



Green Bond Investor Letter and Impact Report

FINGRID

May 2019

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Green Bond Investor Letter and Impact Report

“Fingrid’s mission is to secure reliable electricity for our customers and the society. We shape the clean, market oriented power system of the future. As also sustainability is one of our core corporate values, it is natural for us to participate in the green bond market to finance our long term investments which have positive environmental effects”, says Jan Montell, CFO, Senior Vice President.



Fingrid's business has significant positive impacts on society and the climate

The starting point for Fingrid's responsibility and sustainability work is our strategy where responsibility is an integrated goal and a corporate-level strategic choice. Fingrid creates significant positive impacts on climate and society.

The electricity transmission grid provides a platform for a clean power system. The positive impact resulting from the grid's enabling role in clean power production and consumption clearly exceeds the harm to biodiversity and people caused by the transmission lines and Fingrid's own greenhouse gas emissions. Fingrid's Green Bond financing also promotes the global development of sustainable and responsible debt capital markets.

Value created by Fingrid 2018



To ensure transparency and comparability, our reporting has complied with the international Global Reporting Initiative (GRI) framework since 2011. Fingrid's corporate responsibility reporting for 2018 was verified by a third party. Fingrid is also committed to the UN Global Compact initiative's principles on human rights, labour, the environment and anti-corruption, and the annual report stands for a Communication on Progress (COP) report.

This Green Bond Report is aligned to the reporting requirements of Fingrid's Green Bond Framework and is intended to provide further insight into Fingrid's green financing activity. This Report as well as the internal tracking method and the allocation of funds from the Green Bond proceeds has been verified by the company's auditor, PwC, and their statement is included to this report on page 13-14.

Earlier this spring (2019) Fingrid initiated a project together with an external consultant to further improve corporate sustainability reporting including climate and CO2 impacts of its activities going forward.

Fingrid established a Green Bonds Framework as part of its financing strategy in October 2017

Fingrid's Green Bonds Framework and environmental governance has been assessed by an independent third party: Center for International Climate and Environmental Research – Oslo (CICERO) who issued a Second Opinion. The Second Opinion as well as the Green Bonds Framework are available at our web page. Green bonds are issued under the company's Euro Medium Term Note programme and are listed on the London Stock Exchange and the Irish Stock Exchange (Euronext Dublin) as the company's other bonds.



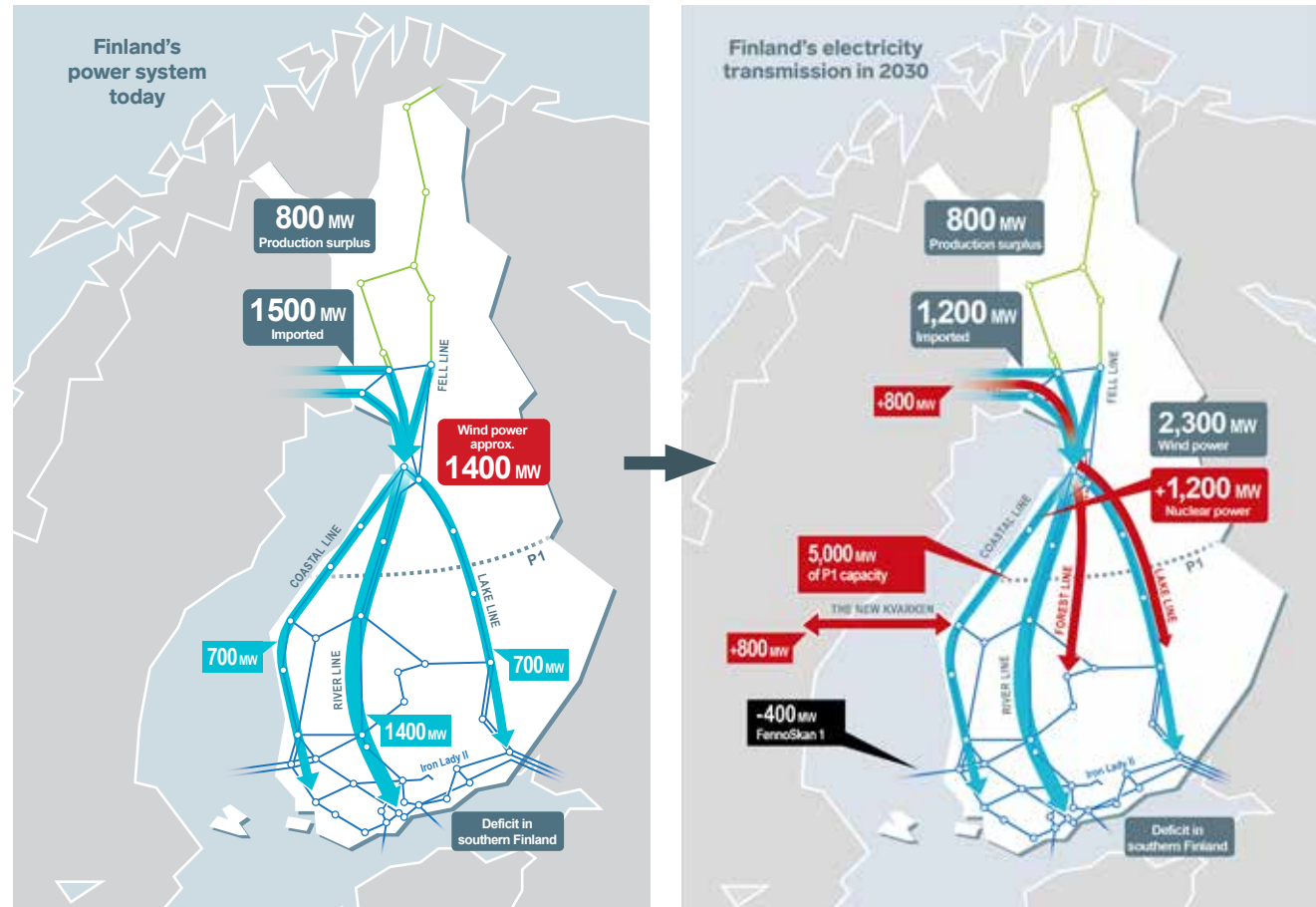
Goldcrest is the smallest bird in Finland. Goldcrest weighs only about 10 grams and is common in Finland's coniferous forests.

Investments financed with Green Bonds

Under the Green Bonds Framework the company finances investments which connect renewable energy, increase cross-border capacity, reduce electricity transmission losses and/or improve energy efficiency via smart grids.

These investments are facilitated by market developments in recent years as condensing power plants and even combined heat and power plants are being shut down in Southern Finland. The energy deficit is met mainly by renewable power generated in Northern Finland, Sweden and Norway. This new geographical distribution of energy generation requires more transmission capacity across the Swedish border and from North to South. Wind power in Finland has increased ten-fold in this decade.

Fingrid has invested heavily in order to connect new wind farms and has also increased capacity as well as reliability of the grid for existing hydro power. As part of its long term investment plan, Fingrid has been renewing several old power lines with modern structures reducing electricity transmission losses significantly. This includes projects where one of the company's oldest East-West connection, the Iron Lady, from 1928 has been replaced with new power lines mainly on the existing right of way.



