September 2019

Finland´s Transmission System Operator

FINGRID

Disclaimer

These materials have been prepared based upon information that Fingrid Oyj believes to be reliable. Market data presented is based on the information and belief of Fingrid Oyj's management and has not been independently verified. Certain data in this presentation was obtained from various external data sources and Fingrid Oyj has not verified such data with independent sources. Such data involves risks and uncertainties and is subject to change based on various factors. Fingrid Oyj makes no representation or warranty, express or implied, as to the accuracy or completeness of the information contained in these materials and accordingly, Fingrid Oyj accepts no responsibility or liability (in negligence or otherwise) for the information contained herein.

These materials may contain forward-looking statements. These forward-looking statements are based on management's current expectations and beliefs, as well as a number of assumptions concerning future events. These statements are subject to risks, uncertainties, assumptions and other important factors, many of which are outside management's control, that could cause actual results to differ materially from the results discussed in the forward-looking statements. You should not place undue reliance on these forward-looking statements, which speak only as of the date of this presentation.

Fingrid Oyj assumes no obligation to, and expressly disclaims any obligation to, update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

The circulation of these materials may, in certain countries, be subject to specific regulation and the person(s) in possession of this presentation should observe such restrictions.

Nothing in these materials shall constitute or form part of any legal agreement, or any offer to sell or the solicitation of any offer to buy any securities or notes issued under Fingrid Oyj's commercial paper or medium-term note programs.

Table of Contents

- Executive summary 4
- Company overview 9
- Operations
  - Description of operations 25
  - Efficiency of operations 35
  - Earnings model 42
  - Pricing 51
  - Capex 57
- Operating environment 63
- Financials
  - Financial performance 73
  - Financing 84
- Ratings 91

Executive summary

Fingrid is the sole transmission system operator (TSO) in Finland

Fingrid transmits in its own network approximately

75%

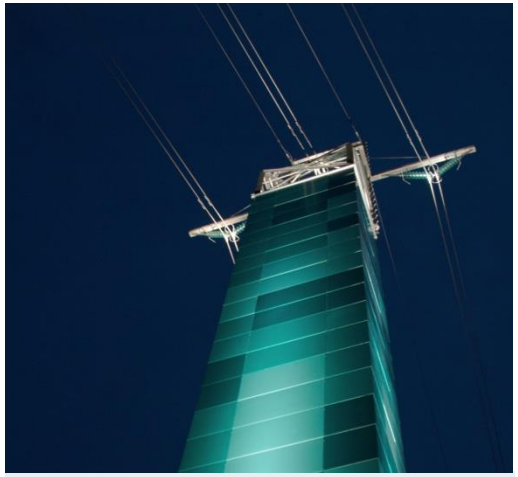
of electricity transmitted in Finland

Fingrid manages cross-border connections between **Finland and Sweden, Estonia, Russia and Norway**

Fingrid continuously **ensures power system production and consumption balance** in Finland

Fingrid's network covers entire Finland

14 100 km
of power lines
320 km
of submarine cable



over
46 000 towers

114 substation

10 reserve power
plants
> 930 MW reserve

Fingrid has achieved its targets in 2011 - 2018

	2011	2018
Net profit	MEUR 33	MEUR 183
Return	Below regulatory allowed	At regulatory allowed*
Dividend	MEUR 7	MEUR 171
Efficiency	High benchmark study rankings	High benchmark study rankings
Investments	In schedule and budget	In schedule and budget

Fingrid has a proven track record of continuously executing its defined strategy

*Cumulative deficit MEUR -5 in 2016-2018

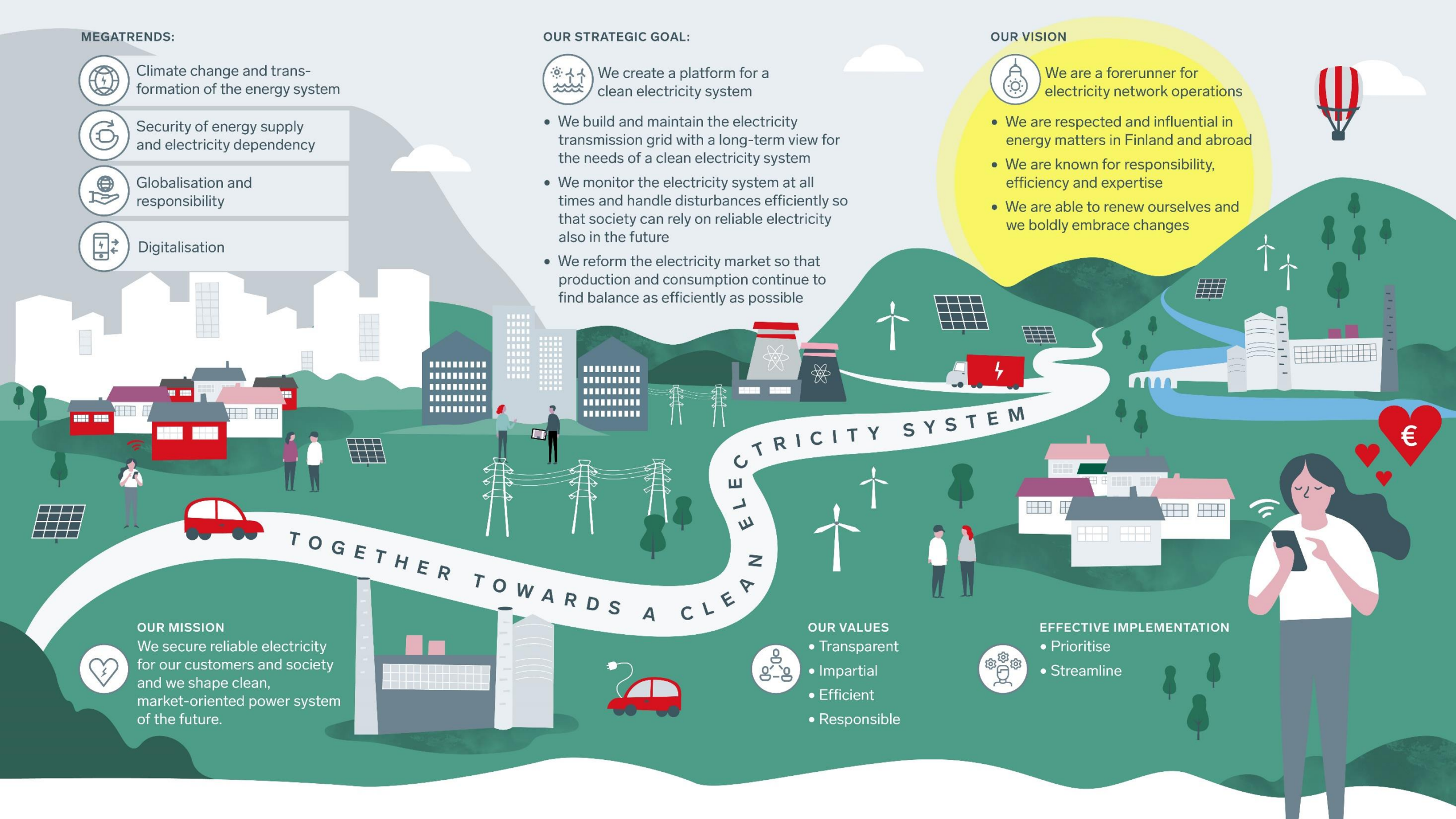
Key investment considerations

Regulation	Fair, stable and predictable regulatory model
Ownership	The Finnish state owns 53% and Finnish financial institutions 47%
Strategic importance	Considered as strategically important holding to the Finnish state*
Operating leverage	Construction and maintenance of the network is outsourced
Efficiency & Quality	Fingrid is one of the most cost efficient and reliable TSOs worldwide
Financials	Continuous solid operating profitability
Rating	Fingrid benefits from AA-/A+ ratings (S&P, Fitch**)

* Source: Prime Minister's Office, Finland. (2016). *Government resolution on state-ownership policy.* ** Senior unsecured rating from Fitch is 'A+' and issuer default rating 'A'

Fingrid provides a solid long-term investment in a stable operating environment

Company overview


MEGATRENDS:
Climate change and transformation of the energy system
Security of energy supply and electricity dependency
Globalisation and responsibility
Digitalisation
OUR STRATEGIC GOAL:
We create a platform for a clean electricity system
• We build and maintain the electricity transmission grid with a long-term view for the needs of a clean electricity system
• We monitor the electricity system at all times and handle disturbances efficiently so that society can rely on reliable electricity also in the future
• We reform the electricity market so that production and consumption continue to find balance as efficiently as possible
OUR VISION
We are a forerunner for electricity network operations
• We are respected and influential in energy matters in Finland and abroad
• We are known for responsibility, efficiency and expertise
• We are able to renew ourselves and we boldly embrace changes
TOGETHER TOWARDS A CLEAN ELECTRICITY SYSTEM
OUR MISSION
We secure reliable electricity for our customers and society and we shape clean, market-oriented power system of the future.
OUR VALUES
• Transparent
• Impartial
• Efficient
• Responsible
EFFECTIVE IMPLEMENTATION
• Prioritise
• Streamline

Balanced strategy

CUSTOMERS AND SOCIETY

We secure reliable electricity and a well-functioning electricity market for society.
We offer affordable services that meet our customers' needs.

FINANCE

We operate cost-effectively and bring value to our owners.

INTERNAL PROCESSES

Adequacy of the transmission system

We carry out investments and maintenance safely and efficiently at the right time.

System operation

We operate the national grid proactively and reliably.

Promoting the electricity market

We actively maintain and develop the electricity market.

PERSONNEL AND EXPERTISE

An open, collaborative, renewing and target-oriented work community.

Corporate level strategic choices

Focus on core operations

Outstanding execution of our core operations in changing operating environment. We do not seek to expand into new businesses or to participate in competitive businesses.

Customer oriented

We develop our business operations and operating models actively, in a customer oriented manner and for the benefit of Finland.

World class efficiency

We utilize innovatively the best available technologies and the possibilities of digitalization. We maintain the required core competences in-house. We cooperate with the best partners.

Market oriented

We operate in a market-oriented way in all areas, because functioning markets produce the best and most innovative solutions in all operations.

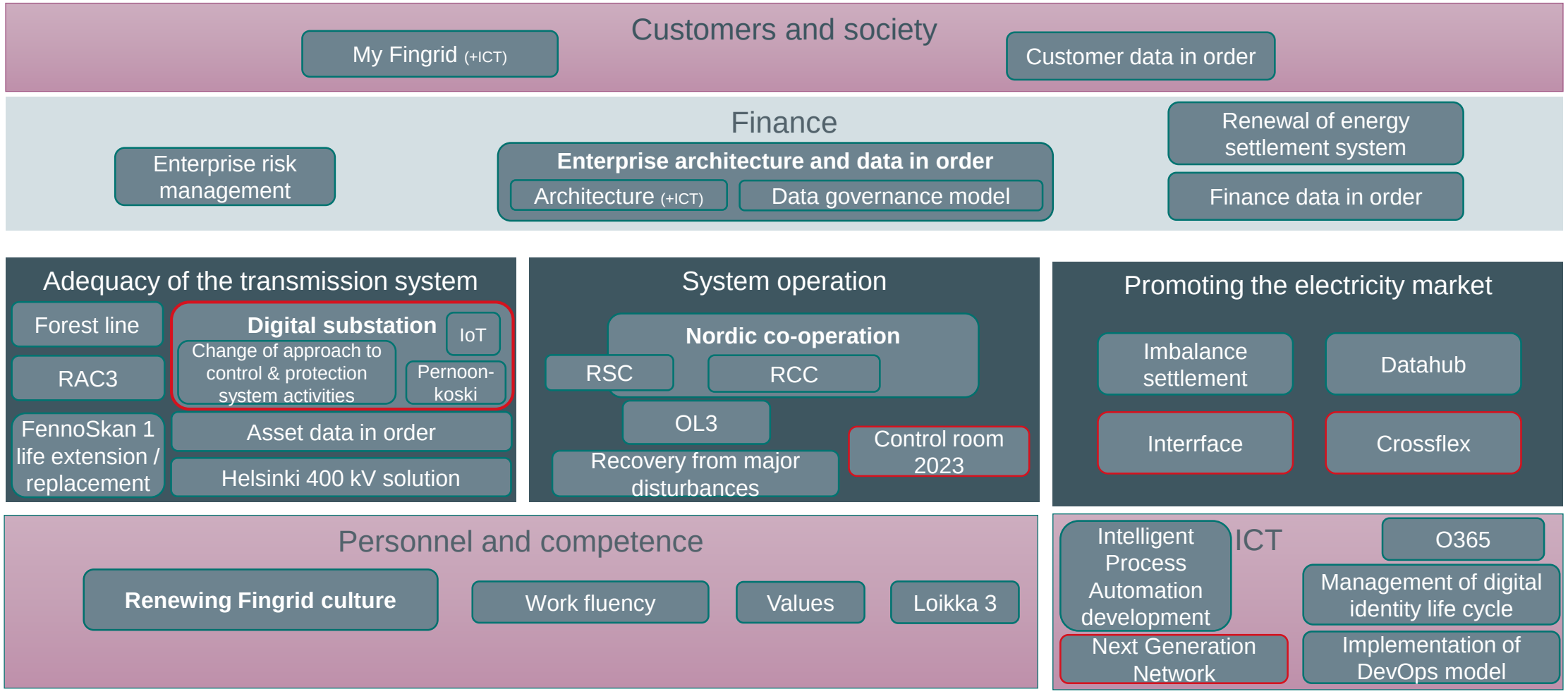
Integration oriented

We actively promote the integration of European and Baltic sea electricity markets taking into account the interests of Finland.

Security and sustainability

During the transformation of the power system we maintain the current high level of system operation. Sustainability and safety are in focus in everything we do.

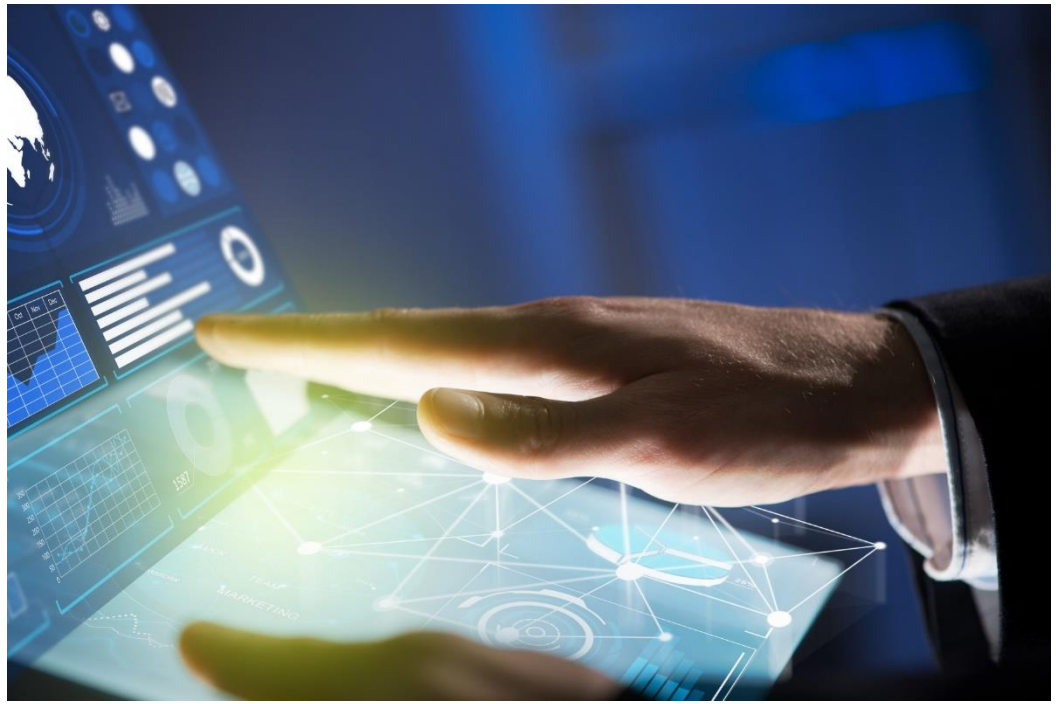
Company's key programs



Digital substation pilot under construction

Digital substation is one of Fingrid's key development projects

- Digitalisation is expected to decrease construction and maintenance costs as well as providing more reliable operation
- Conventionally used copper cable is replaced with optical fibre, which saves space up to 60% and decreases the need for copper cable up to 80%
- Digital substations can be set up for self-monitoring and they are also safer and more environmentally friendly than traditional substations
- Once the experiences of the pilot have been analysed, Fingrid will begin test operation of the first fully digital substation



Fingrid operates in a matrix organisation structure

Fingrid Oyj
Jukka Ruusunen, President & CEO

GRID SERVICES AND PLANNING	ASSET MANAGEMENT	POWER SYSTEM OPERATIONS	MARKETS	FINANCE AND TREASURY	ICT	HRD COMMUNICATION	LEGAL AND ADMINISTRATIVE AFFAIRS	
Jussi Jyrinsalo	Timo Kiiveri	Reima Päivinen	Asta Sihvonen-Punkka**	Jan Montell	Kari Suominen	Tiina Miettinen	Marina Louhija	
Customers								Jussi Jyrinsalo
Finance and business development								Jan Montell
Adequacy of transmission system System operation Promoting the electricity market								Kari Kuusela Reima Päivinen Asta Sihvonen-Punkka
Personnel and expertise								Tiina Miettinen

84% of Fingrid's personnel holds an academic degree

Full-time, permanent employees at the end of 2018

Executive management team is highly regarded in the Finnish business community

Fully implemented matrix structure ensures efficient strategy implementation and personnel engagement

**Ms. Asta Sihvonen-Punkka nominated as deputy CEO as of July 2019

FINGRID

Fingrid's business model

RESOURCES

- Personnel and expertise
- Suppliers and business partners
- Income and debt financing
- Electricity from power plants and neighbouring countries
- Grid transmission lines, substations and reserve power plants
- Land required for transmission lines; natural resources and materials
- ICT structures
- Knowledge capital on electricity, markets and customers

BUSINESS PROCESS

Adequacy of the transmission system

- Grid planning
- Grid building
- Grid maintenance

Management of electricity system operation

- Planning of the operation of the electricity system
- Monitoring and control of the electricity system
- Managing disturbances and the continuity of the electricity system

