Herva–Nuojuankangas project, this means a reduction of 50,000 kg of carbon dioxide emissions compared to the manufacture of regular concrete.”

Rämö says that low-carbon concrete has the same properties as other types of concrete, so there will be no differences in the final product.

“Low-carbon concrete may strengthen slightly more slowly than regular concrete, but this will have no effect on the product’s final strength. The main point is that the manufacture of the material meets all of the requirements.”

### LESSONS TO BE LEARNED

The construction of the Herva–Nuojuankangas transmission line began last year, and is well on its way to its scheduled completion in 2027.

“This project will be a learning curve for us. We’re working to reduce the carbon footprint of



**Juha Rämö**  
Technology  
Director  
Consolis Parma

**“For the Herva–Nuojuankangas project, this means a reduction of 50,000 kg of carbon dioxide emissions.”**

foundations, and the elements are the first items to be tested. We will adjust our technical requirements later on the basis of the results,” says Välimaa.

“We appreciate that the manufacturing industry is actively seeking low-carbon alternatives that will reduce CO<sub>2</sub>-emissions.” ♦



### BY Low Carbon Classification

**BY** Low Carbon Classification is a voluntary, national classification system for reducing CO<sub>2</sub> emissions from concrete.

GWP.85 (Global Warming Potential) means that the CO<sub>2</sub> emissions from the concrete are no more than 85 per cent of the reference level. The reference level corresponds to the average emission level of Finnish concrete manufacturers by concrete type in 2021.

HERVA–  
NUOJUANKANGAS IS A

**117**  
km

LONG TRANSMISSION LINE  
FROM II TO VAALA.

HALF OF THE TRANS-  
MISSION LINE SUPPORTS’  
FOUNDATION ELEMENTS,

**around 1,000**  
elements

WILL BE MADE OF LOW-  
CARBON CONCRETE.

LOW-CARBON  
CONCRETE WILL REDUCE  
EMISSIONS BY

**15**  
per cent



# OPEN DATA

## promotes an effective electricity market

TEXT ARI RYTSY  
PHOTO SHUTTERSTOCK



A fair and effective electricity market is in everyone’s best interests, and up-to-date information is required to ensure this. Data from a variety of sources plays a key role in optimising electricity production, consumption and transmission.

All market operators must have equal access to the electricity market. Openly available, real-time market data plays a key role in this. Electricity consumption, power flows and electricity prices are the most important datasets.

Consumption data indicates how much electricity is being used at different times. Power flow data illustrates the movement of electricity in the grid, which helps to ensure reliable and safe transmission. Price data reflects the balance between supply and demand.

### ACCURATE INFORMATION ABOUT THE EUROPEAN ELECTRICITY MARKET

At the request of its customers, Fingrid continuously publishes new datasets in its Open Data service. A recent example is the charging and discharging power data of electrical storage systems. Open Data’s API interface is also developed so that its technical features will better meet customers’ needs.

“Fingrid’s Open Data website is open to everyone, and we use it to publish information about Finland’s electricity system. The service contains more than 200 datasets that can be easily integrated into customers’ own systems via an API,” says **Heini Manninen**, Data Service Manager responsible for Fingrid’s Electricity Market’s Data Service.

There are other important sources of information in the electricity market in addition to the data provided by Fingrid.

ENTSO-E, the European Network of Transmission System Operators for Electricity, publishes comparable data from different countries on its free-of-charge Transparency Platform. Data transparency is vital in ensuring a level playing field and a well-functioning electricity market.

### DIFFERENT DATA SOURCES COMPLEMENT EACH OTHER

NUCS, the Nordic Unavailability Collection System, is another important data platform.

NUCS platform is owned by the Nordic TSOs and focuses on sharing information about outages in the electricity market. NUCS collects data on unavailable production, transmission and consumption capacity in the Nordic power system and also other information that may affect the functionality of the electricity market. Data is published on NUCS’ free-of-charge platform.