Inaugural Green Bond issued in November 2017

Fingrid issued on the 23rd November a 10 year, EUR 100 million green bond with a coupon interest of 1.125 per cent. The issue was the first ever Finnish corporate green bond issue. The transaction raised broad international interest and expanded the company's debt investor base. The bond accounts for approximately 9 per cent of the company's total debt. The bond is listed on the London and Irish Stock Exchanges and is also included into the Climate Bonds Initiative's green bond database.



Fingrid was awarded a certificate in recognition of creating the First Corporate Green Bond in Finland in May 2018. The Awards are in recognition of organisations, financial institutions and government bodies and individuals who have led the development of green finance and green bond markets in the past year and through their pioneering initiatives and issuance have provided positive examples of climate resilient and low carbon investment.



Sustainability is one of Fingrid's core corporate values. Transmission lines in summery Finland.

Projects financed with the Green Bond proceeds

The proceeds of EUR 100 million from the November 2017 Green Bond were allocated in accordance with the criteria and decision making process for eligible projects defined in Fingrid's Green Bonds Framework.

Fingrid's Steering Committee for Finance and Business Development unanimously approved in December 2017 the following list of eligible projects totaling EUR 154 million and decided that an amount equal to the proceeds from the inaugural green bond i.e. EUR 100 million shall be allocated to refinance and finance these committee approved eligible projects. An amount equal to the proceeds from the inaugural green bond i.e. EUR 100 million has been fully allocated to refinance and finance committee approved eligible projects at the end of 2018.

“Eligible projects are expected to have long-term net positive environmental impacts.”

Estimated costs of eligible approved projects totalled EUR 154 million

Project	2013	2014	2015	2016	2017	2018	2019	2020	2021
Refinance	Expansion of Keminmaa substation			2					
	Reconductoring of Isohaara-Raassakka 110 kV transmission line		1	1					
	New 220 kV substation Kuolajärvi		1	3	1				
	New 110 kV substation Siikajoki			3	1				
	Refurbishment and expansion of Taivalkoski substation			1	4				
	Expansion of Tuovila substation		1	2	1				
	Expansion of Pirttikoski substation and a new 400/220 kV transformer		1	6	1				
	New Hikiä-Forssa 400 kV transmission line	3	11	14	5				
	Renewal of Petäjäsoski 220 kV substation and a new 400/220 kV transformer		3	7	6	1			
	New 400/110 kV transformer substation Isokangas			3	13	1			
New projects	New 400/110 kV transformer at Kristinestad substation				6	1			
	New Vihtavuori-Koivisto 110 kV transmission line					3			
	New 220/110 kV transformer at Seitenoikea substation				1	2			
	New Lieto-Forssa 400 kV transmission line			2	10	10	1		
	New Lempiälä-Vuoksi 400 kV transmission line					1	5	2	
	New Hikiä-Orimattila 400 kV transmission line					3	10	9	1
	Refinance MEUR 64	3	15	33	14				
New projects MEUR 90		3	12	37	21	16			
Total MEUR 154	3	18	45	50	22	16			

“All of the EUR 100 million of proceeds have been allocated to approved eligible project costs at the end of 2018.”

Allocation of MEUR 100 green bond proceeds to approved eligible projects

Project		2013	2014	2015	2016	2017	2018	2019	2020	2021
Refinance	Reconductoring of Isohaara-Raassakka 110 kV transmission line			1						
	New 220 kV substation Kuolajärvi		1	3	1					
	New 110 kV substation Siikajoki		1	3	1					
	Refurbishment and expansion of Taivalkoski substation			1	4					
	Expansion of Tuovila substation		1	3	1					
	Expansion of Pirttikoski substation and a new 400/220 kV transformer		1	6	1					
	New Hikiä-Forssa 400 kV transmission line	4	9	16	4					
New projects	New 400/110 kV transformer substation Isokangas		1	3	13	1				
	New 400/110 kV transformer at Kristinestad substation				6	1				
	New Hikiä-Orimattila 400 kV transmission line					2	9			
	New Lempiälä-Vuoksi 400 kV transmission line						2			
Totals for MEUR 100 allocation	Refinance MEUR 62	4	13	32	12					
	New projects MEUR 38		1	3	19	4	11			
Total MEUR 100		5	13	35	31	4	11			

The projects completed in 2015–2016 and with a cost of EUR 62 million in total were fully refinanced with the green bond proceeds. The new projects completed in 2017 were financed with EUR 27 million of green bond proceeds. The remaining EUR 11 million was placed into company's liquidity reserves and was allocated to costs incurred during in 2018 arising from Hikiä-Orimattila and Lempiälä Vuoksi transmission line projects in construction. The allocation of the remaining EUR 11 million was made to two projects instead of one project (Hikiä-Orimattila) originally estimated. This was because Hikiä-Orimattila project incurred realised costs of MEUR 9, which was lower than earlier estimated MEUR 11. The second project to which the remaining MEUR 2 was allocated (Lempiälä-Vuoksi) is in the pool of green projects originally approved by the committee in 2017.

“Green Bond proceeds were allocated across eleven eligible projects.”

Description of projects

Project	Description
Reconductoring of Isohaara-Raassakka 110 kV transmission line	Conductors were changed to connect more wind power and reduce losses
New 220 kV substation Kuolajärvi	New substation for connecting new wind power
New 110 kV substation Siikajoki	New substation for connecting new wind power
Refurbishment and expansion of Taivalkoski substation	A substation was refurbished and expanded in order to connect new wind power and existing hydro power
Expansion of Tuovila substation	Part of new 400 kV network on western coast that enables connection of new wind power, better transmission capacity for FI-SE cross-border lines and north-south connection
Expansion of Pirttikoski substation and a new 400/220 kV transformer	A new transformer that enables more wind power and reliable connection for existing hydro power
New Hikiä-Forssa 400 kV transmission line	Old 110 kV line was replaced by 400+110 kV power line resulting in significant drop in losses
New 400/110 kV transformer substation Isokangas	Network was enhanced in order to connect new wind power and existing hydro power
New 400/110 kV transformer at Kristinestad substation	A second 400/110 kV transformer was needed to connect more wind power
New Hikiä-Orimattila 400 kV transmission line	An old 110 kV power line is going to be replaced with 400+110 kV power line to increase capacity to Lahti region. Old coal fired CHP is going to be shut down and replaced with bio district heating plant. New power line results also in significantly lower losses
New Lempiälä - Vuoksi 400 kv transmission line	Old 110 kV line is going to be replaced by 400 kV power line resulting in significant drop in losses

“Estimated impact from Green Bond projects include around 850 MW of new renewable capacity*** by end of 2018.”