Promoting the electricity market

- Developing market rules to enable a clean electricity system
- Promoting the regional electricity markets
- Ensuring the continuity of the electricity market

SERVICES FOR CUSTOMERS

	Electricity transmission	Balance services
Guarantee-of-origin certificate	Electricity market information	Information exchange in the retail markets

IMPACTS

- Enabling the transformation of the energy system
- Reliable electricity for society and industry
- Promoting Finland's competitiveness
- Developing the electricity sector and expertise
- Financial benefits for stakeholders
- Major grid investments and employment
- Local changes in land use and the environment and energy losses in electricity transmission

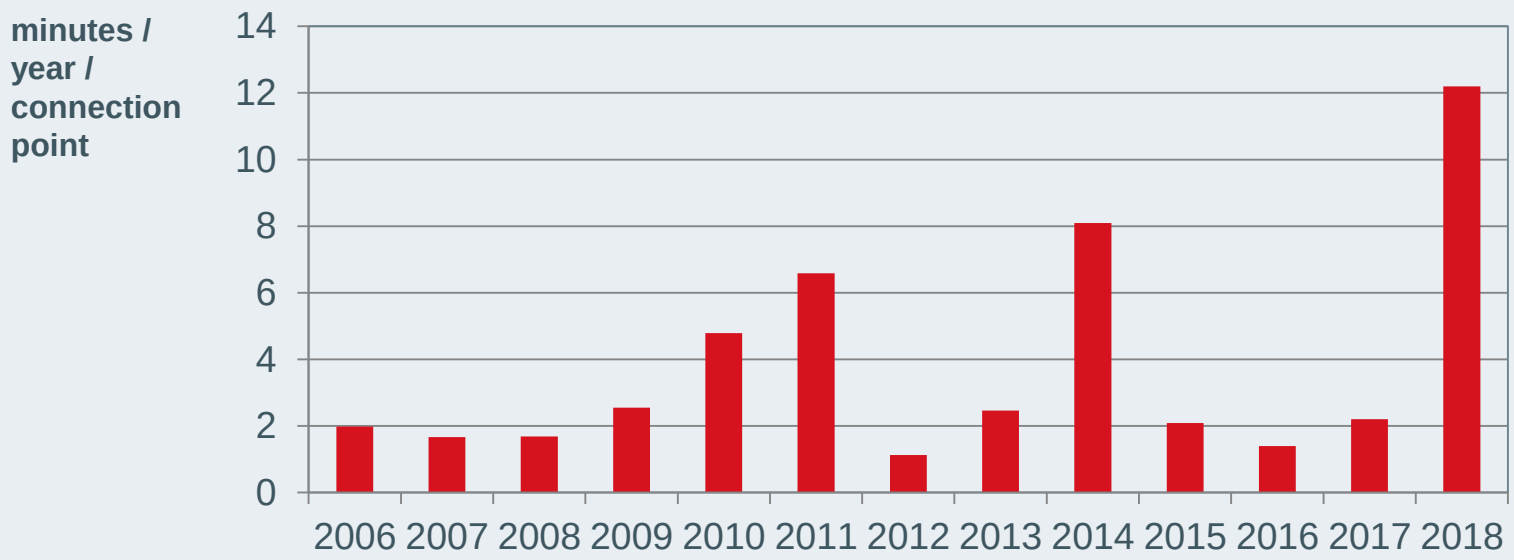
Corporate responsibility

- Corporate responsibility is an important and natural element of the company’s way of operating.
- Corporate responsibility is part of Fingrid's strategy and an integrated part of all our operations.
- We are committed to responsibility for the economic, social and environmental effects of our operations.
- We require that also from our contractual partners.

We report about responsibility as part of the annual report according to GRI Standards

Excellent reliability in the grid

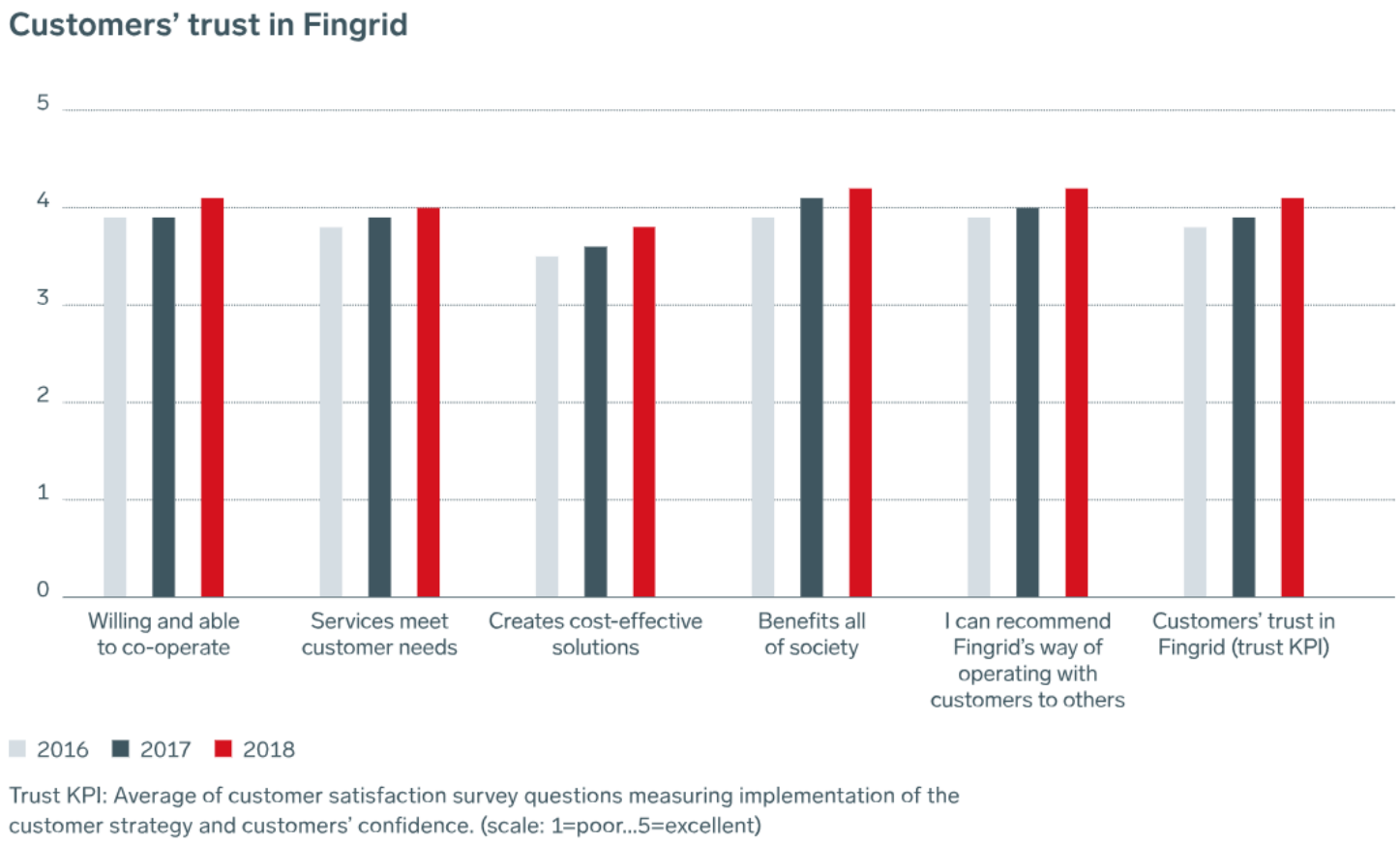
Economic losses caused by disturbances



12.2 minutes outage caused by faults in the grid in 2018, which exceeds the ten-year average

For the benefit of customers and society

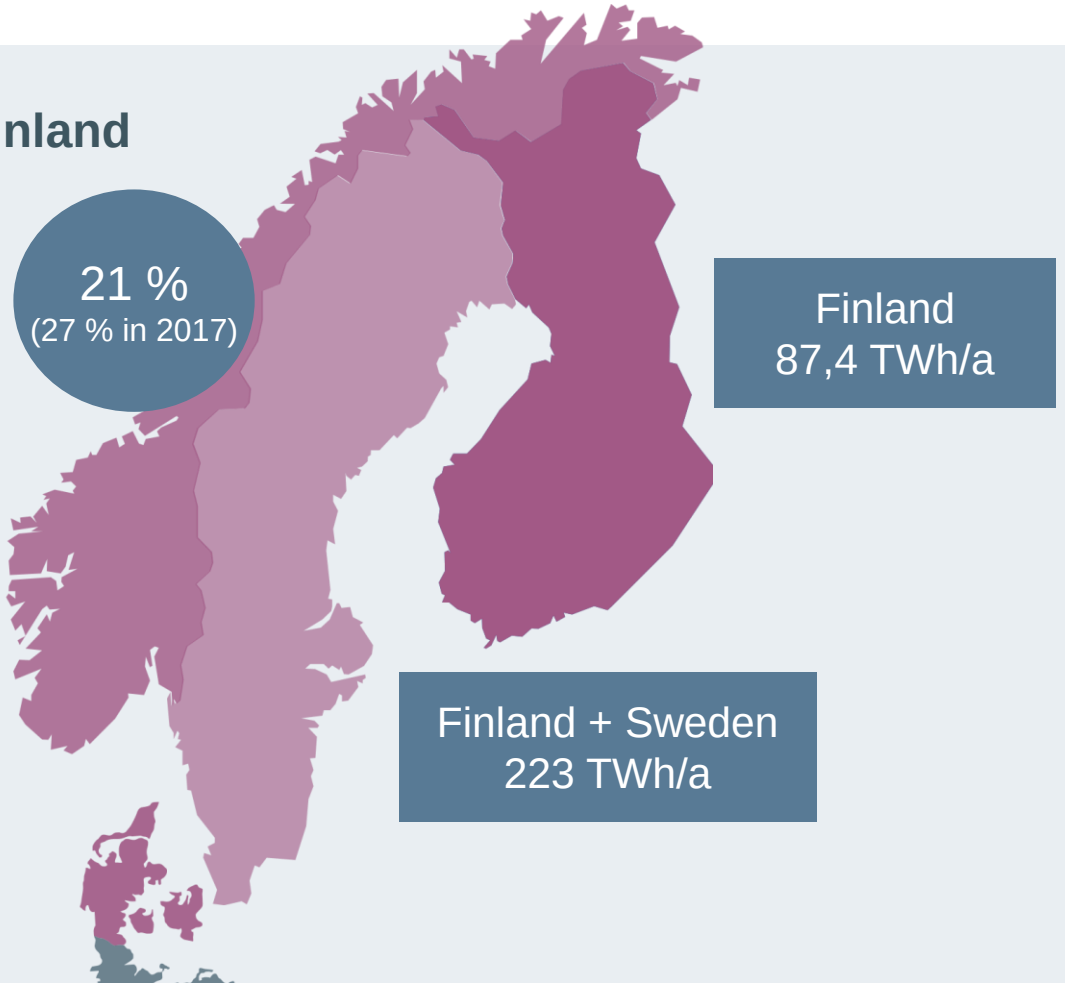
Customer satisfaction: High quality services



The company wide KPI 'customers' trust in Fingrid' was 4,1 (scale 1-5) in 2018

Network bottlenecks: Functioning electricity market

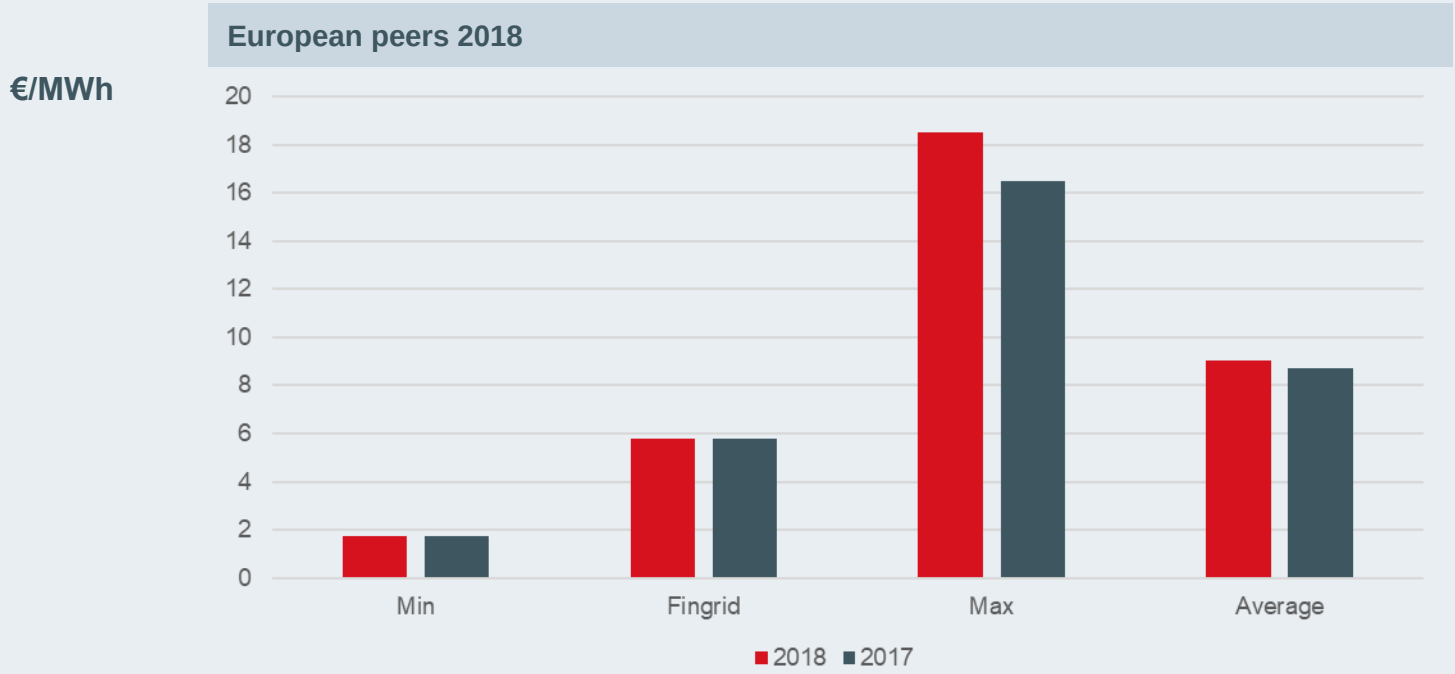
Congestion hours between Finland and Sweden in 2018



FINGRID

Affordable fees for grid services

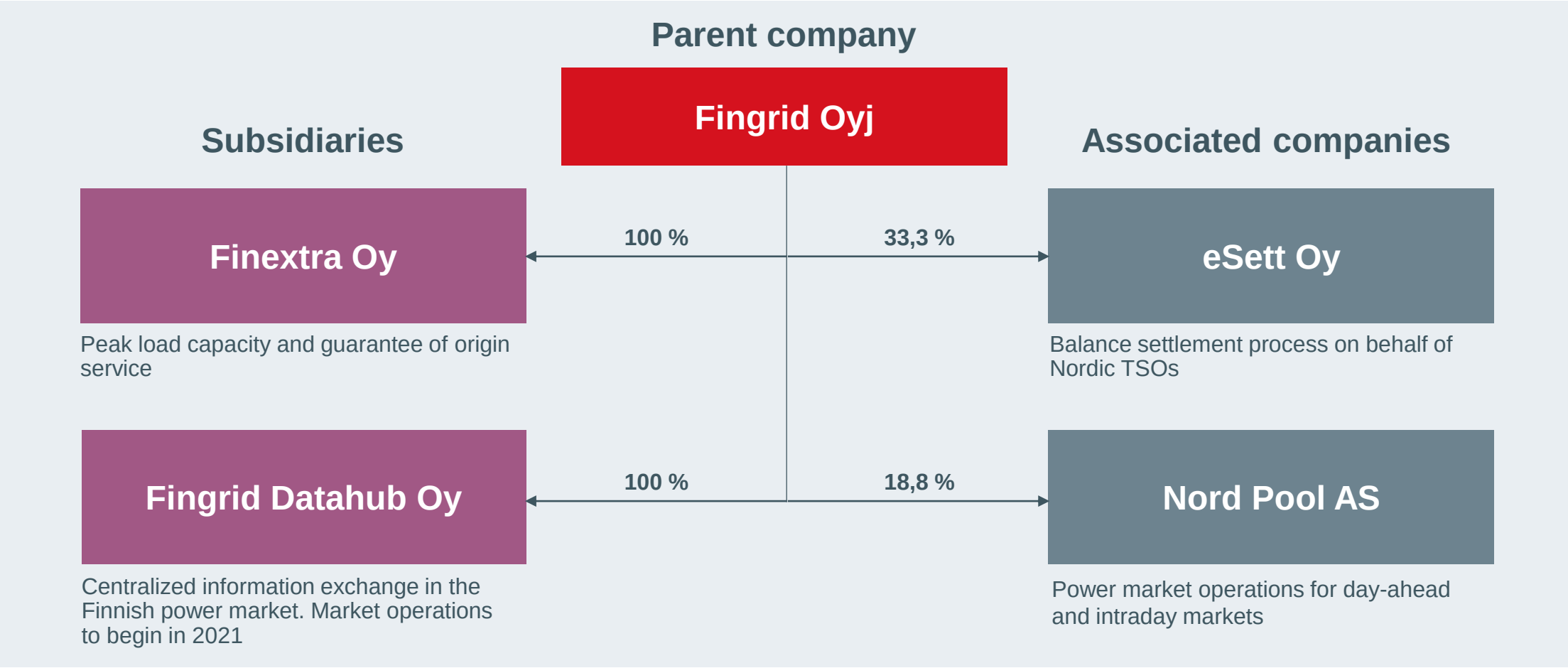
ENTSO-E comparison on grid service fees



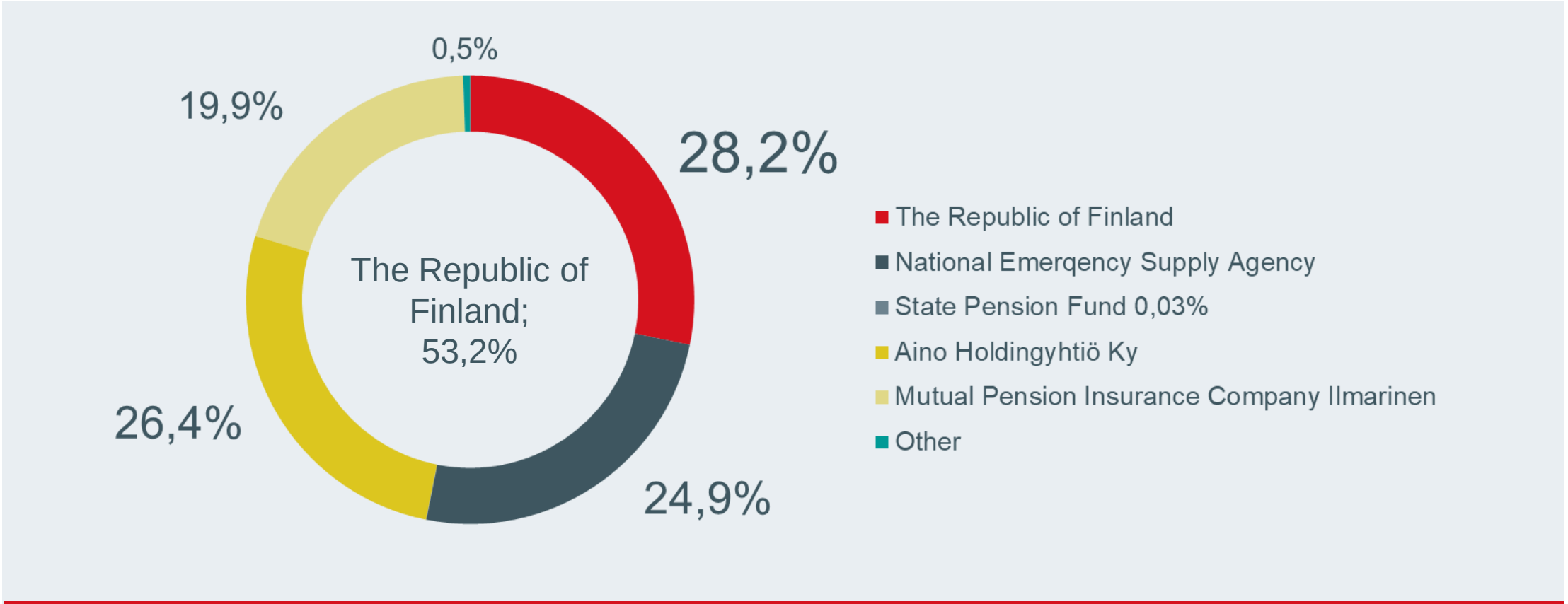
* Source: ENTSO-E

Operational targets are centered around cost competitiveness and customer service