“Fingrid also provides data for ENTSO-E’s Transparency Platform and the NUCS platform. Although the data from different platforms may

### Queries or feedback on Fingrid’s Open Data service

**PLEASE** email our customer service [avoindata@fingrid.fi](mailto:avoindata@fingrid.fi) or contact the person responsible for the dataset directly.

Any delays in data delivery will be announced on the service’s front page and in the API.

appear to overlap, the platforms provided by Fingrid, ENTSO-E and NUCS complement each other”, says Fingrid’s **Jussi Matilainen**, Unit Manager, Market Data and Innovations.

Fingrid’s Open Data covers Finland and is tailored to serve the Finnish electricity market. ENTSO-E’s Transparency Platform meets legal disclosure obligations and provides data from all European countries. NUCS collates unavailability data from the Nordic countries. ♦

More information about electricity market data:  
ENTSO-E’s Transparency Platform: [transparency.entsoe.eu](http://transparency.entsoe.eu) NUCS: [www.nucs.net](http://www.nucs.net)

### Data as a basis for effective risk management

**THE** Swiss energy company Alpiq is a major operator in the European energy market. Although its main market is Central Europe, the company has also expanded quite extensively into the Nordic countries. In Finland, it manages an energy portfolio of several hundred megawatts.

Alpiq partners with wind farm owners, helping them to mitigate the risks linked to fluctuating balancing prices. Amidst the uncertainty of production and market fluctuations, companies like Alpiq use data to predict market developments and react to evolving situations.

“Real-time data is an essential aspect of risk management. In order for markets to function effectively, it is essential for data to be openly available and published as quickly as possible,” says **Antti Suokas**, Third Party Asset Trader at Alpiq.

In the rest of Europe, electricity market data is published much more transparently and more in real-time than in the Nordic countries.

Although Fingrid is the only Nordic transmission system operator that publishes data on balancing power bids, this information alone has no great impact,

as the Nordic market is a common system.

Other Nordic transmission system operators would also need to publish similar data in order to improve the functionality of the market.

“Transparent, real-time data reduces uncertainty for market operators and helps the market to manage the re-balancing of the system. In France, for example, this data is published only 2-minutes after each time period has passed. As a result, TSOs have less need to intervene in balancing the system,” says Suokas. ♦





**"Joint Nordic development projects are part of our responsibility to balance the electricity system."**

# A STEADY COURSE WITH ENOUGH MOMENTUM FOR INVESTMENT

Per Eckemark, Director General and CEO of Svenska kraftnät, wants to speed up the development of the electricity network.

TEXT KATARIINA KRABBE / PHOTOS JOHAN ALP AND TOMAS ÄRLEMO

**P**er Eckemark took up his new position as Director General and CEO of Sweden's transmission system operator, Svenska kraftnät, at the beginning of May. He was previously head of Svenska kraftnät's network division and has been a member of the Management Team since 2018.

Eckemark has also held various management positions at ABB, first in automation and later in power networks.

"I was at ABB for more than ten years, working in a business area that supplied systems and equipment to transmission system operators. It has since been acquired by the Japanese company Hitachi," says Eckemark.

His appointment as Director General and CEO of Svenska kraftnät comes at an interesting time. Attention is currently being paid to three different areas of development in particular.

"Joint Nordic development projects are part of our responsibility to balance the electricity

system, and an increase in renewable energy has brought new challenges to this task. We have joint projects for new IT platforms with both Fingrid and the transmission system operators in Norway and Denmark."

Changes in the security situation have led both the armed forces and civil authorities in Sweden to turn their attention to security of supply, as the electricity system must be able to operate reliably even in the most demanding conditions.

"It is our responsibility to ensure not only that the main grid is functioning properly, but also that all parties are adequately prepared, including electricity providers. This also applies to IT and cybersecurity. We are obliged to carry out audits in this regard, and have received funding to strengthen civil preparedness."

The third topical issue is a huge investment boom – new enquiries about connecting to the grid are being received at an unprecedented rate as new industry switches to green energy.

"Our goal is to halve investment lead times." →



TEXT PÄIVI BRINK / PHOTO SHUTTERSTOCK

# Towards local electricity production

Together with other Baltic States, Lithuania joined the Continental-European synchronous area in February. This change is part of Lithuania’s energy independence strategy. However, grid connections with Poland, Latvia and Sweden will also remain important in the future.