A summary of the estimated impacts to be achieved from the funded projects

Project	New renewable capacity*			Transmission losses reduced
	12/2018	Estimated in next years**	Total estimated impact	12/2018
Reconductoring of Isohaara-Raassakka 110 kV transmission line	+ 100 MW	n/a	+ 100 MW	approx. 60%
New 220 kV substation Kuolajärvi	+ 50 MW	n/a	+ 50 MW	n/a
New 110 kV substation Siikajoki	+ 200 MW	+ 100 MW	+ 300 MW	n/a
Refurbishment and expansion of Taivalkoski substation	+ 100 MW	+ 100 MW	+ 200 MW	n/a
Expansion of Tuovila substation	100 MW	+ 200 MW	+ 300 MW	n/a
Expansion of Pirttikoski substation and a new 400/220 kV transformer	+ 100 MW	+ 100 MW	+ 200 MW	n/a
New Hikiä-Forssa 400 kV transmission line	n/a	n/a	n/a	approx. 95%
New 400/110 kV transformer substation Isokangas	+ 50 MW	+ 150 MW	+ 200 MW	n/a
New 400/110 kV transformer at Kristinestad substation	+ 150 MW	+ 250 MW	+ 400 MW	n/a
New Hikiä-Orimattila 400 kV transmission line	n/a	n/a	n/a	approx. 80%
New Lempiälä-Vuoksi 400 kV transmission line	n/a	n/a	n/a	approx. 80%
Total by these investments***	+ 850 MW	+ 900 MW	+ 1750 MW****	n/a

* Approximations

** Estimated upon completion 2021 in addition to impacts estimated until 12/2018

*** Directly connected or through enhanced transmission capacity by these investments

**** Total estimated impact to new renewable capacity has increased from last year's report. The development of competitiveness and technology has accelerated the construction of wind power.



Fingrid has audited work sites through a risk-based approach to verify compliance with contractor obligations, occupational safety and environmental management.

The audits carried out during 2018 revealed that operations and induction at the work sites are generally on a good level and continuously improving.

Health, Safety and Environment

When we build and maintain power lines, substations and reserve power plants, we make sure that environmental and land-use issues are taken into account for the long term. We relate our principles for reducing our environmental impacts in our land use and environmental policy. Key aspects include a thorough environmental impact assessment (EIA) and preparedness for environmental risks. The

Finnish Association for Impact Assessment (FAIA) has twice rewarded Fingrid's environmental impact assessment work with its EIA award; the award annually rewards assessments that have significantly developed the assessment procedure.

We commit our contractors and suppliers to operating practices with the help of contractual terms, training and auditing. Fingrid's Supplier Code of Conduct is a condition for being included in supplier registers used in recurring substation and power line procurements. In addition, contractual partners are subject to separate contract conditions related

to the use of subcontractors and workforce, and to occupational safety and environmental matters.

Independent Limited Assurance Report

The Board of Directors of Fingrid Oyj engaged us to provide limited assurance on the Selected information described below and set out in the Fingrid Oyj's "Green Bond Investor Letter and Impact Report" dated April 2019 for the Fingrid Oyj Green Bond (ISIN XS1722899918).

Selected information

The Scope of our work was limited to assurance over the allocation of bond proceeds as stated in the table "Allocation of green bond proceeds to approved eligible projects" on page 8 of Green Bond Investor Letter and Impact Report.

The Reporting Criteria against which it was assessed is described in Fingrid Oyj's Green Bond Framework.

Management's Responsibility for the Green Bond Investor Letter and Impact Report

Management is responsible for the preparation and presentation of the Green Bond Investor Letter and Impact Report and Selected information in accordance with the reporting criteria as set out in Green Bond Framework. This responsibility includes designing, implementing and maintaining

internal tracking method relevant to the proper preparation and presentation of the Green Bond Investor Letter and Impact Report and Selected information.

Practitioner's Responsibility

Our responsibility is to express a conclusion on the Selected Information of Green Bond Investor Letter and Impact Report based on our work performed. We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000. This Standard requires that we comply with ethical requirements and plan and perform the assurance engagement to obtain limited assurance whether any matters come to our attention that causes us to believe that the Green Bond Investor Letter and Impact Report and Selected information does not comply in all material respects with the criteria set out in Green Bond Framework.

The scope of our work was limited to assurance over the allocation of green bond proceeds to approved eligible projects as stated on table "Allocation of green bond proceeds to approved eligible projects" on the Green Bond Investor Letter and Impact Report.

In a limited assurance engagement, the evidence-gathering procedures are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement. The procedures

selected depend on the practitioner's judgment, including the assessment of the risks of material incompliance of Selected information on the Green Bond Investor Letter and Impact Report with the criteria.

Work performed

We are required to plan and perform our work in order to consider the risk of material misstatement of the Selected Information. In doing so, we:

- Made enquiries to Fingrid Oyj's management, including those with responsibility for green bond governance, management and reporting.
- Evaluated and updated our understanding of the design of the internal tracking method for managing, recording and reporting the Selected Information.
- Obtained the listing of eligible projects allocated into the green bond, and confirmed consistency with the disclosure in table "Allocation of green bond proceeds to approved eligible projects".
- Inspected minutes of the Steering Committee for Finance and Business development to confirm that the allocated eligible projects had been considered and approved according to process described in the Green Bond Framework.
- Performed limited substantive testing to verify existence and accurate allocation of green bond proceeds as set out in table "Allocation of green

bond proceeds to approved eligible projects”. In our testing we obtained a detailed listing of project costs to assure the following:

- » existence and accuracy of these costs in Fingrid Oyj’s external accounting records
- » correct allocation to eligible projects
- » costs were paid
- Total amount of proceeds allocated to eligible projects on the table for years 2013–2017 is 89 million euros. Our testing covered 50% of these costs.
- Considered the disclosure and presentation of the Selected Information.

Our assurance does not extend to any other information included in the Green Bond Investor Letter and Impact Report. We have not reviewed and do not provide any assurance over the individual project information reported, including estimates of environmental impacts.

Conclusion

Based on our limited assurance engagement, nothing has come to our attention that causes us to believe that the Selected Information on Green Bond Investor Letter and Impact Report, April 2019 does not comply in all material respects with the criteria as set out in Green Bond Framework.

This conclusion has been formed on the basis of, and is subject to the inherent limitations outlined elsewhere in this independent assurance

report.

Restriction on Use and Distribution

This report, including our conclusion, has been prepared solely for the Board of Directors of Fingrid Oyj in accordance with the agreement between us, to assist the Directors in reporting Fingrid Oyj’s green bond performance and activities. We permit this report to be disclosed in the Green Bond Investor Letter and Impact Report as at April 2018, to assist the Directors in responding to their governance responsibilities by obtaining an independent assurance report in connection with the Selected information. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Board of Directors and Fingrid Oyj for our work or this report except where terms are expressly agreed between us in writing.

3 May 2019

PricewaterhouseCoopers Oy
Authorised Public Accountants

Heikki Lassila
Authorised Public Accountant (KHT)



Annex 1.

Projects financed under the EUR 100 million green bond



REDUCING LOSSES



CONNECTING
RENEWABLE POWER



CROSS-BORDER
TRANSMISSION

Reconductoring of Isohaara-Raasakka 110 kV power line

Connecting renewable power and reducing losses

- Single conductors were changed to thicker double conductors.
- Transmission losses reduced >60%.
- Higher transmission capacity made it possible to connect extra 100 MW new wind power with minimum connection costs.
- No new right of way was needed so the negative environmental impact was negligible.
- Project also included new lightning conductors which resulted to much higher reliability: Less failures caused by lightning or snow adhesion to lightning conductors.