Legal structure

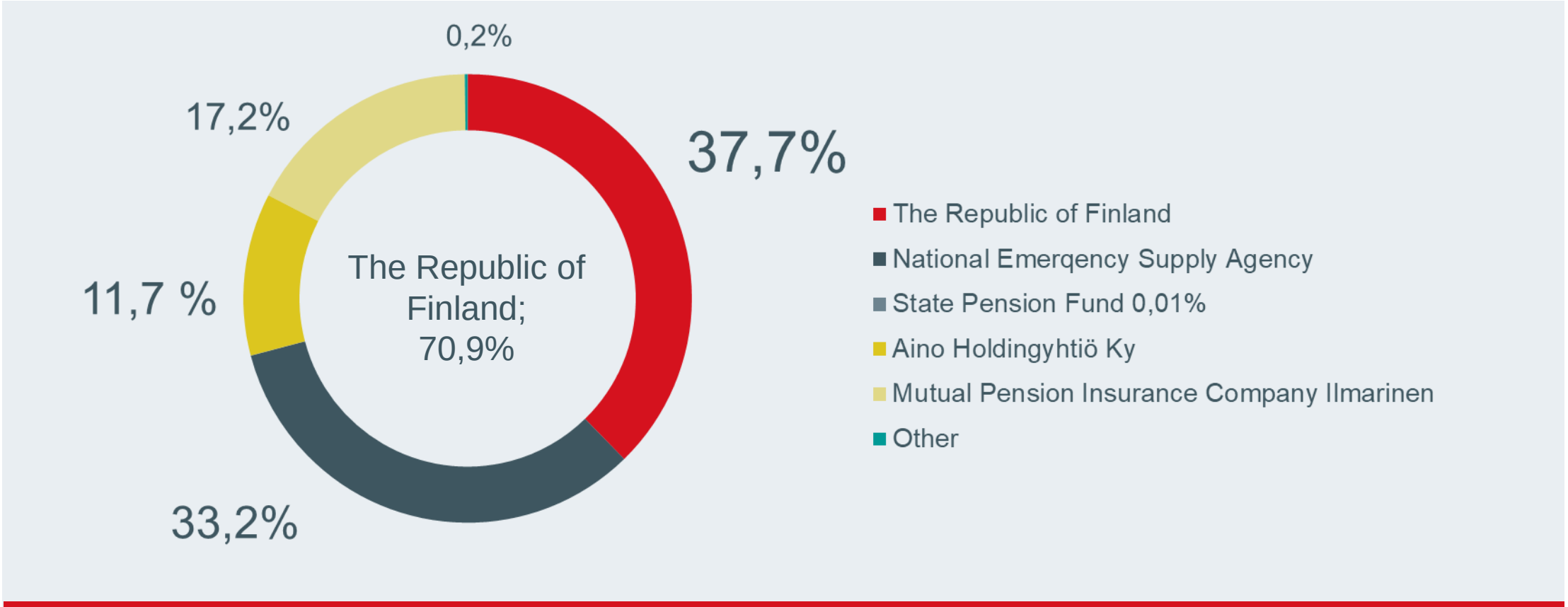


Shares



The State's minimum shareholding requirement in Fingrid is 50.1%

Voting rights



Fingrid's shareholder base is a good balance between private and public sector owners

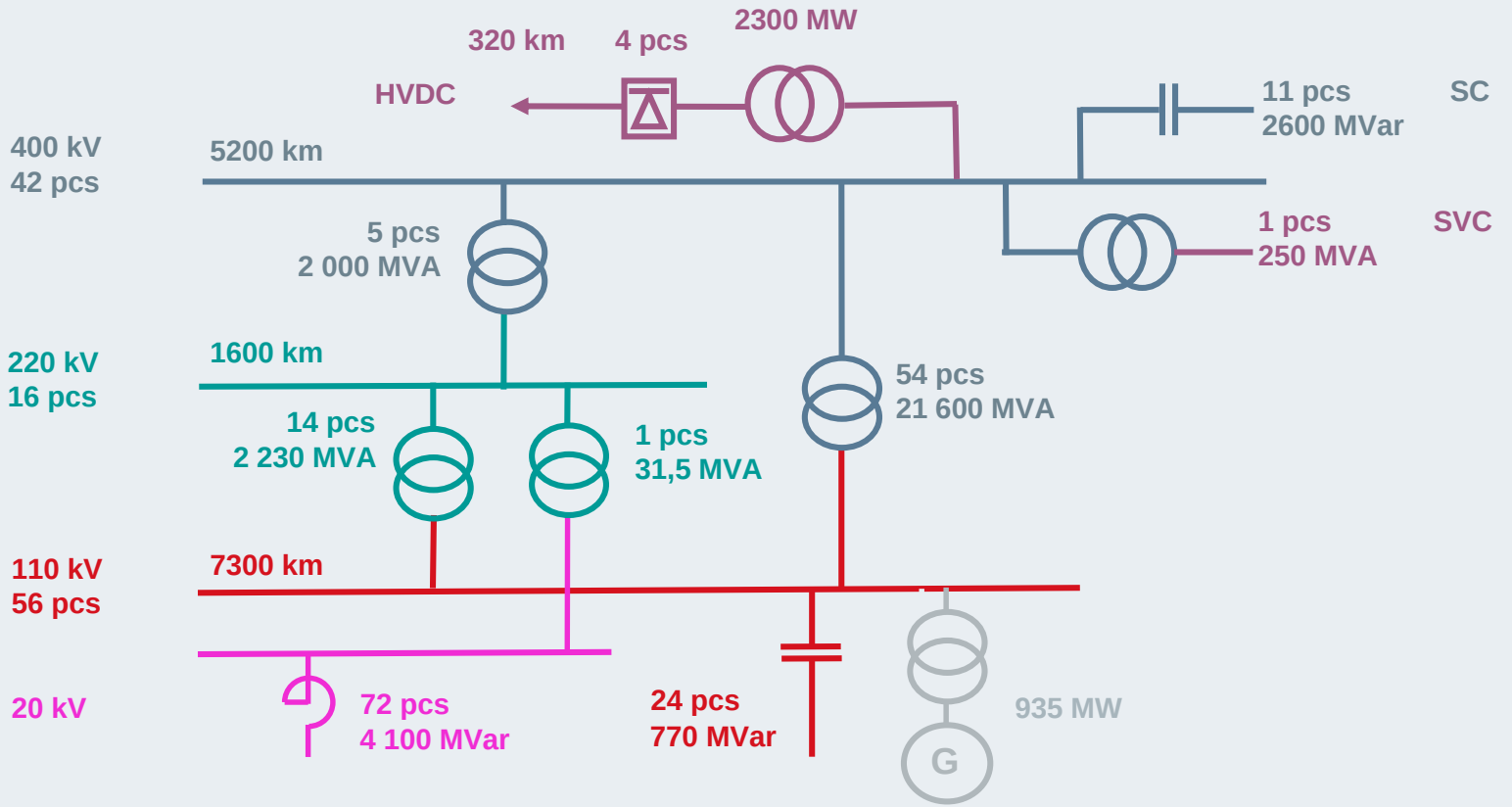
Operations

Description of operations

Fingrid owns and operates the transmission network in Finland

Fingrid transmits in its own network approximately **75 %** of electricity transmitted in Finland

Fingrid is a part of ENTSO-E, European Network of Transmission System Operators for Electricity.

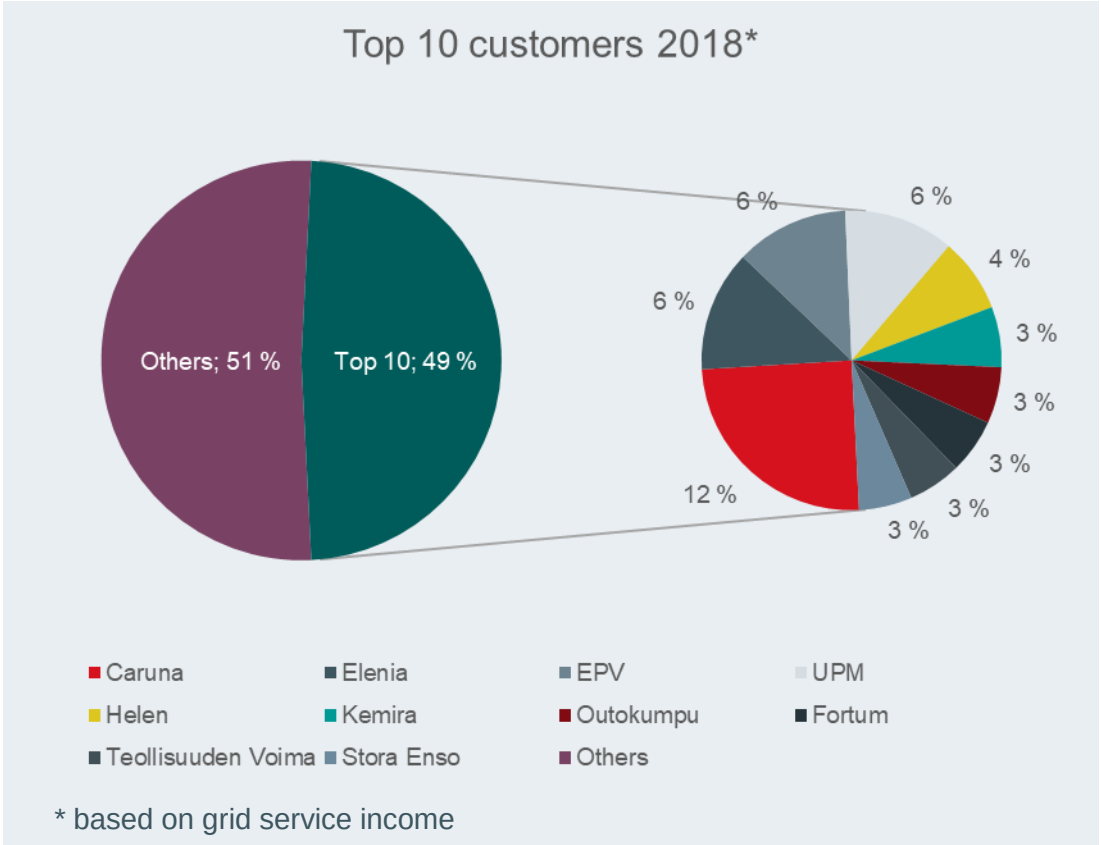


Fingrid's 400 kV power lines form the backbone of the transmission network in Finland

FINGRID

Grid service customer base consists of around 130 entities

- Customers comprise mainly of electricity producers, process industry and electricity distribution companies
- Fingrid is obligated to provide its customers a network connection point
- Ten largest customers account for 49 percent of grid service income



* based on grid service income

Credit quality of customer base is strong

Fingrid continuously maintains production and consumption balance

- Fingrid fulfils responsibility to maintain real-time balance in all market conditions
- Holders of electricity production and loads can submit bids to the balancing market concerning their capacity
- Fingrid has created a common Nordic balancing market together with other TSOs in the region
- Fingrid's core task is to ensure network functionality with automatic and manual reserves in imbalance situations

Fingrid procures the needed amount of reserve capacity to maintain the balance of the power system

Fingrid continuously maintains production and consumption balance

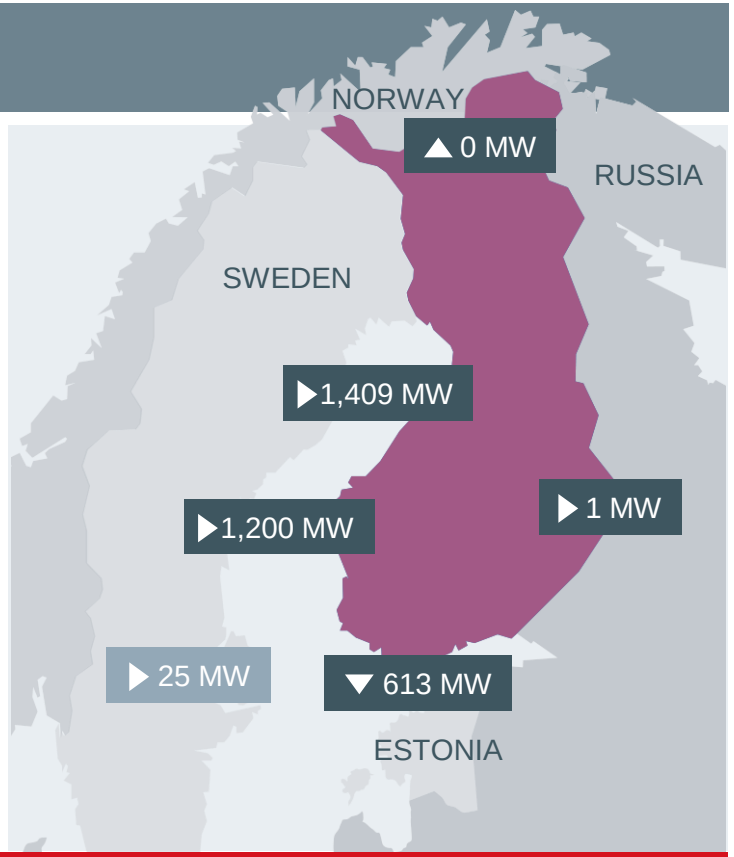
State of the power system – *illustrative example*

Consumption and production in Finland	Info
Consumption	11,172 MW
Production	9,210 MW
• Hydro power	2,382 MW
• Nuclear Power	2,774 MW
• Condensing power	10 MW
• Cogeneration district heating	2,113 MW
• Cogeneration industry	1,455 MW
• Wind power (partly estimated)	406 MW
• Other production (estimate)	70 MW
• Peak load power	0 MW
Net import/export	**1,962 MW**

Power balance	Info
Production surplus/deficit in Finland	91 MW
Surplus/deficit, cumulative	153 MWh
Instantaneous freq. measurement	49,89 Hz
Time deviation	11,60 s

Electricity price in Finland	Info
Elspot area price	31,48 EUR/MWh

Normal power balance	Info

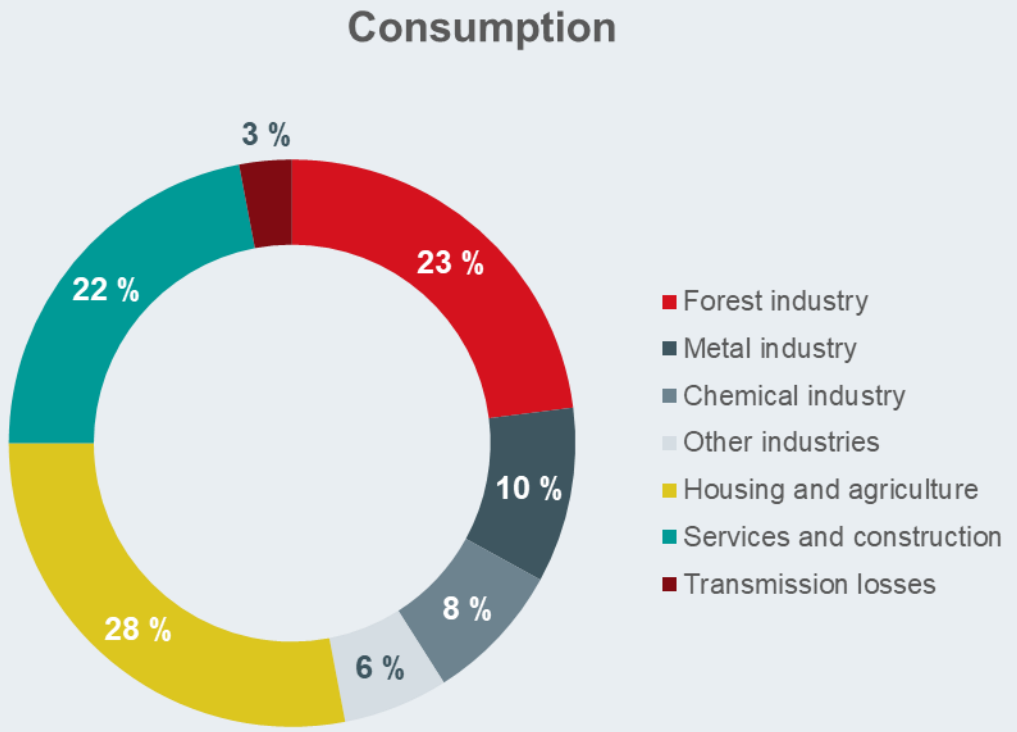


Fingrid procures the needed amount of reserve capacity to maintain the balance of the power system