**B**altic power systems have historically been part of a Russian-controlled synchronous area, which posed a geopolitical and energy security risk. Since February 2025, the Baltic power systems have been synchronized with the Continental-European power system, which means that all TSOs are now in full control of their own decision-making.

“Our electric power system has become fully independent. Joining the Continental-European synchronous area and disconnecting from Russia and Belarus was a geopolitical process. Lithuania’s energy independence strategy aimed to disconnect from Russian oil, gas and electricity, and the change in synchronisation was the last step in this process,” says Litgrid’s Head of Power System Operations department **Donatas Matelionis**.

The synchronisation to the Continental-European power system has gone very well and the connection has been secure since February.

Lithuania has important grid connections to Sweden via the NordBalt under-sea cable and to Latvia and Poland via land connections. NordBalt facilitates power trading between the Baltic and Nordic electricity markets. The new Harmony Link between Poland and Lithuania will be completed by 2030 and Lithuania is also investing in northern connections to Latvia.

“We are also developing The Baltic Energy Hub – 2 GW hybrid offshore electricity interconnection pro-

ject connecting Baltic power systems with Germany,” says Matelionis.

## LOCAL SOLAR AND WIND ENERGY PRODUCTION INCREASES RAPIDLY

Litgrid is responsible for maintaining the stable operation of Lithuania’s main power grid. A separate state-owned company called ESO runs the distribution network.

Lithuania is not yet self-sufficient in electricity production, but they have decided to become independent with renewable energy sources. Lithuania has become one of the leading countries in Europe in terms of its onshore wind capacity.

In 2023, Lithuania produced 45% of the electricity used in the country locally, but in 2024, the share of local production was 59%. For the first eight months of this year, the share of local production was already 76%.

Simultaneously, the share of renewables is growing rapidly. Of this years’ production, 67% has come from renewable energy sources, mainly from wind and solar energy.

“We are busy with new connections of renewable power plants to the grid. This year, we still need to use gas to produce electricity to maintain the required balancing services. However, already next year we expect connections of new battery storage devices to increase the flexibility of the Lithuanian power system,” Matelionis explains. ♦

## COOPERATION WORKS

Nordic-level cooperation is solid. For example, Eckemark himself has first-hand experience of the joint project to build the Aurora Line, a new electricity transmission line linking Finland and Sweden.

“In my previous role, I was in the project steering group with Fingrid’s Executive Vice President, **Timo Kiiveri**.”

Nordic cooperation also takes place at CEO level through a variety of forums.

“We have also launched cooperation on security and preparedness between ten coastal states around the Baltic Sea.”

European-level cooperation is focused on ENTSO-E, the European Network of Transmission System Operators for Electricity.

## NATIONAL PLAN

One of the hottest topics at the moment is the recent switch to Flow Based capacity metering and the 15-minute pricing period in the electricity market.

“The system is fully automated and requires a greater amount of processing power. We have also been criticised for the occasional sharp increase in imbalance power prices, but this change was a necessary step in adapting to an increasingly volatile environment.”

Electricity trading areas, of which there are four in Sweden, are another hot topic.

“It’s a divisive issue with some people arguing that there should be only one area, as in Finland. The government has asked us to investigate whether this should be changed.”

Svenska kraftnät is also working on a national plan for the entire electricity system, covering production, transmission, distribution and consumption.

“We’re excited about this new task. It will give us the opportunity to propose new tools and legislative amendments,” says Eckemark.

“My role in all of this is to maintain a steady course while providing the momentum for development. This is an exciting time to get involved and lead the organisation.” ♦



Lithuania’s population is 2,88 million and their all-time peak electricity consumption is 2175 MW. By the end of this year, solar and wind energy plants will make up 5 GW of installed capacity.





**MORE** information about main grid construction projects is available on Fingrid's website and in the online magazine

**FINGRID.FI**  
**FINGRIDLEHTI.FI**



# FINGRID

**DELIVERS. RESPONSIBLY.**