RENEWABLES

+100 MW

ALLOCATED COSTS

1,5 M€



TRANSMISSION LOSSES

-60%

ACTUALIZED

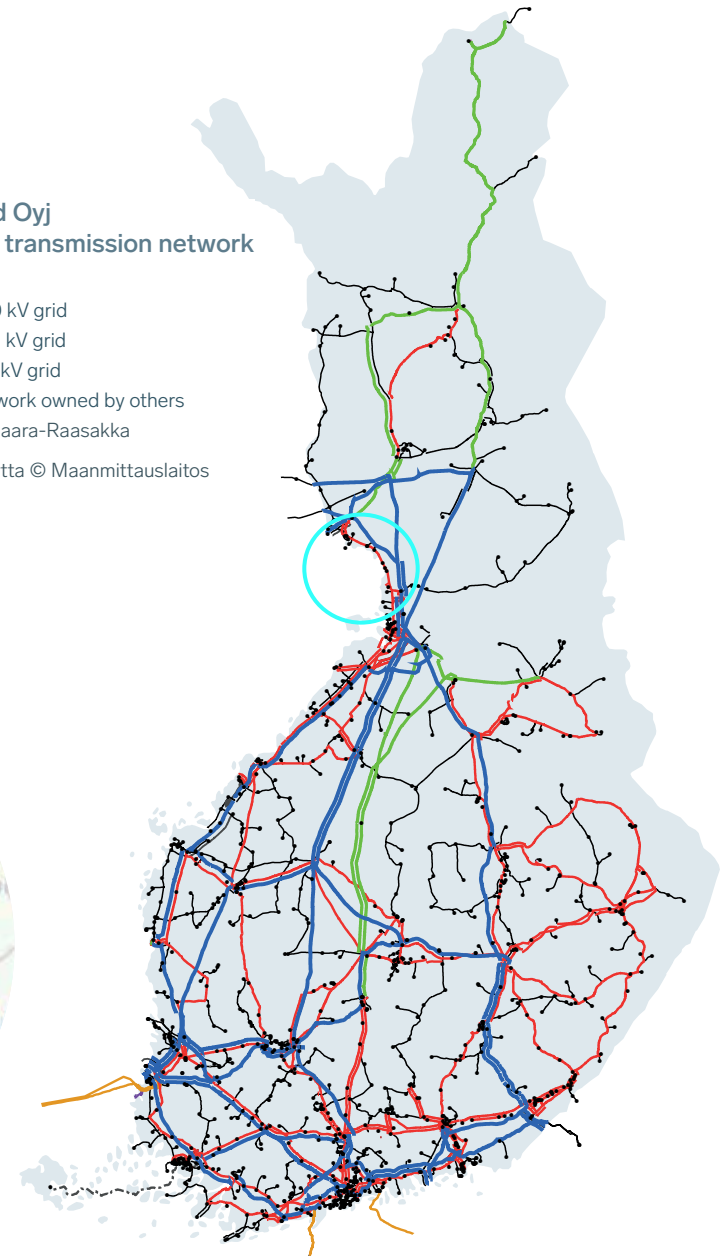
2014–2015



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Isohaara-Raasakka

Pohjakartta © Maanmittauslaitos



New 220 kV substation at Kuolajärvi

Connecting renewable power

- Lapland is very sparsely populated (1,9 people/km²) and distance between existing grid connection points can be more than 100 km.
- Kuolajärvi substation was built in order to connect new wind power to Fingrid's 220 kV transmission line.
- Kuolavaara-Keulakkopää wind park consists of 17 turbines totaling 51 MW.



ACTUALIZED

2014–2015

ALLOCATED COSTS

5,0 M€

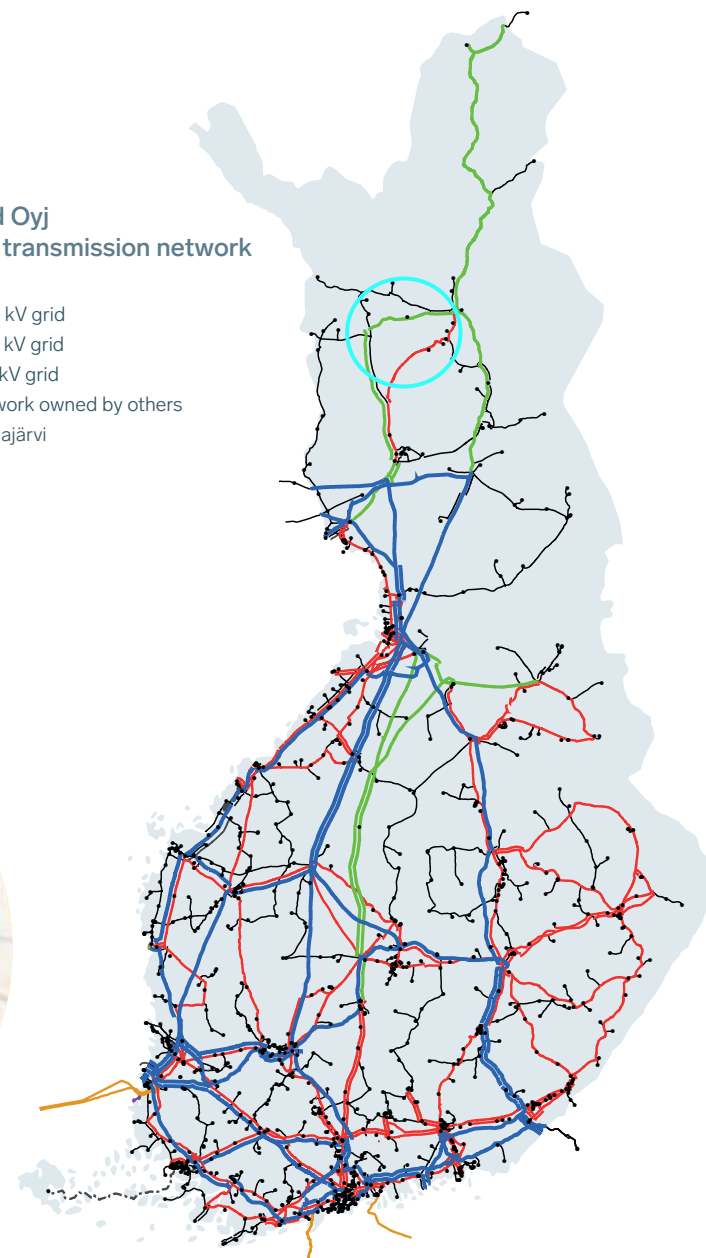
RENEWABLES

+50 MW



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Kuolajärvi



New 110 kV substation at Siikajoki

Connecting renewable power

- Ostrobothnian coast is excellent for wind power.
- A new substation was built in order to offer a connection point for wind power.
- 200 MW of wind power has already been connected to the substation and many new projects are expected in next few years.