Electricity consumption in Finland

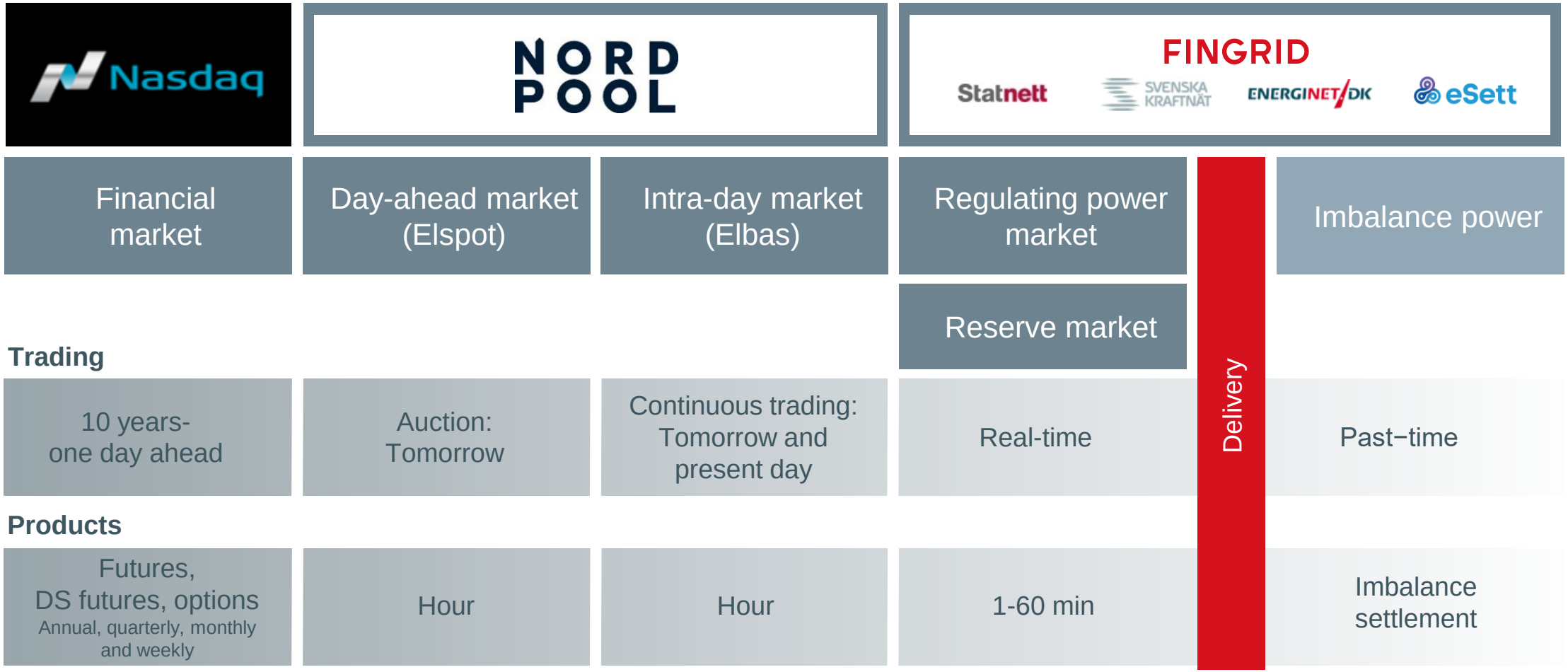
Fingrid continuously maintains production and consumption balance

Electricity consumption was 87,4 TWh in Finland in 2018. Electricity imports accounted for 20,0 TWh or 23 % of total consumption



Energy-intensive industry is a major consumer in Finland accounting for 47 % of consumption in 2018

Advanced markets for all time frames



Fingrid is responsible for the imbalance power settlement after delivery

- Each party operating in the electricity market is financially responsible for an hourly power balance between its electricity production and consumption
- Fingrid acts as an open supplier, which balances the power balances of these parties after the actual power production and consumption has taken place
- A service company eSett is responsible for the financial settlement of imbalances on behalf of Fingrid
- eSett is equally owned by TSOs in Finland, Sweden and Norway

Establishment of eSett – a joint service company

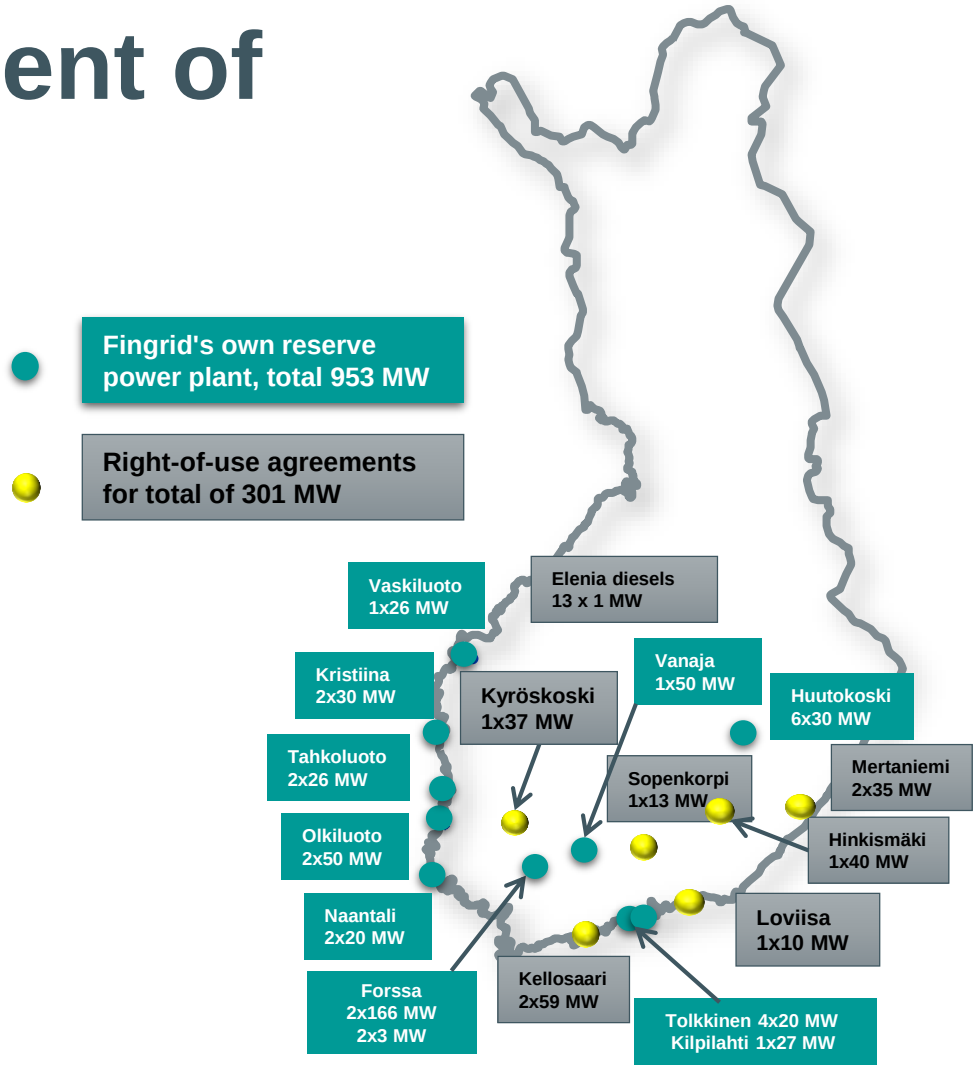
eSett Oy, the joint company of the three Nordic Transmission System Operators (TSOs) Fingrid, Statnett and Svenska kraftnät launched a joint Nordic Balance Settlement service on the first of May 2017.The new company has the objective of providing balance settlement services to participants of electricity markets in Finland, Norway and Sweden...
...The company aims to lower the entry barriers for the market parties in Finland, Norway and Sweden through equal and shared settlement rules. This will increase competition in the electricity markets in these countries, reduce long-term costs for the market parties and pave the way for the establishment of a Nordic end-user market.

Source: www.fingrid.fi

Imbalance settlement in Finland, Sweden and Norway has been performed by eSett since 1st May 2017

Fingrid owns an assortment of backup power plants

- Fingrid owns and operates 953 MW of backup power plants and has right-of-use agreements for further 301 MW. All plants can be activated within minutes
- Backup power plants are not used to sell energy to market but solely as a reserve for imbalances and disturbances in power system
- Fingrid's own power plants are included in the regulatory asset base
- The total capacity of backup power plants comfortably exceeds the capacity of the largest power plant in the network



Fingrid's own backup power plants ensure reliable activation of reserves in disturbance situations

Reliability of the Finnish power system

- The power system has to withstand a fault in any individual component (N-1)
- The main reasons for disturbances have been lightning and other weather related incidents (storms)
- Major part of the disturbances are cleared with automatic reclosure schemes without any manual switching operations
- The average duration of the connection point outages is usually a couple of minutes per year

Transmission network reliability

The reliability of the Finnish power system is top class

Operations

Efficiency of operations

Key efficiency drivers

Effectiveness of the management and governance model

Outsourced network construction and maintenance

Highly centralised operations

Increasing degree of digitalisation

Fingrid's excellence in ITAMS and ITOMS benchmark studies reflect highly efficient operating model

Outsourced grid construction and maintenance

- Core feature of Fingrid's operating model is outsourcing
- Grid construction and maintenance are outsourced
- Regional maintenance is tendered among external service providers
- Fingrid has around 60 core suppliers, of which 10 account for around 90 percent of total financial value of procurements
- Grid construction projects are tendered among prequalified contractors (system of qualification of contractors)

Grid maintenance is outsourced

High operational efficiency and flexibility are achieved through comprehensive outsourcing capabilities

Fingrid uses qualified suppliers only

- A defined qualification process* for equipment suppliers, service providers and contractors
- An evaluation process of new suppliers is done annually
- Only qualified suppliers in Fingrid's supplier register are invited to bid for outsourced works
- Sustainability audits are conducted among suppliers
- Suppliers must comply with Fingrid's Supplier Code of Conduct

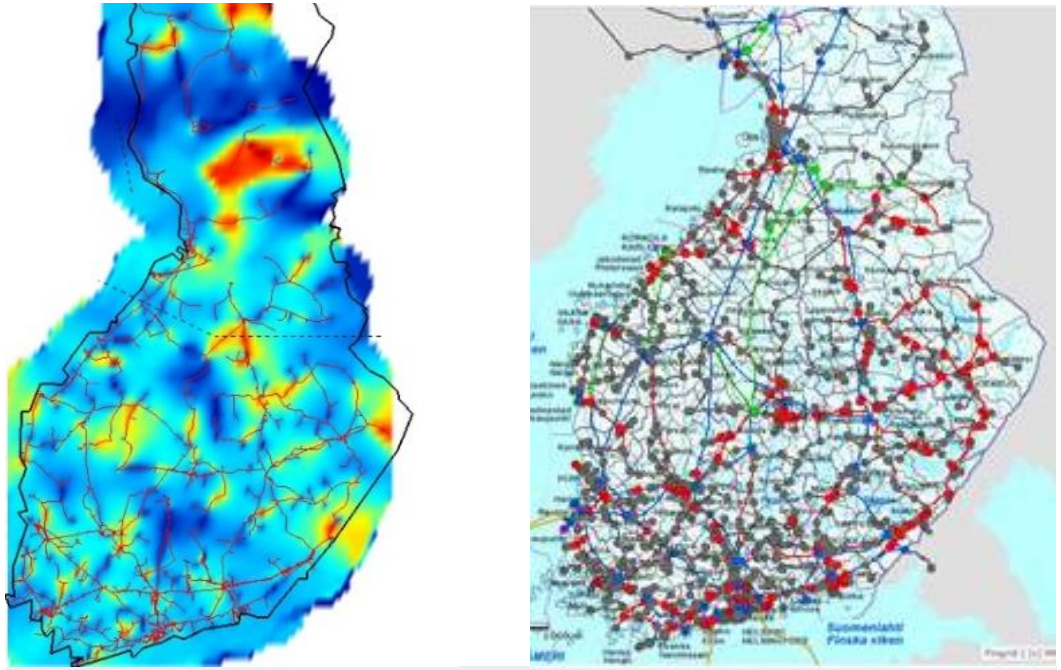
Hyvinkää – Hikiä transmission line construction site

* In accordance with the EU based public procurement legislation for the sector

High operational efficiency and flexibility are achieved through comprehensive outsourcing capabilities

Investing in efficient management of information through digitalisation

- Increasing proactivity in calculations, monitoring and maintenance
- Single source for power system information
  - Improving information access and usability within stakeholders
- Adding cost aspect to operation and power system components
  - Enhanced business planning through cost operational analytics
- System utilisation and further development



New ERP provides real-time network condition on map

For a quick overview of the ELVIS asset management solution see video at: www.youtube.com key in BMM99tIYFBw

A single asset management based ERP will further strengthen Fingrid's operational excellence

Fingrid's efficient operations are highly recognized

- In September 2018 Fingrid's Asset Management retained **ISO55001** Certificate
- Fingrid has continuously ranked among the best TSOs in the International Transmission Operations and Maintenance Study (**ITOMS**)*
- Fingrid has topped the results of the most recent International Asset Management Study (**ITAMS)** in 2019
- Fingrid was "exceptionally efficient" in a study done for the Council of European Energy Regulators (**CEER TCB18**) in 2019

ISO55001

ISO 55001 is a framework for an asset management system that will help your business to pro-actively manage the lifecycle of your assets, from acquisition to decommission. This system helps you to manage the risks and costs associated with owning assets, in a structured, efficient manner that supports continual improvement and on-going value creation.

Benefits of ISO 55001

An asset management system provides a structured, best practice approach to managing the lifecycle of assets.

- Reduced risks associated with ownership of assets – anything from unnecessary maintenance costs and inefficiency to accident prevention
- Improved quality assurance for customers/regulators – where assets play a key role in the provision and quality of products and services
- New business acquisition - stakeholders gain confidence from the knowledge that a strategy is in place to ensure assets meet the necessary safety and performance requirements

Source: https://www.bsigroup.com/en-GB/Asset-Management/Getting-started-with-ISO-55001/

Excellent results from international benchmark studies

* Twenty-eight TSOs from around the world participated in the 2018 study

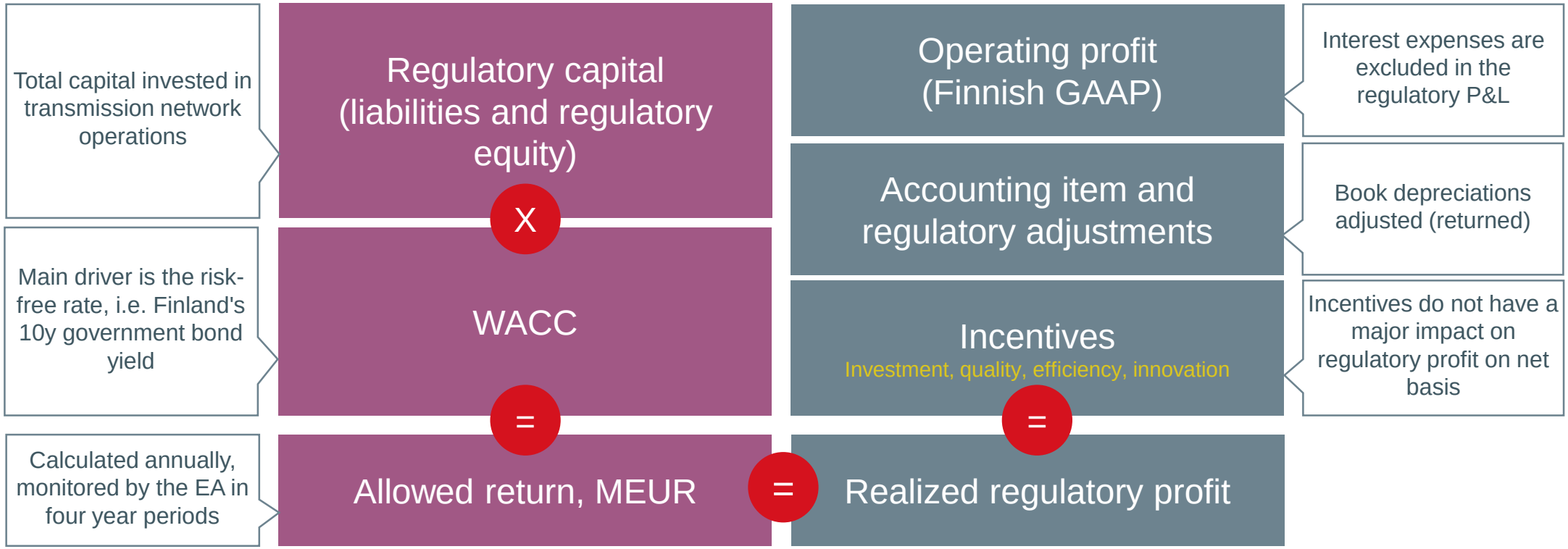
Fingrid's overall efficiency is confirmed also by regulators

- Study done for the Council of European Energy Regulators (CEER) 2013
- Fingrid was "exceptionally efficient" together with four other TSOs
- Study included 21 European TSOs and performed every four years
- Comparison of total efficiency: costs in grid construction, maintenance, planning and administration during the past 20 years
- CEER is organising a new benchmarking study in 2018-2019