ACTUALIZED

2015–2016

ALLOCATED COSTS

4,4 M€

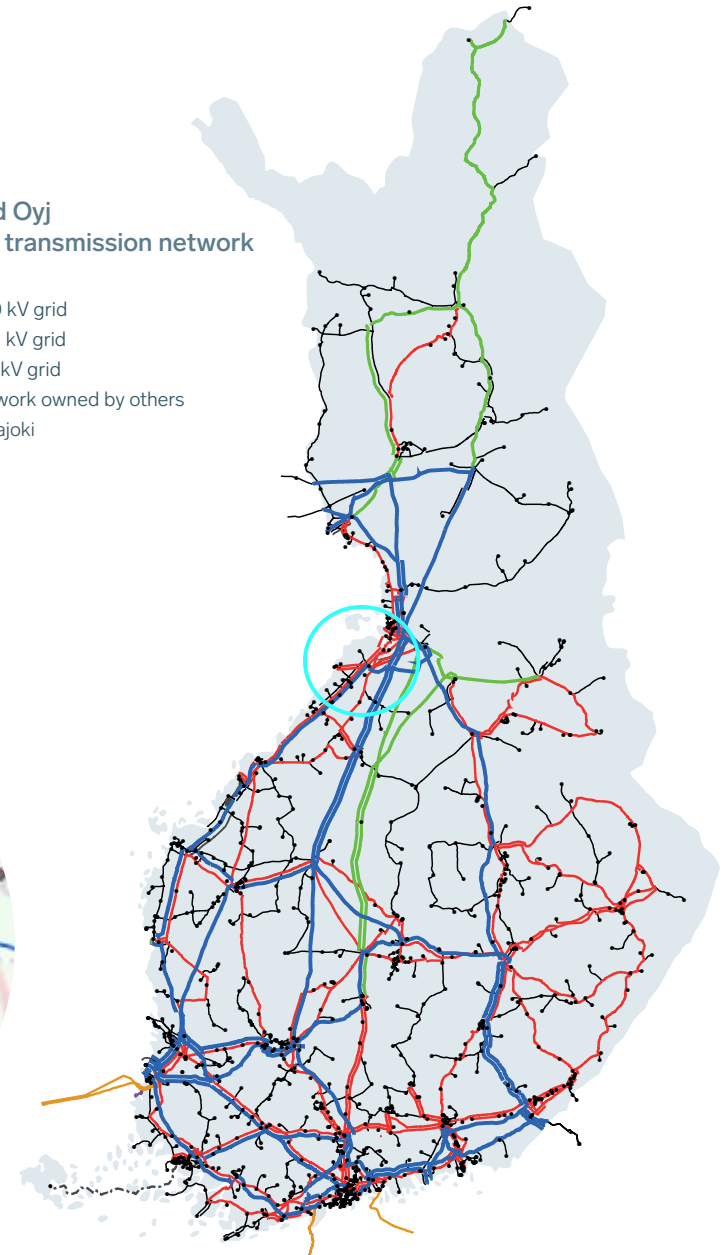
RENEWABLES

+300 MW



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Siikajoki



Refurbishment and expansion of Taivalkoski substation

Connecting renewable power

- More than 130 MW of hydro power is connected to Taivalkoski Substation.
- An old substation was renewed for better reliability and higher transmission capacity.
- Substation was expanded and 100 MW new wind power was connected to the substation and more is expected in next few years.