Operations

Earnings model

Regulatory capital and WACC defined by the Energy Authority set the allowed return



Fingrid aims to match realized regulatory profit and allowed return on an annual basis

Calculation of WACC in the regulatory model 2016-2023

Cost of equity

$C_E = R_r + \beta_{debt\ free} \times (1 + (1 - t) \times D/E) \times (R_m - R_f) + LP$

C_E = Finnish 10y bond + 0,4 x (1 + (1-20%) x 50/50) x 5% + 0,6%

C_E = Finnish 10y bond + 4,2%

Cost of debt

$C_D = R_r + DP$

C_D = Finnish 10y bond + 1,4%

WACC (pre tax)

$WACC_{post\text{-}tax} = C_E \times 50/100 + C_D \times (1 - t) \times 50/100$

$WACC_{post\text{-}tax}$ = Finnish 10y bond x 0,9 + 2,66%

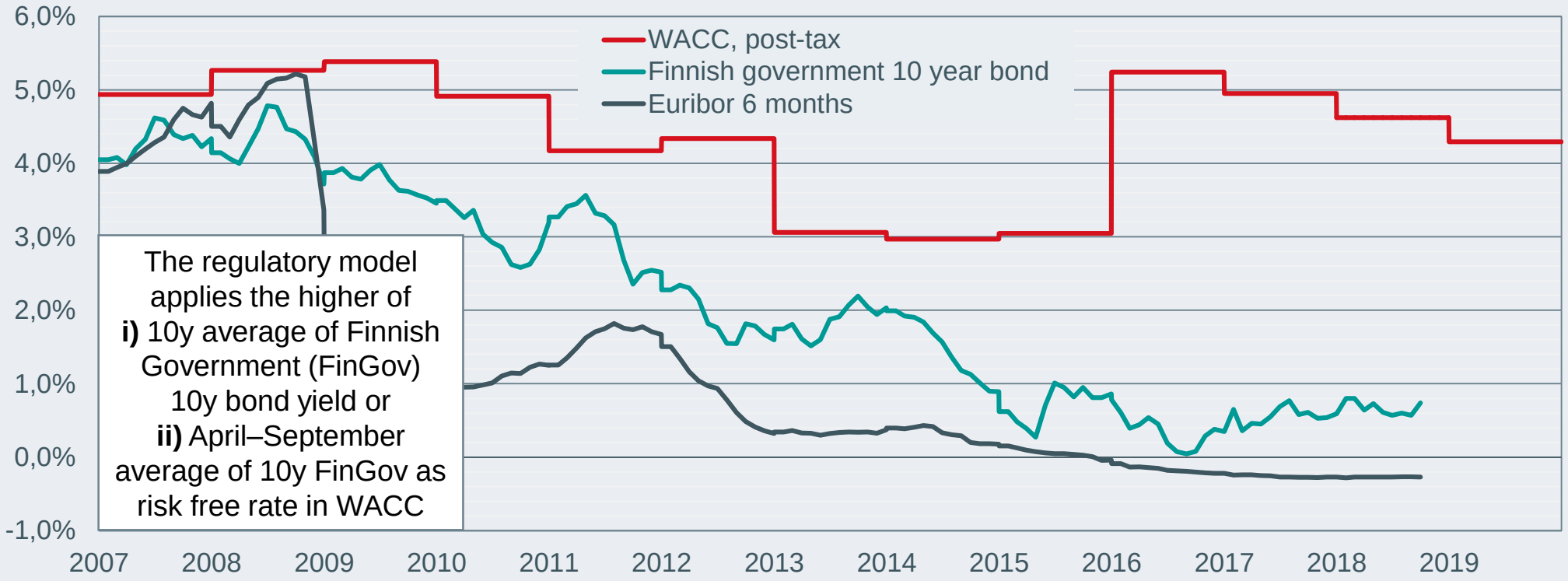
$WACC_{pre\text{-}tax}$ = Finnish 10y bond x 1,125 + 3,33%

Parameter	Value to be applied
Risk-free rate (R_r)	Greater of: a) 10-year average of 10-year Finnish government bond rate b) Average of previous year April-September government bond rate
Asset beta ($\beta_{debt\ free}$)	0,4
Market risk premium ($R_m - R_f$)	5,0%
Liquidity premium (LP)	0,6%
Capital structure (D/E)	50/50
Risk premium of debt (DP)	1,4% *
Tax rate (t)	20%

* Will be mechanically updated by the Energy Authorityend of 2019 for regulatory period 2020 – 2023 based on Bloomberg's utility sector A-BBB rated companies' fixed income indices

The core parameter defining yearly WACC is the yield of the Republic of Finland's 10-year bond

The current regulatory model benefits from relatively stable WACC* without capping upside



* Regulatory WACC 2007 – 2015 calculated as post-tax basis. From 2016 regulatory model applies pre-tax WACC.

Pre-tax WACC for 2019 calendar year 5,36% (5,78% in 2018)

Calculating the allowed return in euros: WACC x Regulatory capital

- Allowed return in euros is calculated as follows:

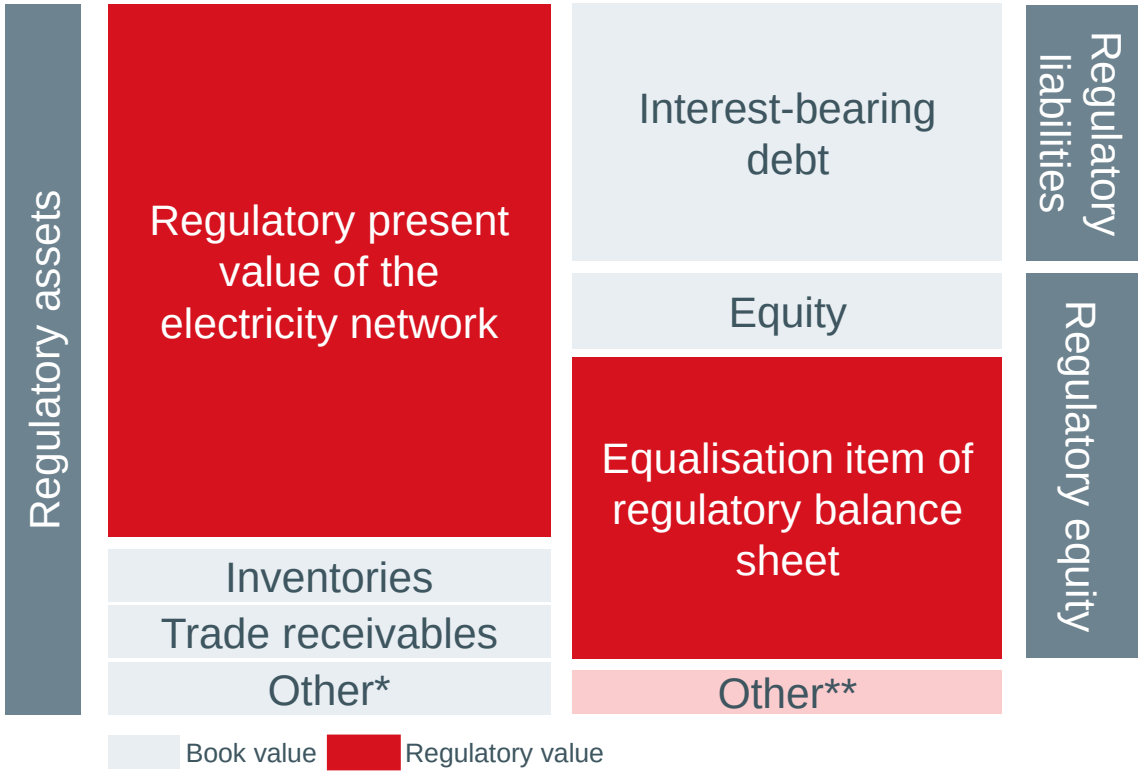
$$R_{pre\text{-}tax} = WACC_{pre\text{-}tax} \times (D+E)$$

E = regulatory amount of equity
D = regulatory amount of interest-bearing debt

$$R_{pre\text{-}tax\ 2018} = 5{,}36\% \times \sim 3{,}000\ M€ = \sim 160\ M€$$

- **Regulatory capital is equal to the sum of regulatory equity and liabilities**
- The equalisation item in the equity section of balance sheet balances regulatory equity and liabilities with regulatory assets

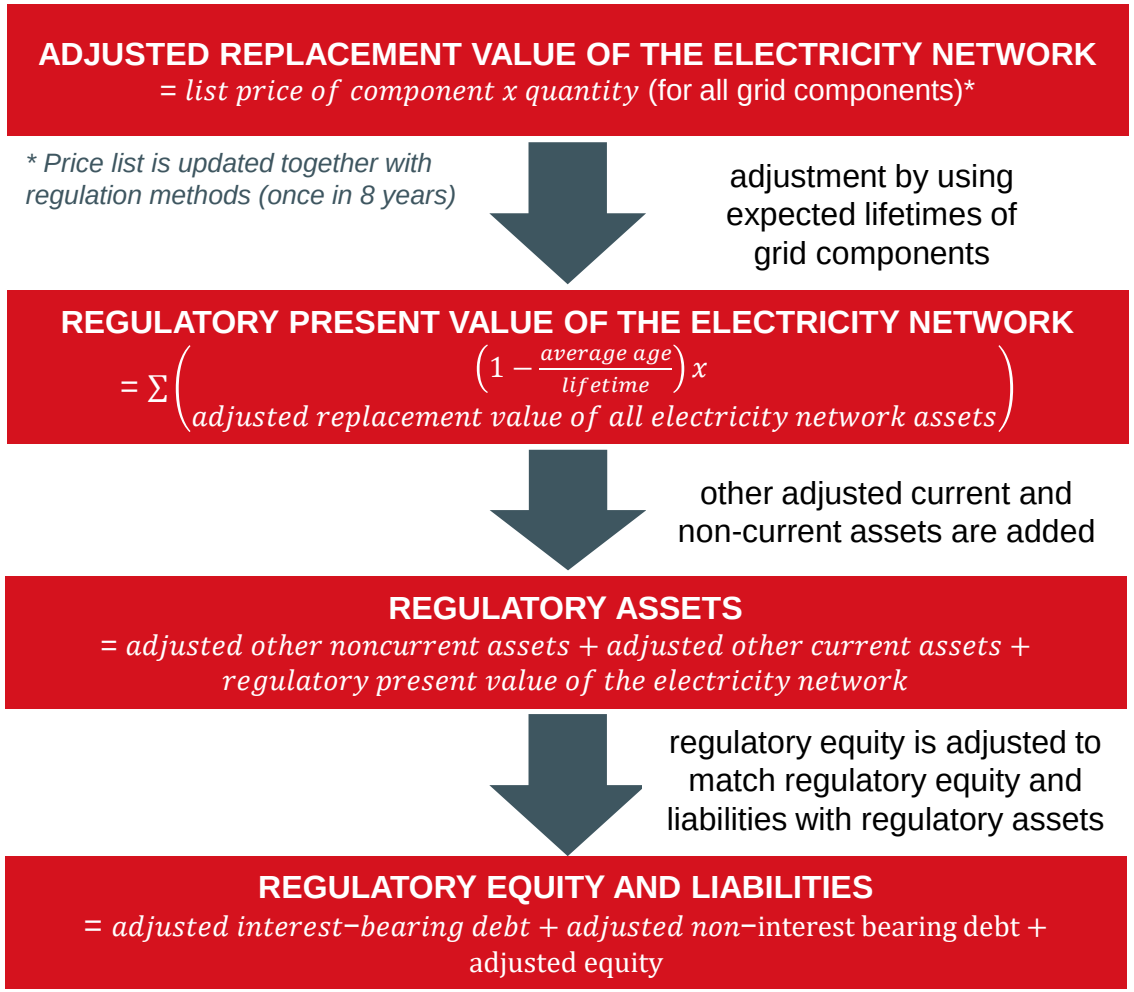
Calculating regulatory balance sheet



*Including regulatory cash
**Other is excluded from regulatory capital. Other includes deferred tax liabilities, non-interest bearing debt, provisions for liabilities and charges

Calculating regulatory capital

- Regulatory capital (equity and liabilities) of the electricity network is derived from the adjusted replacement value of the electricity network assets
- The adjusted replacement value is calculated by valuing all components with list values provided by the Energy Authority
- All components have expected lifetimes, which are used to adjust the replacement values of the components to come up with the regulatory present value of the electricity network
- Equalisation item of regulatory balance sheet is used to match regulatory equity and liabilities with regulatory assets



Regulatory assets are mainly based on regulatory present value of the electricity network

Components in calculation of regulatory assets in regulatory model 2016-2023	
Regulatory present value of the electricity network	Based on the unit prices of components in the beginning of the regulatory period and component age / maximum age in regulation
Unit prices of components	Prices were updated to replacement value in 2016 based on the unit prices (5Y historical project data)
Investments under construction	Investments under construction are included in the RAB in book value
IT systems	Value in RAB and regulatory depreciation in book value
Regulatory allowed cash	10 % of regulated turnover

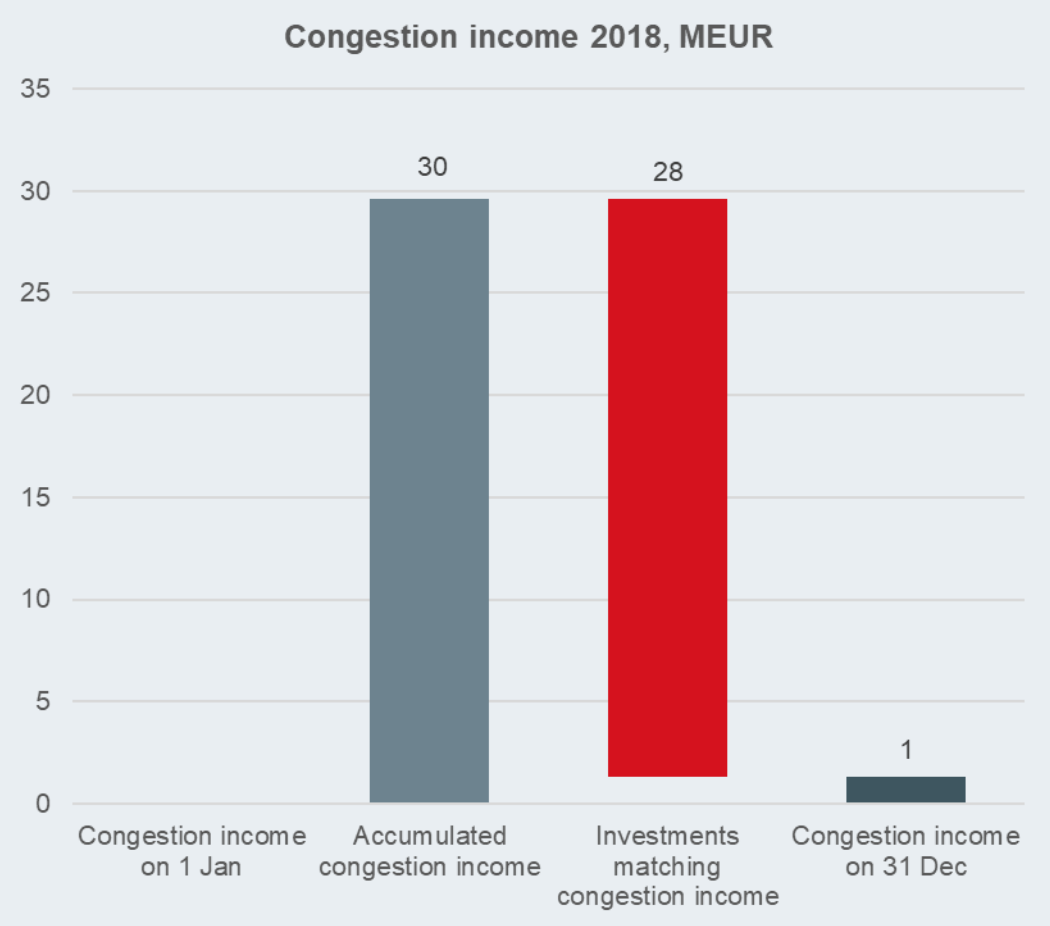
Limited contribution from incentives and adjustments to allowed return

Incentives in calculation of realized regulatory profit in regulatory model 2016-2023	
Investment incentive	Promotes reasonable and cost-efficient investments by allowing straight-line depreciations based on the replacement value of the transmission network assets. Components are included in depreciation in replacement value as long as they are utilized
Quality incentive	Cost for the society from non-delivered electricity caused by disturbances and fast reclosing operation, max +/- 3 % of allowed return, benchmarked against 8-year historical average
Efficiency improvement incentive	Target: 0%, max +/- 5 % of allowed return, benchmarked against 4-year historical average
Innovation incentive	Maximum 1,0 % of turnover is reimbursed in allowed return

Adjustments in calculation of realized regulatory profit in regulatory model 2016-2023	
Congestion income	Treated separately from the regulatory allowed return but investments financed with congestion income affect realized regulatory profit through regulatory depreciations
Inflation adjustment to regulatory depreciation	Indexed annually with CPI to match current replacement value

Congestion income

- Since 1 Jan 2016, congestion income is no longer reported in Fingrid's turnover
- In 2018, MEUR 30 of congestion income was accumulated and MEUR 28 of it was used for the Hirvisuo-Pyhänselkä transmission network investment, which supports the cross-border transmission from northern Sweden
- Realized regulatory profit is positively affected by congestion income because investments financed with congestion income are included in regulatory depreciation but not in book depreciation

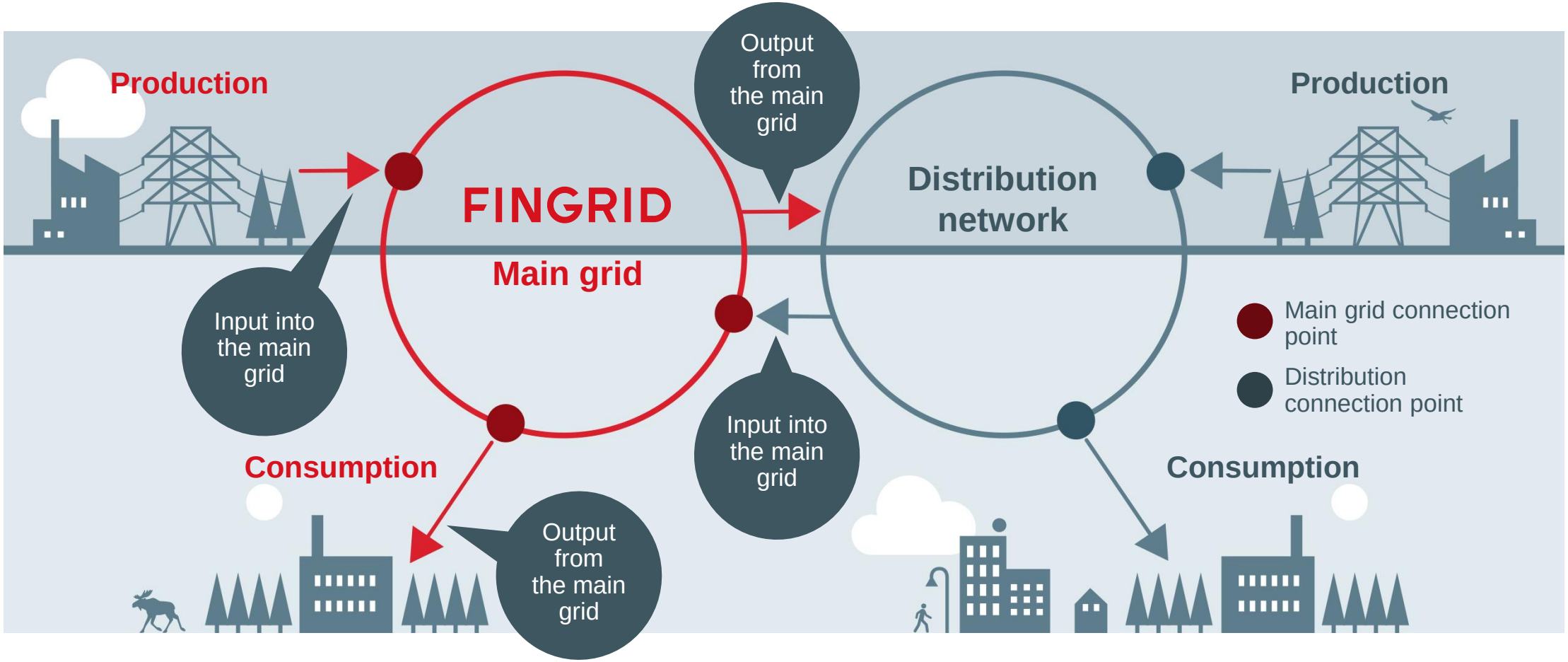


Congestion income is used to remove bottlenecks between bidding zones of an electricity exchange

Operations

Pricing

Grid service pricing is applied on both consumption and production



Grid service pricing is applied on both consumption and production

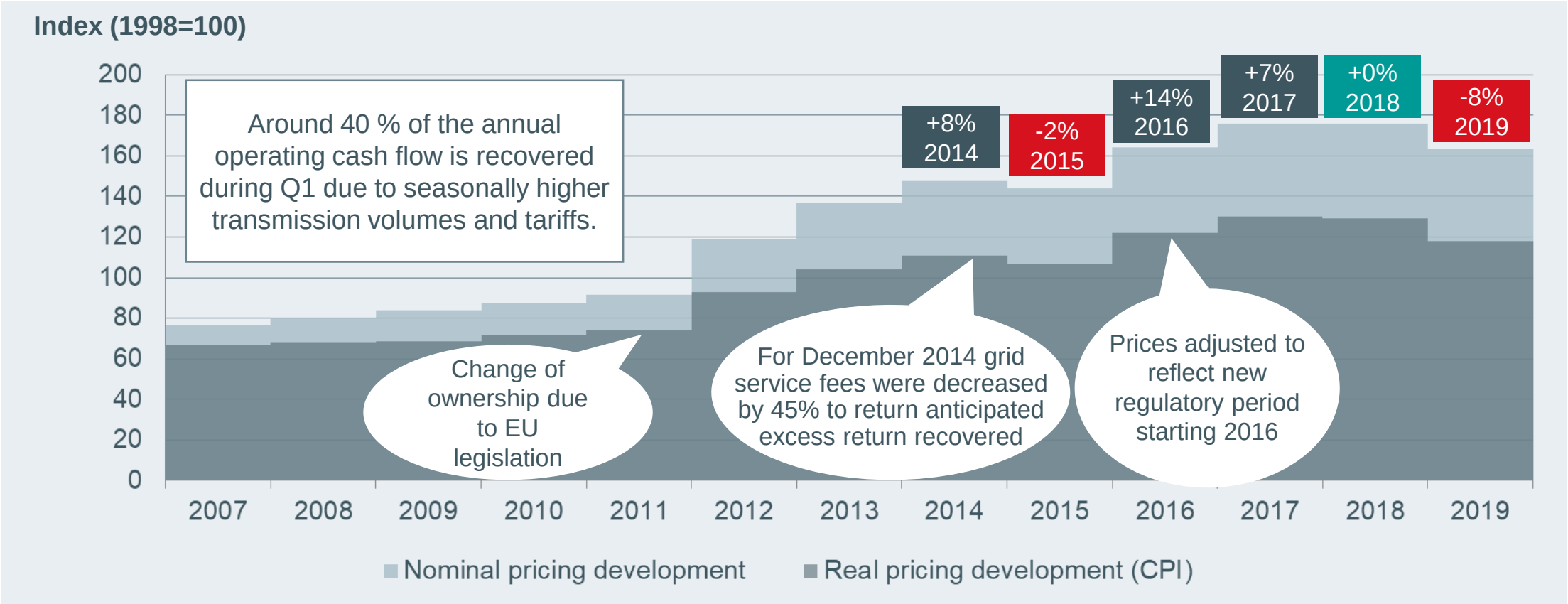
Fingrid defines the grid service pricing structure, which is approved by the Energy Authority

Pricing EUR/MWh	2019
Consumption, winter period*	8,80
Consumption, other times	2,50
Output from the grid	0,90
Input into the grid	0,60
Power plant capacity fee	1900 €/MW/a
Reactive power fee	1000 €/Mvar/m
Reactive energy fee	5 €/Mvarh

* Winter period: 1.12.-28.2. on Monday – Friday 09.00 – 21.00

Transmission prices are seasonally adjusted and charged on consumption and use of grid

Development of announced grid service pricing in 2007–2019

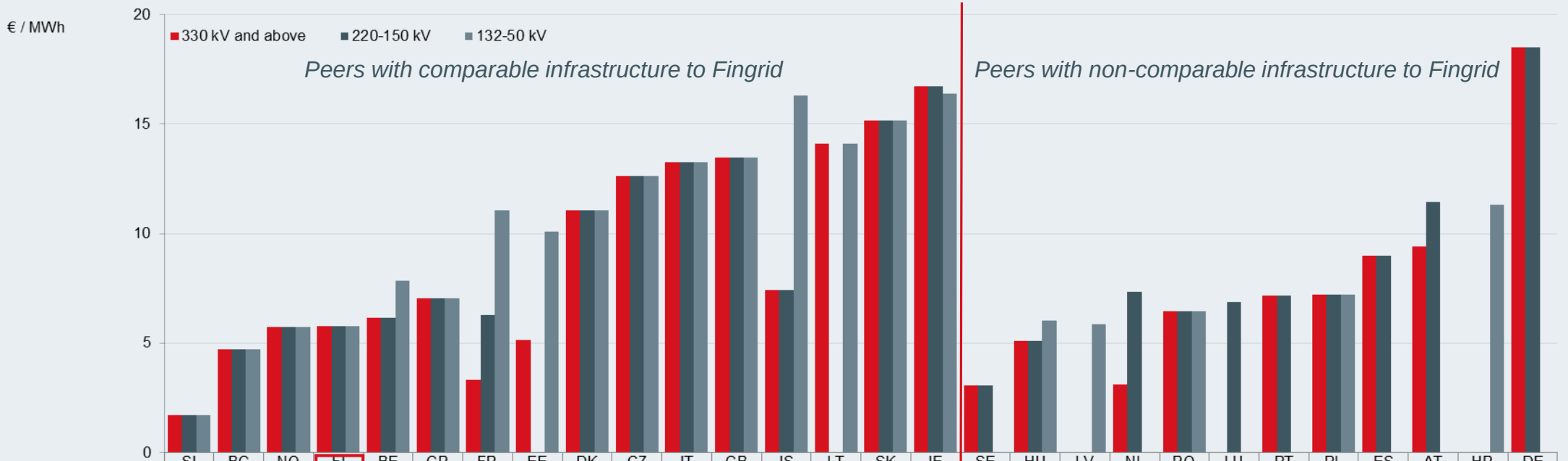


The current tariff level allows Fingrid to achieve allowed regulatory return

Transmission charges from generation to consumption

Source: Entso-e

Transmission charges from generation to consumption in Europe 2018 – including EU and ETA countries

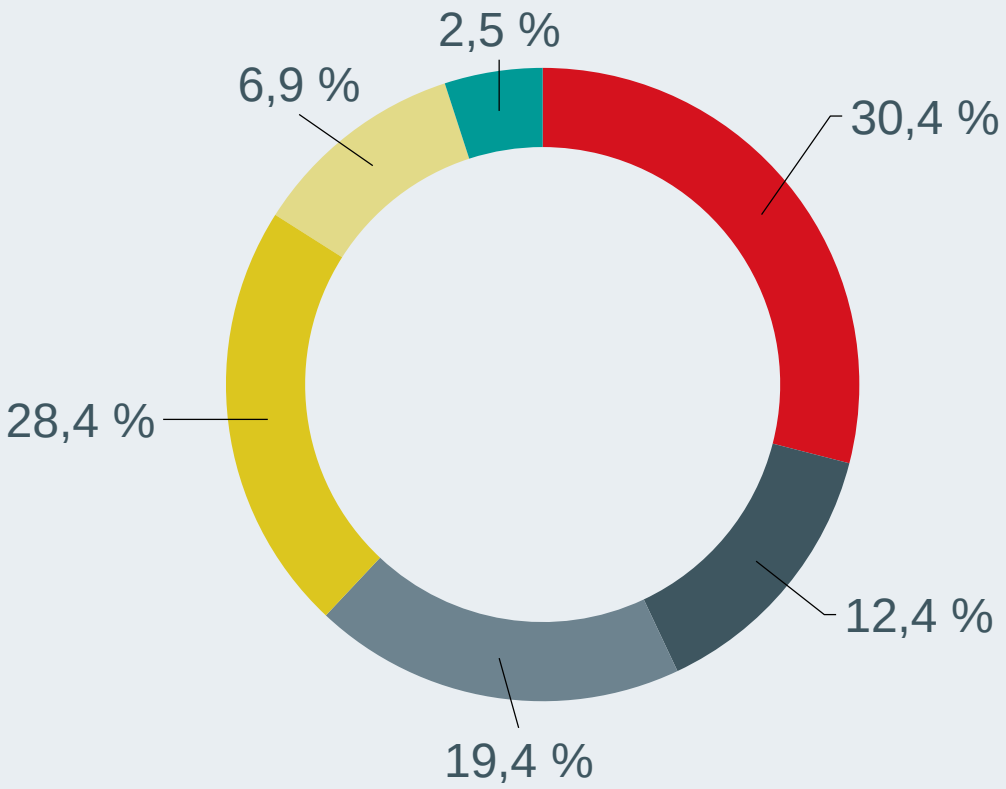


	SI	BG	NO	FI	BE	GR	FR	EE	DK	CZ	IT	GB	IS	LT	SK	IE	SE	HU	LV	NL	RO	LU	PT	PL	ES	AT	HR	DE
330 kV and above	1,72	4,73	5,71	5,78	6,17	7,02	3,30	5,12	11,0	12,6	13,2	13,4	7,44	14,0	15,1	16,7	3,08	5,11	-	3,12	6,43	-	7,15	7,19	8,99	9,43	-	18,4
220-150 kV	1,72	4,73	5,71	5,78	6,17	7,02	6,26	-	11,0	12,6	13,2	13,4	7,44	-	15,1	16,7	3,08	5,11	-	7,33	6,43	6,86	7,15	7,19	8,99	11,4	-	18,4
132-50 kV	1,72	4,73	5,71	5,78	7,84	7,02	11,0	10,0	11,0	12,6	13,2	13,4	16,2	14,0	15,1	16,3	-	6,01	5,85	-	6,43	-	-	7,19	-	-	11,3	-

Fingrid's effectiveness and efficiency enable low charges

FINGRID

This is what makes up the consumer price



- Regional network transmission and distribution
- Electricity tax
- Value added tax
- Electricity procurement
- Electricity sale
- Grid transmission

Source Energy Authority: 1.1.2019,
consumption 5 000 kWh/year, electricity total price 18,11 snt/kWh.

Operations

Capex

Investments are based on 5-25 year grid development plans

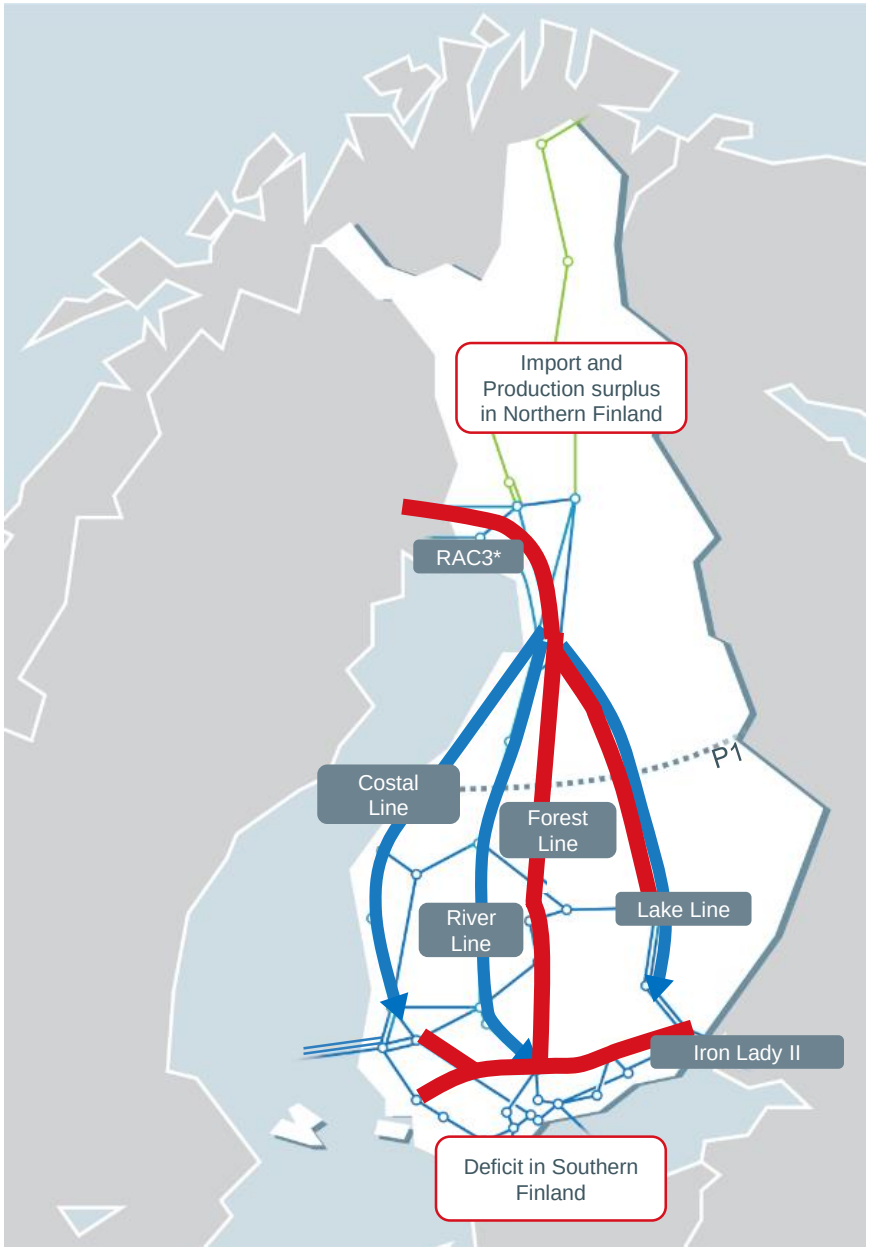
- Grid development plans are prepared at three levels, i.e. European, regional and national
- Fingrid decides on investments based on customers' needs, transmission system security and network capacity
- Fingrid's network construction is contracted with fixed price contracts
- Before network construction commences all environmental and planning permits are in place