ACTUALIZED

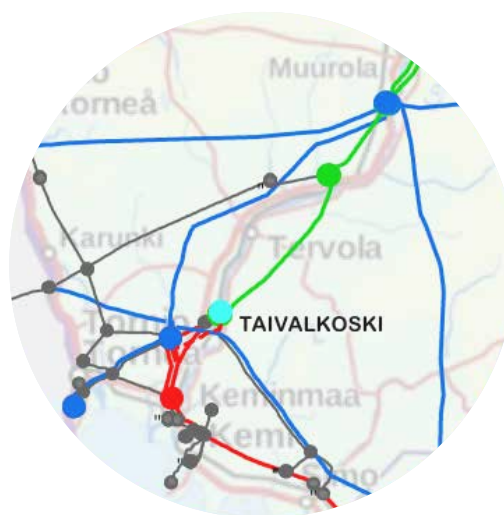
2015–2016

ALLOCATED COSTS

5,0 M€

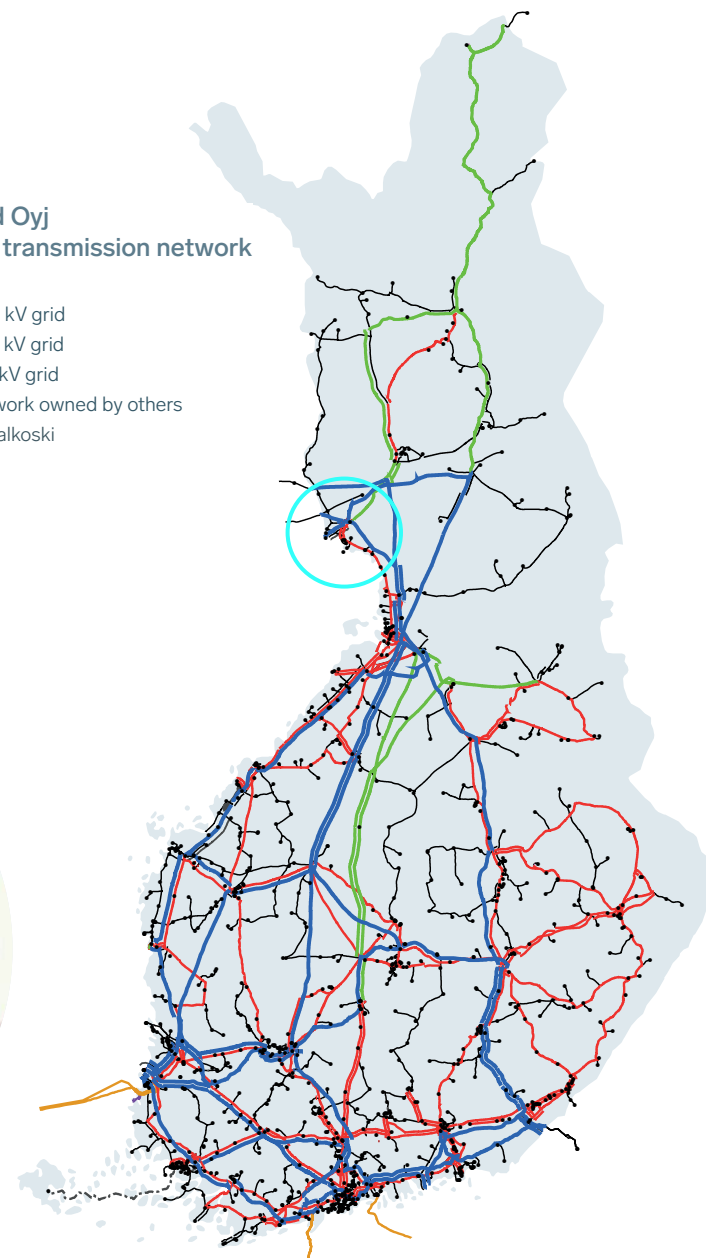
RENEWABLES

+150 MW



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Taivalkoski



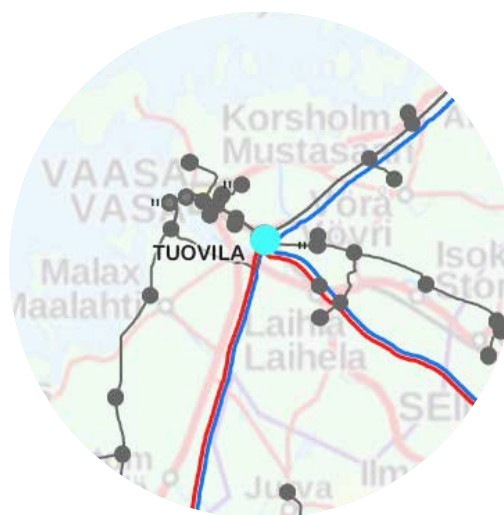
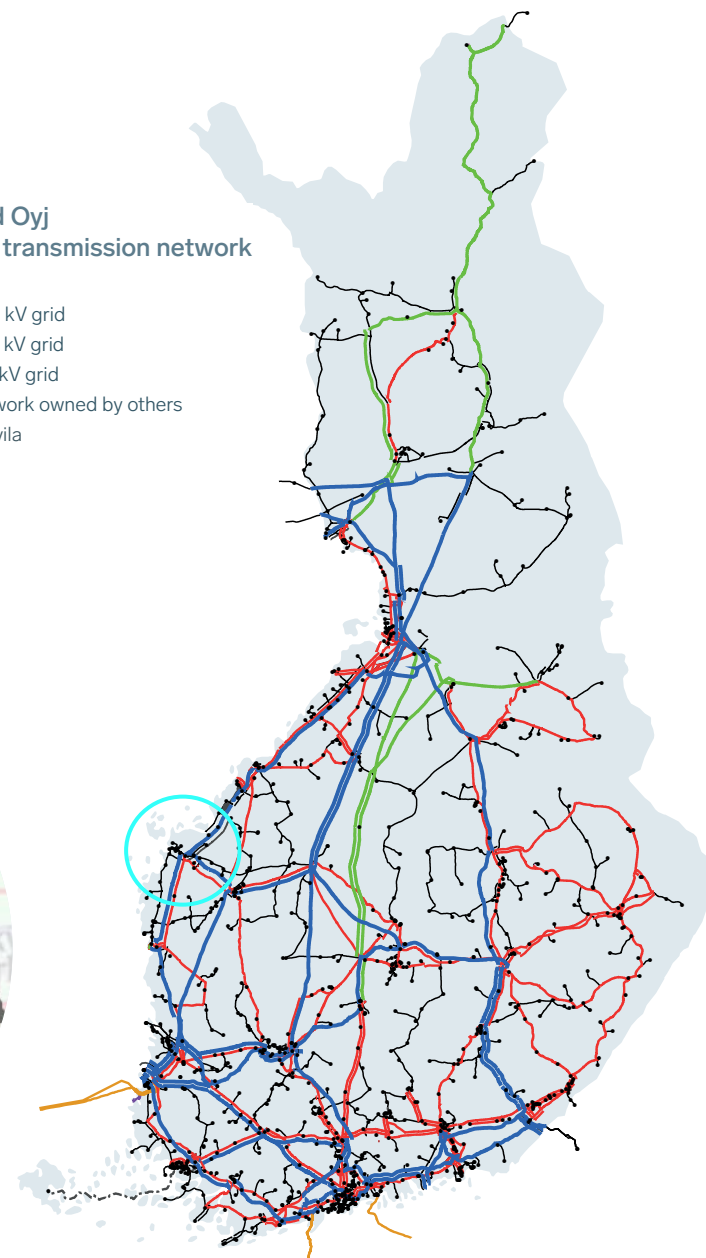
Expansion of Tuovila substation

Connecting renewable power

- New 400 kV transmission connection was built on the western coast. Tuovila substation ties the power lines together and offers a strong connection point for new wind power.
- Geographic distribution of power generation requires new transmission capacity from Northern to Southern Finland:
 - » Renewables are replacing fossil fuel power plants in Finland.
 - » Several power plants have been closed down in Southern Finland.
 - » More and more power is coming from wind parks in Northern Finland and from Sweden.
- Ostrobothnian coast is excellent for wind power but the grid was too weak for new power generation:
 - » New 400 kV power line offers enough capacity and new connection point for wind power.

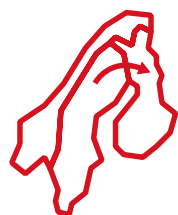
Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Tuovila



RENEWABLES

+500 MW



TRANSMISSION
CAPACITY

ALLOCATED COSTS

4,9 M€

ACTUALIZED

2015–2016

Expansion of Pirttikoski substation and a new 400/220 kV transformer

Connecting renewable power

- One third of Finnish hydro power is situated in Lapland. On top of 1000 MW of hydro there is also more than 100 MW of wind power and there are numerous wind power projects being planned.
- Power grid in Lapland is connected to rest of Finnish power system in Pirttikoski and Petäjäskoski 400/220 kV transformer substations.
- Transmission capacity and reliability in Pirttikoski were insufficient:
 - » A second transformer was added and 400 kV substation was expanded and modified to more reliable.
- New transformer capacity makes it possible to connect new wind power and eliminates the need to limit power in outage situations.



ACTUALIZED

2014–2016

ALLOCATED COSTS

8,5 M€

RENEWABLES

+300 MW



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Pirttikoski



New Hikiä-Forssa 400 kV transmission line

Reducing losses

- Oldest 110 kV power line in Finland is being replaced with a new one.
- New power line was built on existing right of way. In Riihimäki city area a new route was used in order to free up land for city development.
- New power line has 95 % lower transmission losses and more than 700 % higher transmission capacity.
 - » New power line carries more and thicker conductors and losses sink when transmission voltage is upgraded to 400 kV.