All Fingrid's investment projects have been done in schedule and budget

Grid vision 2030

- Total of 12 investments projects to be completed in 2019

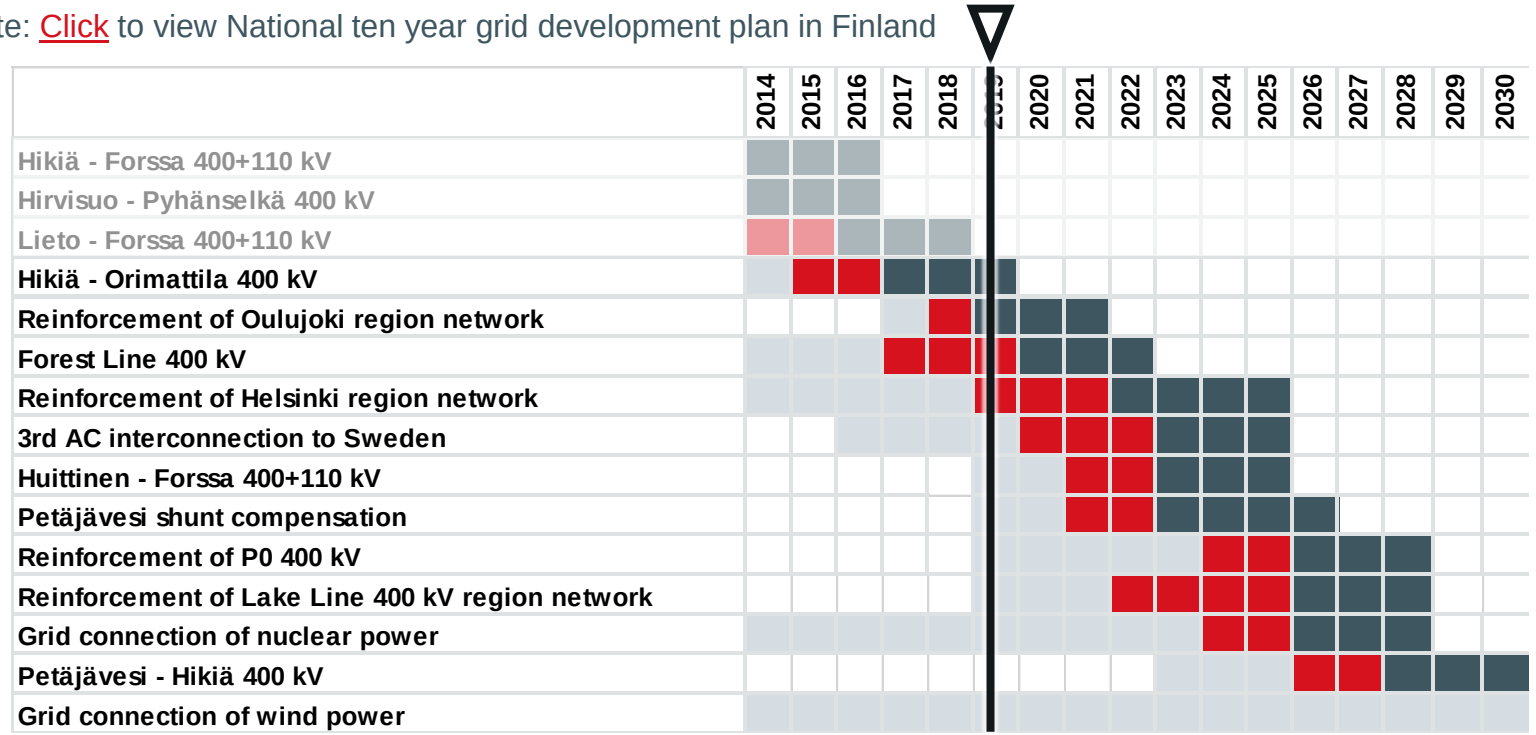
Historical Iron Lady OHTL will be modernized by **2020**	Huittinen – Forssa 400 kV **2025**
Forest Line 400kV Oulu - Petäjävesi **2022**	Extension of the Forest Line 400kV Petäjävesi – Hikiä by **2030**
Third 400 kV AC interconnection between Sweden and Finland **2025**	Doubling the Lake Line 400kV Nuojua – Huutokoski by **2028**
Reinforcement of Helsinki region network **2025 - 2035**	Petäjäskoski – Nuojua 400 kV **2030** Depending on timing and placement of new wind power

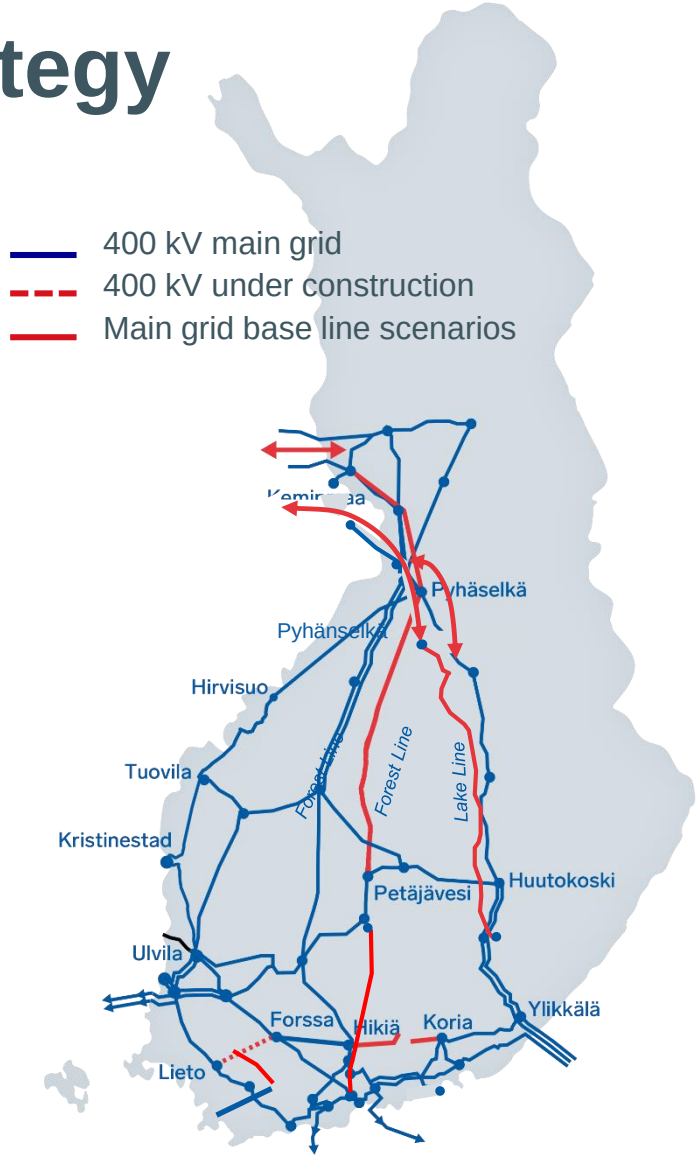


*Project of common interest between Finland and Sweden. The project has received MEUR 4,3 of EU support for the planning phase

Flexible and long-term investment strategy

Note: Click to view National ten year grid development plan in Finland





2019– 2030:

1400 km of 400 kV transmission lines
1200 km of 110 kV transmission lines

90 % of new power lines will be constructed along or next to an existing right of way

EIA / Preliminary design

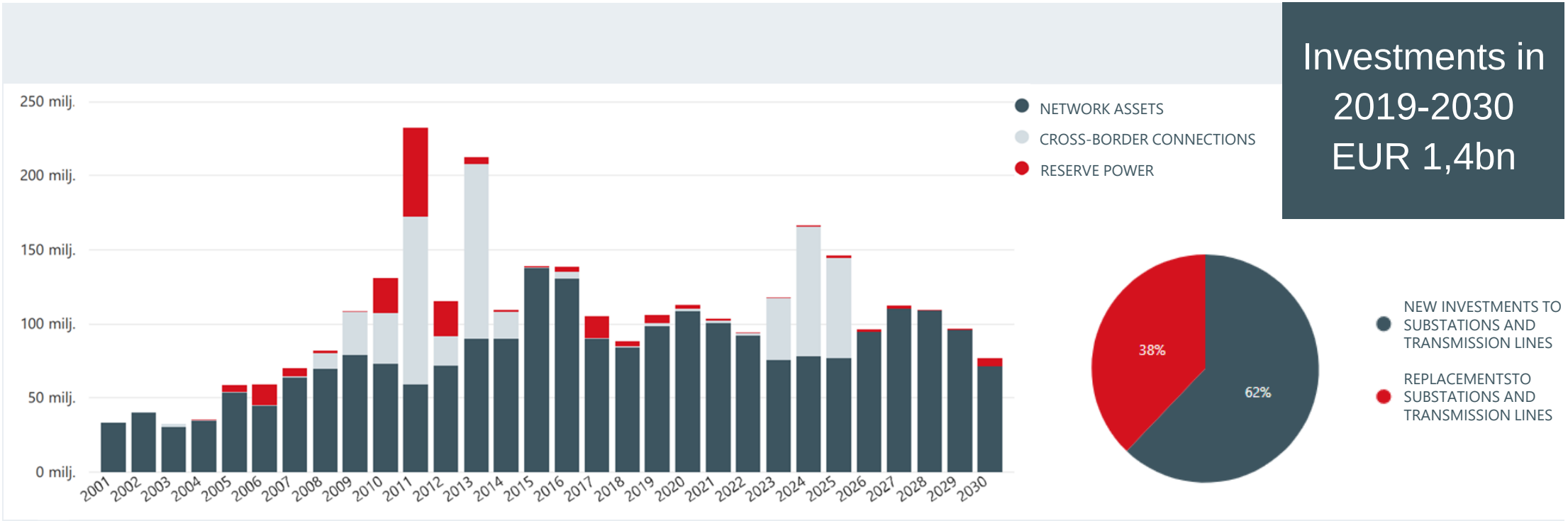
Detailed planning and permissions

Implementation

Fingrid has a long-term planning horizon for investments

FINGRID

Investments in 2001–2030



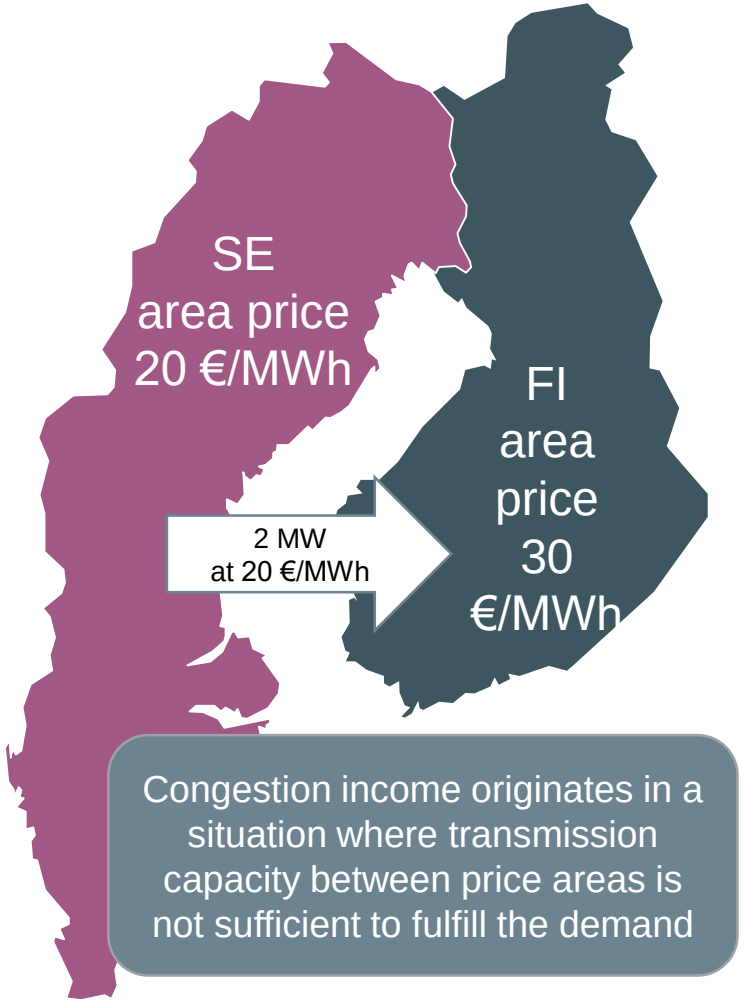
Investments are driven by network aging, market development and connecting new production capacity

Congestion income generation

Illustrative example on how congestion income is generated

- Nordpool Spot determines for the hour 19.00 – 20.00 (a day ahead) area price in Finland at 30 €/MWh and in Sweden at 20 €/MWh
- Cross-border transmission capacity between Finland and Sweden is illustratively limited to 2 MW but the consumption in Finland is greater than that, i.e. there is not enough transmission capacity to fulfill all the demand in Finland with the lower prices in Sweden (congestion)
- 2 MWh is transmitted from Sweden to Finland
  - A producer in Sweden receives 2MW * 20 €/MWh, i.e. 40 €
  - A consumer in Finland pays 2MW * 30 €/MWh, i.e. 60 €
- There is extra cash (congestion income) generated at the Nordpool Spot i.e. the difference between paid and received funds, 20 €
  - Fingrid receives 10 € and the Swedish TSO receives 10 €
- All congestion income is used in investments reducing congestions

MEUR	2014	2015	2016	2017	2018
Congestion income	51,2	90,9	39,9	25,8	29,7



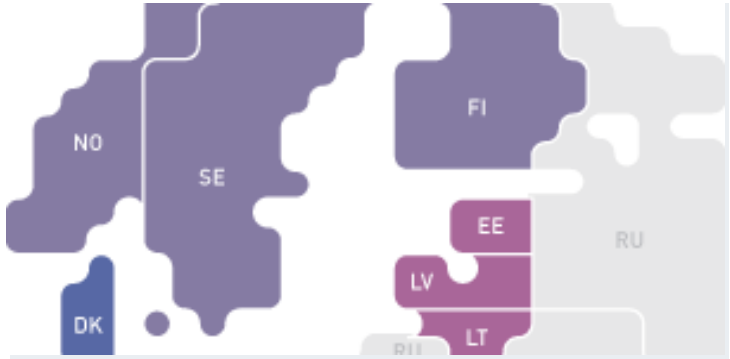
FINGRID

Operating environment

Fingrid's operating environment in three geographical levels

Europe

- Vision: integrated electricity market working on one European grid
- Strong changes in the generation fleet (nuclear, renewables, gas)
- Electricity market from Helsinki to Lisbon achieved in 2014
- Structural bottlenecks will remain in the grid – licensing main obstacle



Baltic Sea region

- Transmission capacity between the Nordic region and Continental Europe will more than double during the next 5 years
- Stronger connection between the Nordic region, Baltic states and Poland

Finland

- Energy and climate strategy 2030
- Share of price elastic generation decreases
- Decarbonization efforts increase electricity demand when clean electricity replaces fossil fuels
- Role of cross-border connections increases

Towards a highly developed electricity market in Europe

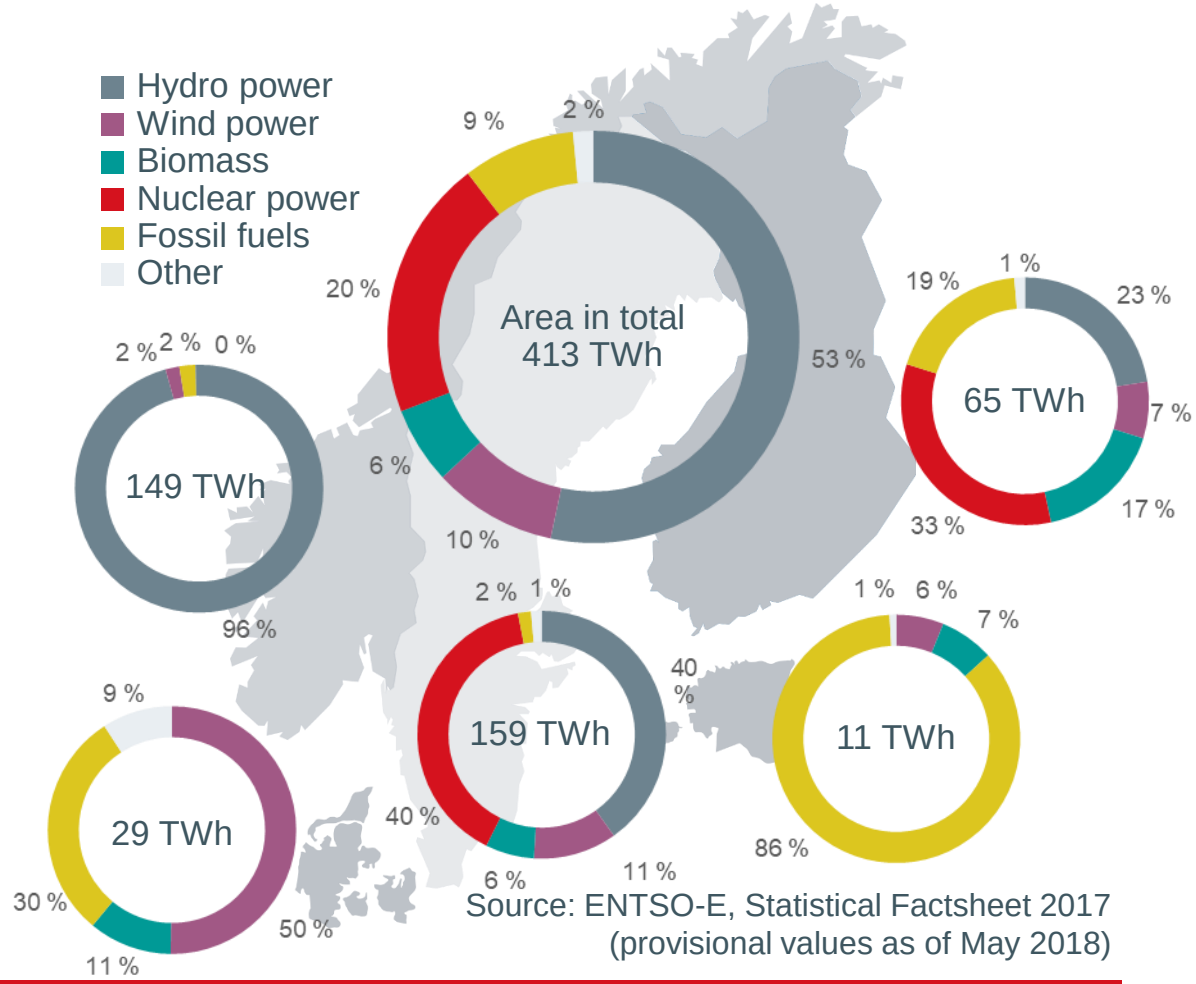
- Improving efficiency and competitiveness of the power sector
  - efficient market price
  - cross-border trade
  - efficient dispatching via "the invisible hand" of the markets
- Delivering benefits for end-users and trust to market players
- Contributing to the security of supply
- Reaching the 20-20-20 goals and the 2030 climate targets of the EU: better environment, more renewables

Market coupling

Electricity market from Helsinki to Lisbon since 2014

Hydro power is the main energy source in the Nordic region

- Significant hydro power generation capacity in Norway and Sweden drive the electricity price in Finland
- Nuclear power generation is an important base load power generation source in Sweden and Finland
- Renewable power generation consist of hydro power, biomass fired cogeneration, wind power and also small amounts of solar power