ACTUALIZED

2013–2016

ALLOCATED COSTS

32,7 M€

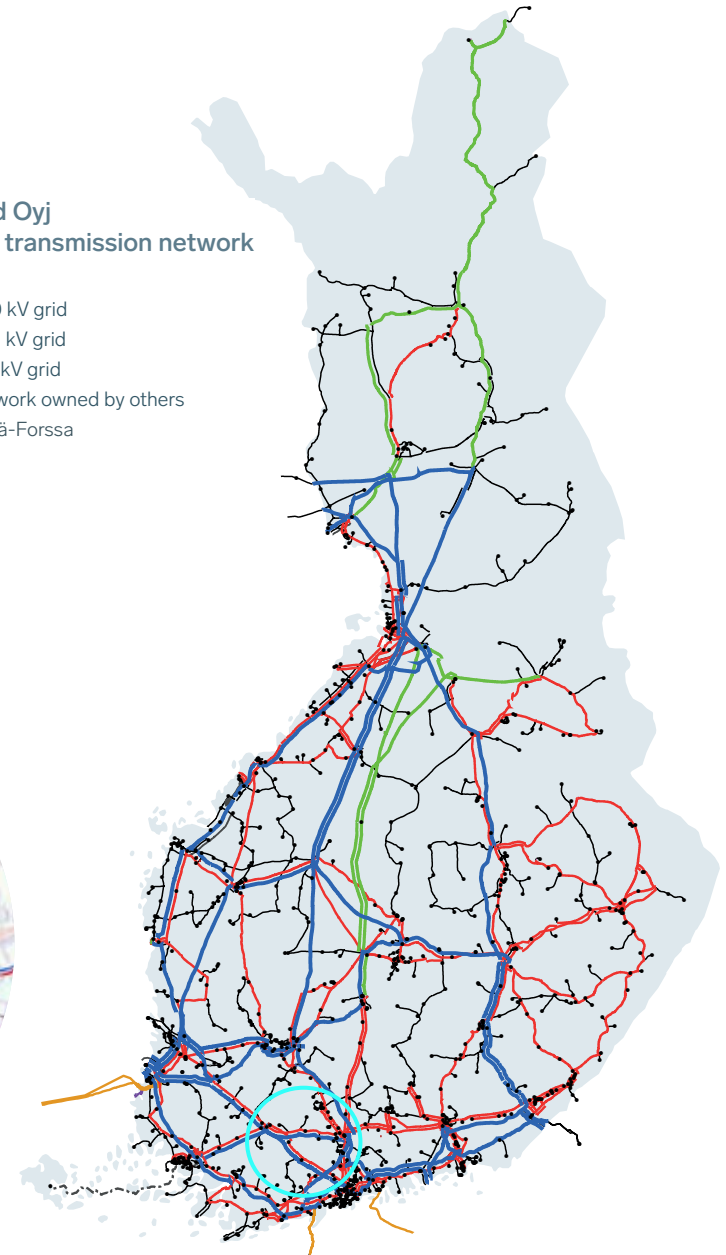
TRANSMISSION LOSSES

-95%



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Hikiä-Forssa



New 400/100 kV transformer substation Isokangas

Connecting renewable power

- There are several hydro power plant in Iijoki river. Total power is 200 MW.
- New wind power is being built and planned in Iijoki region and Sea-Lapland coast.
- Transmission capacity had run out after several capacity increases in existing hydro power plant.
- A new 400/110 kV transformer station was built in order to increase reliability and transmission capacity for existing hydro power and make it possible to connect new wind power to the network.
- New transformer station also reduces losses by several megawatts.



ACTUALIZED

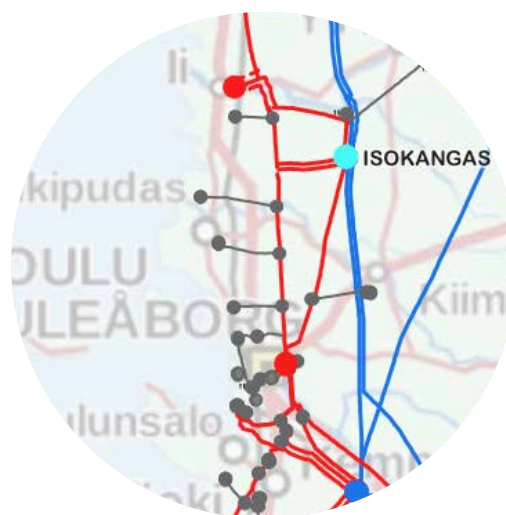
2015–2016

ALLOCATED COSTS

16,9 M€

RENEWABLES

+200 MW



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Isokangas



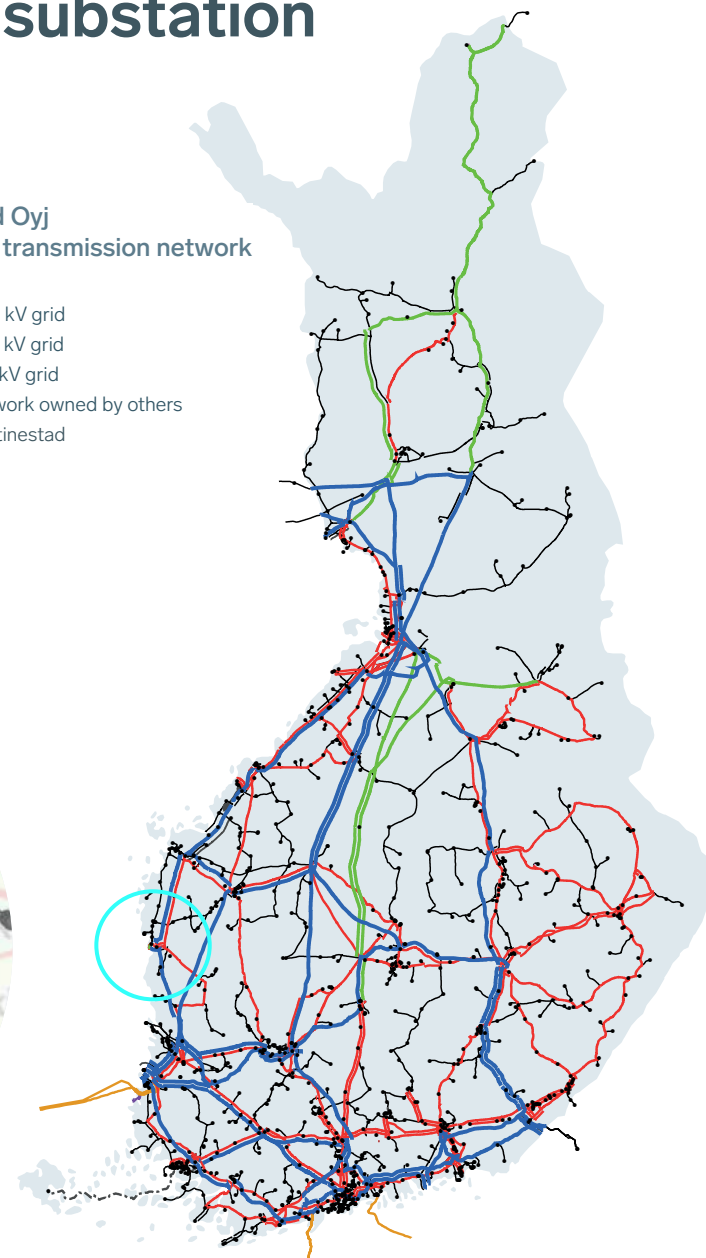
New 400/110 kV transformer at Kristinestad substation

Connecting renewable power

- Kristinestad substation was built in 2014 in the center of one of the best wind power areas in Finland:
 - » Kristinestad substation replaced an old substation that was situated 6 km from the new substation next to oil and coal fired condensing power plants. These power plants have now been closed.
- A second 400/110 kV transformer was added to Kristinestad in 2017.
- Connection capacity for wind power increased 300 MW totaling 500-600 MW:
 - » The transformer also made it possible to change the use of surrounding 110 kV network. New wind power can now be connected to grid without the need of building new power lines.

Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Kristinestad



ACTUALIZED

2016–2017

ALLOCATED COSTS

8,0 M€

RENEWABLES

+300 MW

New Hikiä-Orimattila 400 kV transmission line

Reducing losses

- Oldest 110 kV power line in Finland is being replaced with a new one.
- New power line has 80% lower transmission losses and almost 500% higher transmission capacity:
 - » Power line structure makes it possible to upgrade voltage from 110 to 400 kV → Even higher capacity and lower losses.
- The new transmission line will provide (replacement) transmission capacity to a region where a coal fired combined heat and power plant is being closed and replaced with bio district heating plant, which has no electricity production.



ACTUALIZED

2017–2019

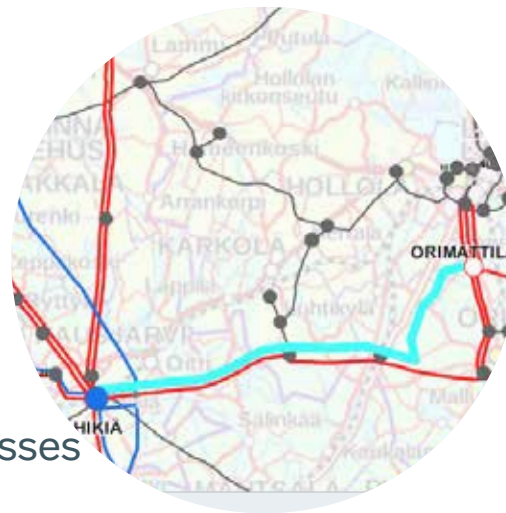
ALLOCATED COSTS

2,2 M€

TRANSMISSION LOSSES

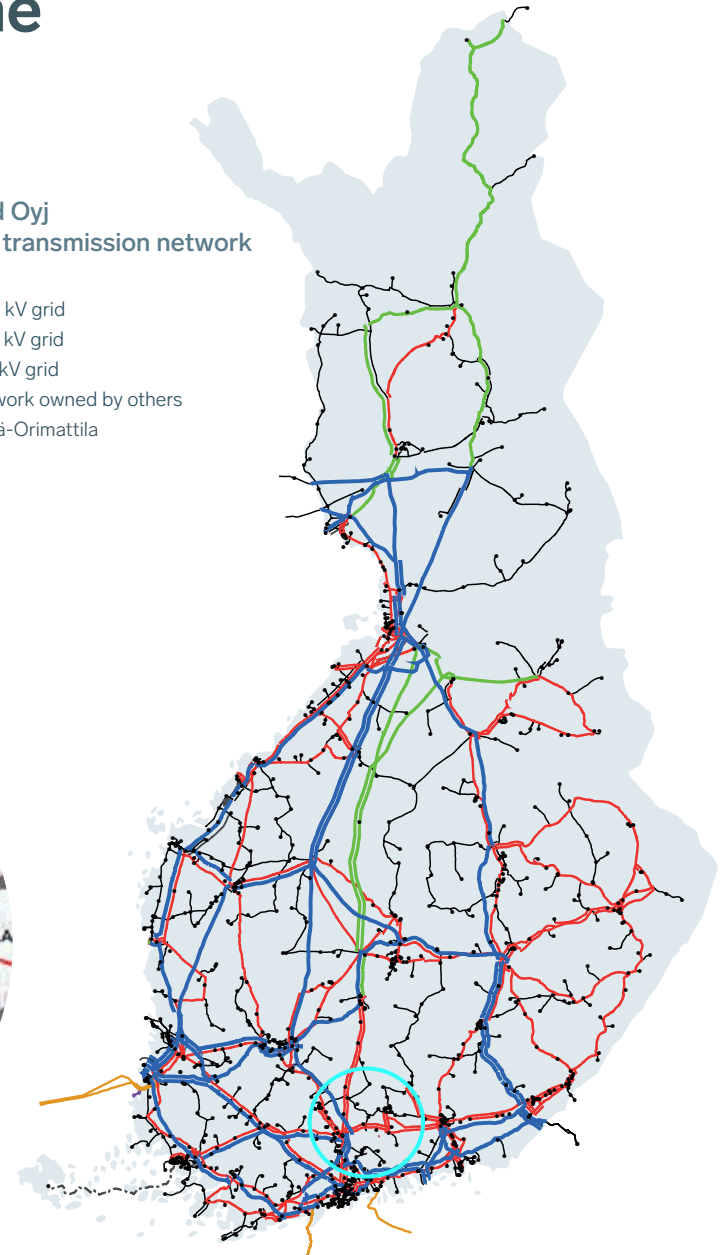
-80%

Reducing losses



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Hikiä-Orimattila



New Lempiälä – Vuoksi 400 kV transmission line

Reducing losses

- Old 110 kV wooden power line is being replaced by a new structure on existing right of way.
- New power line is built with 400 kV towers and conductors but is used in 110 kV voltage level.
- New power line has **80 % lower transmission losses** and more than **400 % higher transmission capacity**
- New power line can be taken into 400 kV use later if more transmission capacity is needed. This upgrade would lower the losses yet another 90% (total drop almost 99%).



ACTUALIZED

2018–2019

ALLOCATED COSTS

2 M€

TRANSMISSION LOSSES

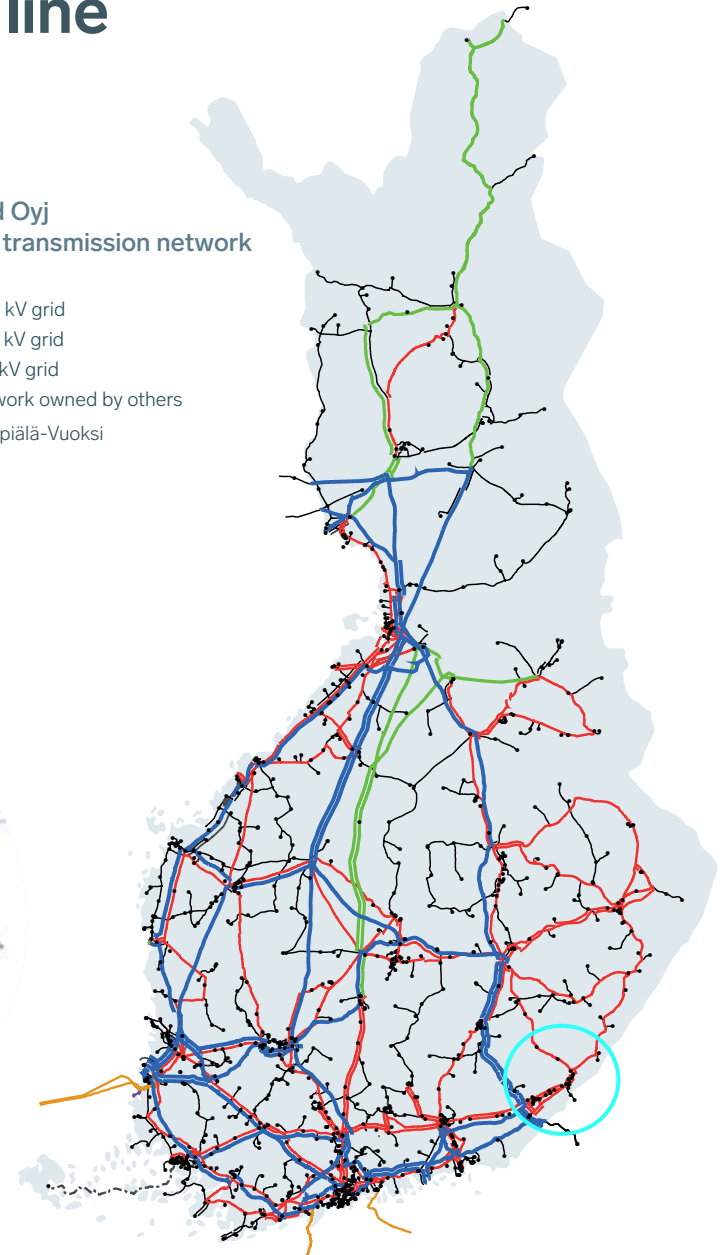
-80%

Reducing losses



Fingrid Oyj
power transmission network
1.1.2018

- 400 kV grid
- 220 kV grid
- 110 kV grid
- network owned by others
- Lempiälä-Vuoksi





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