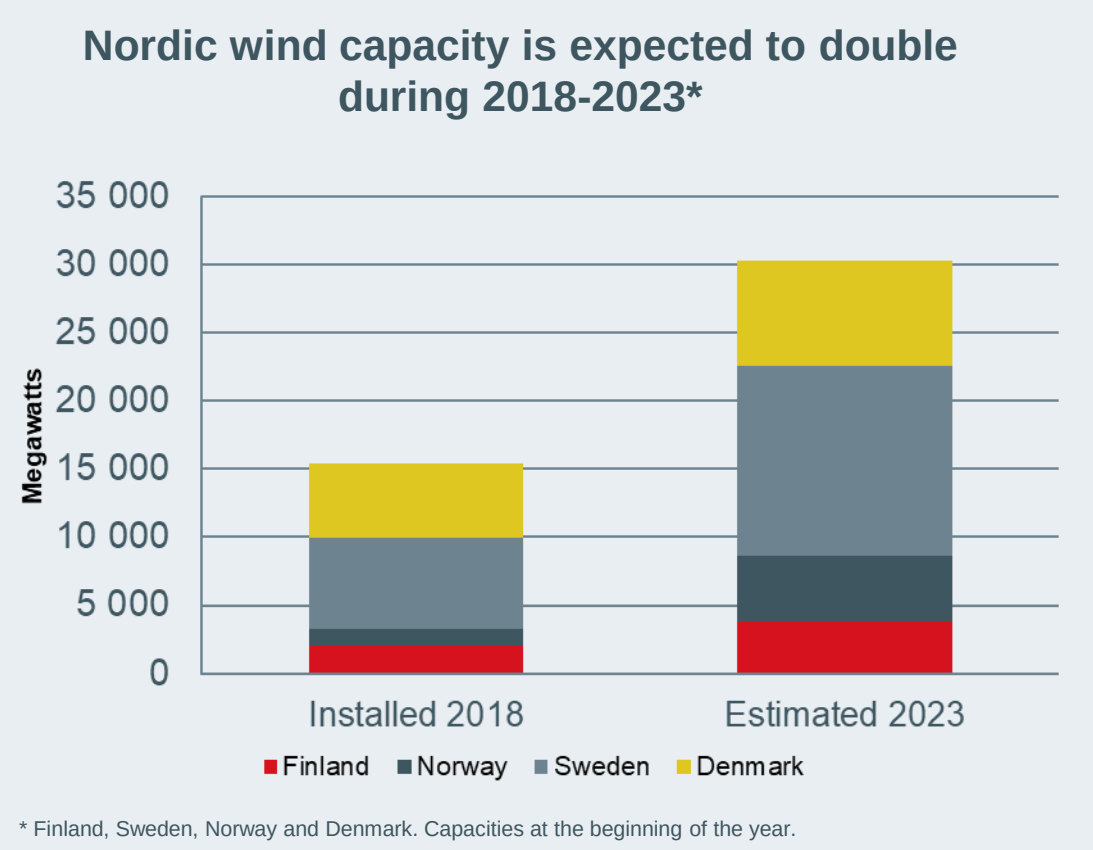


Source: ENTSO-E, Statistical Factsheet 2017 (provisional values as of May 2018)

Nordic electricity price is driven by hydrological conditions in Scandinavia

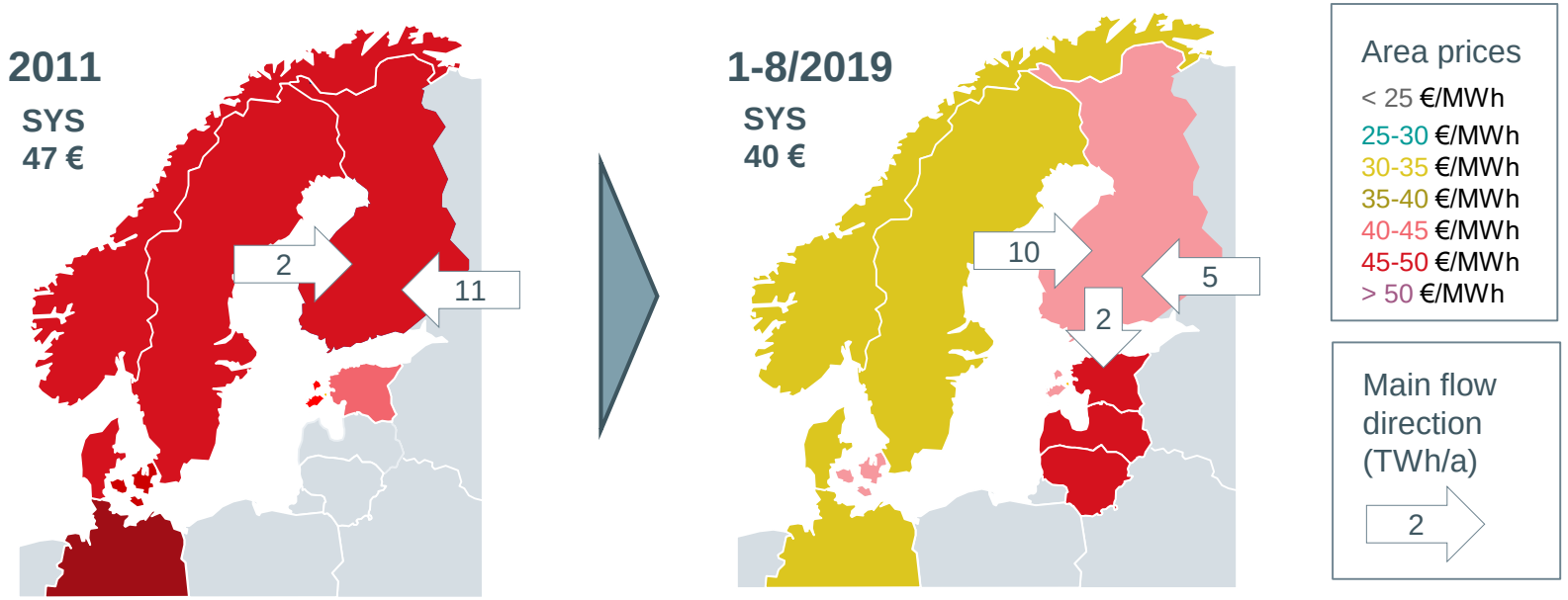
Wind power competitiveness has clearly improved

- First ~2000 MW of wind in Finland has been built with incentive from feed-in tariff
- By end-August 2019, a total of ~1300 MW new wind power investments have been announced in Finland, including investment decisions in unsubsidized projects, as well as projects selected under the latest feed-in premium auction
- Nordic wind power is expected to double during 2018-2023, with the majority of growth based on investment decisions already taken
- Integration of wind power is one of the key drivers for Fingrid's grid development, with significant investments already completed and more in the pipeline to enable transition towards a climate-neutral society



Fingrid promotes the development of market based wind power generation in Finland

Nordic electricity spot prices have decreased compared to H2/2018

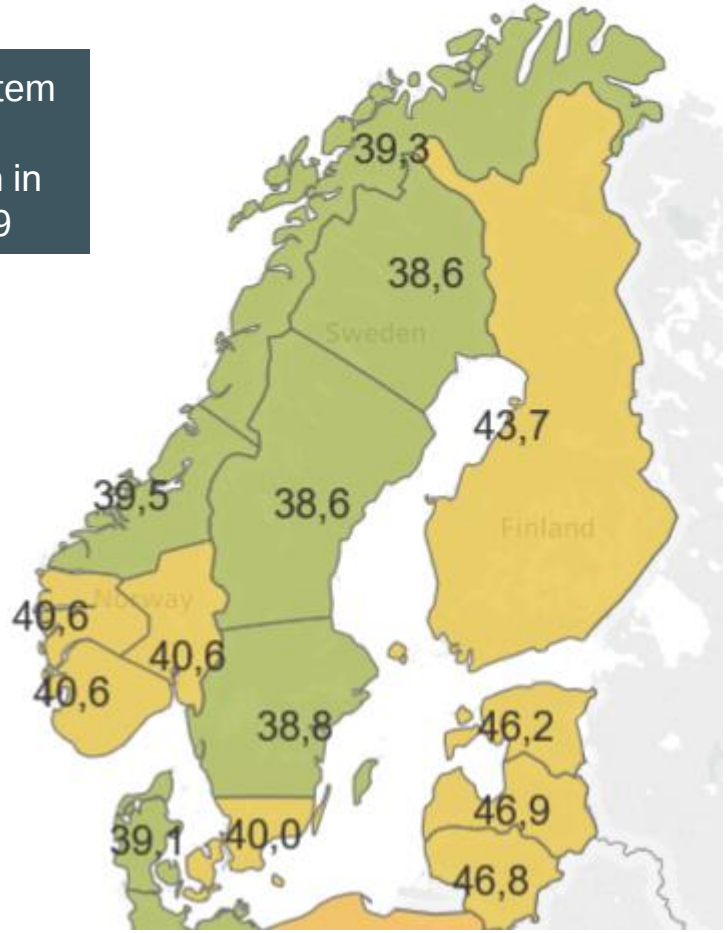


- Nordic electricity prices have decreased from levels seen in H2/2018
  - Hydrological situation has returned towards normal levels
- Electricity consumption growth in Finland has halted during 2019 after strong growth in 2018
- Olkiluoto 3 nuclear power plant trial runs are expected to start in 2020. Olkiluoto 3 will increase Finnish production capacity roughly by 13%

Finland is well-connected in Baltic Sea power market

- Finland is a net importer of electricity mainly from Scandinavia
- Finland is expected to remain as a net importer of electricity even after the 1600 MW nuclear project Olkiluoto 3 is commissioned
- Cross-border lines between Finland and Sweden have a crucial role of limiting price differentials between the markets
- Fingrid has established a 24/7 service to ensure continuous specialist availability to solve issues in cross-border connections, and is investing in new transmission capacity between the countries.

Nordic system price
40 €/MWh in 1-8/2019



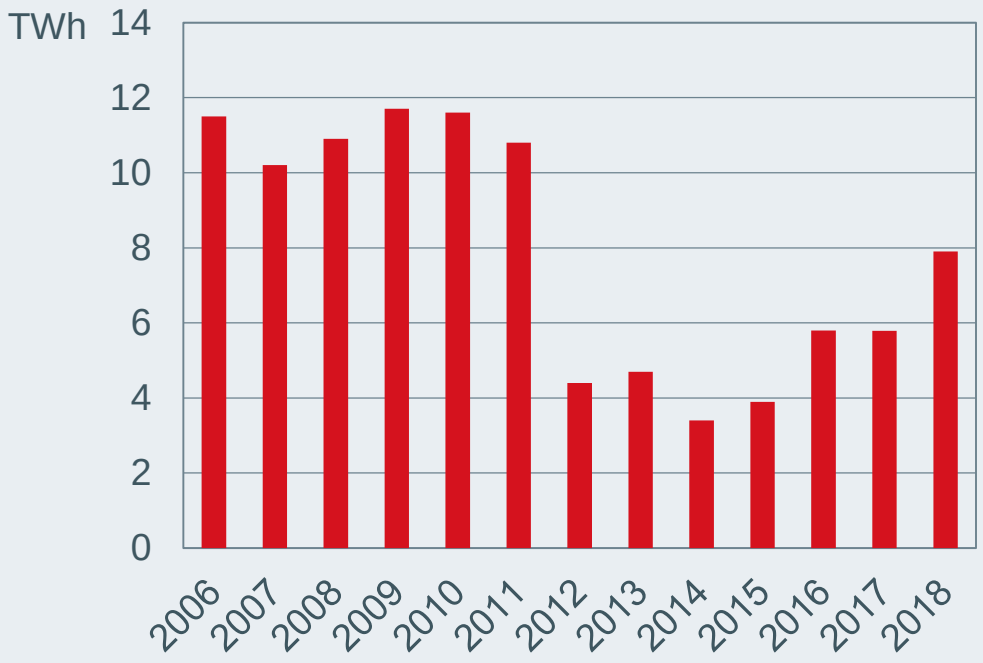
Average electricity wholesale prices 1-8/2019

Finland is a net importer of electricity mainly from Scandinavia

Cross-border transmission between Finland and Russia

- Imports from Russia increased substantially in 2018 due to higher Nordic wholesale prices
- H1/2019 imports increased further compared to H1/2018
- Russia now has capacity payment of around 30-60 EUR/MWh on exports to Finland which limits the trade below levels seen in 2011 and earlier

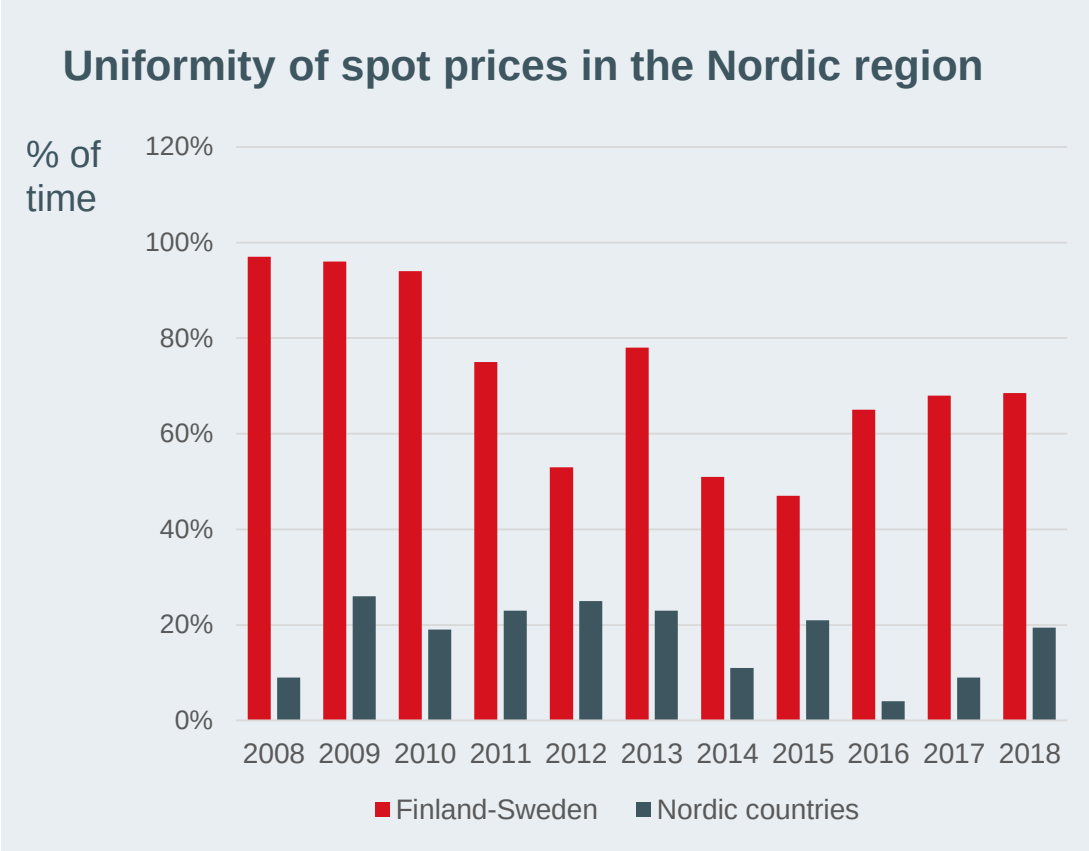
Annual electricity export from Russia to Finland



Finland's cross-border transmission with Russia is driven by power market development in EU and Russia

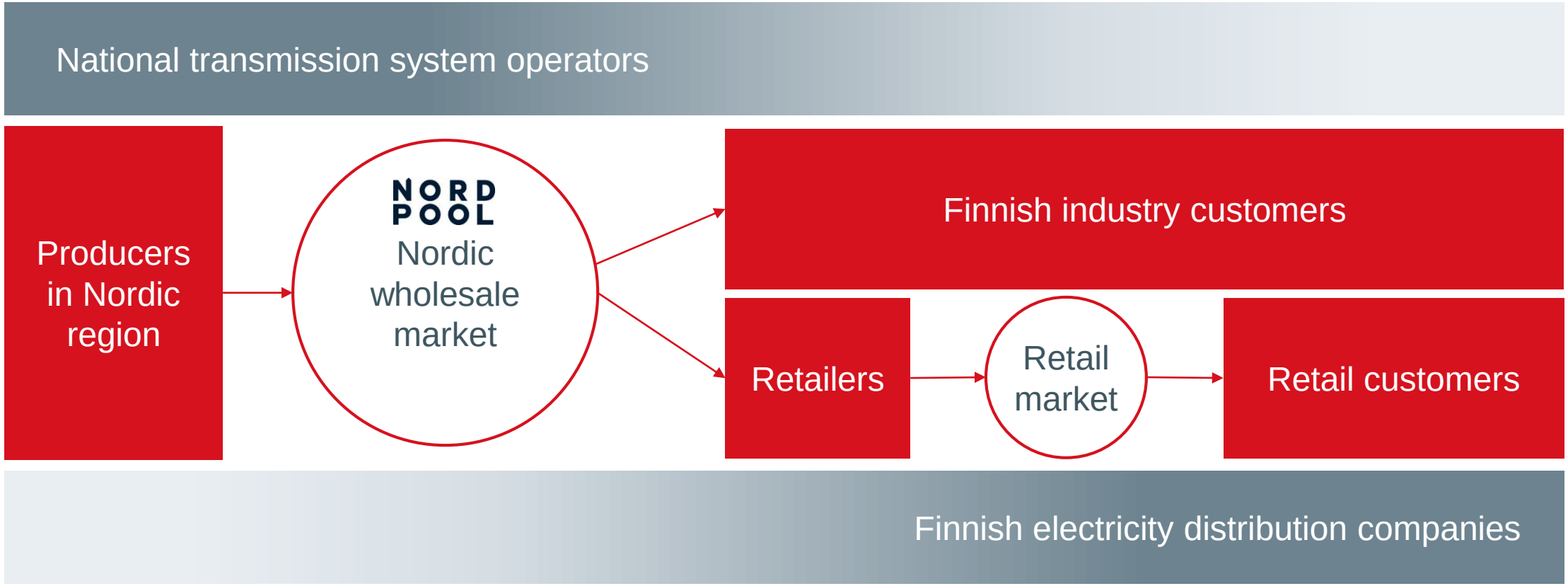
The Baltic Sea region* forms a well-developed regional market

- In 2018 a single price area between Finland and Sweden existed 69 percent of the time and 19 percent of the time between all the Nordic countries
- Price uniformity is impacted by hydrological situation, in addition to interconnector availability



* Finland, Sweden, Norway, Denmark, Poland, Estonia, Latvia, Lithuania

Market structure and business areas in the Baltic Sea area

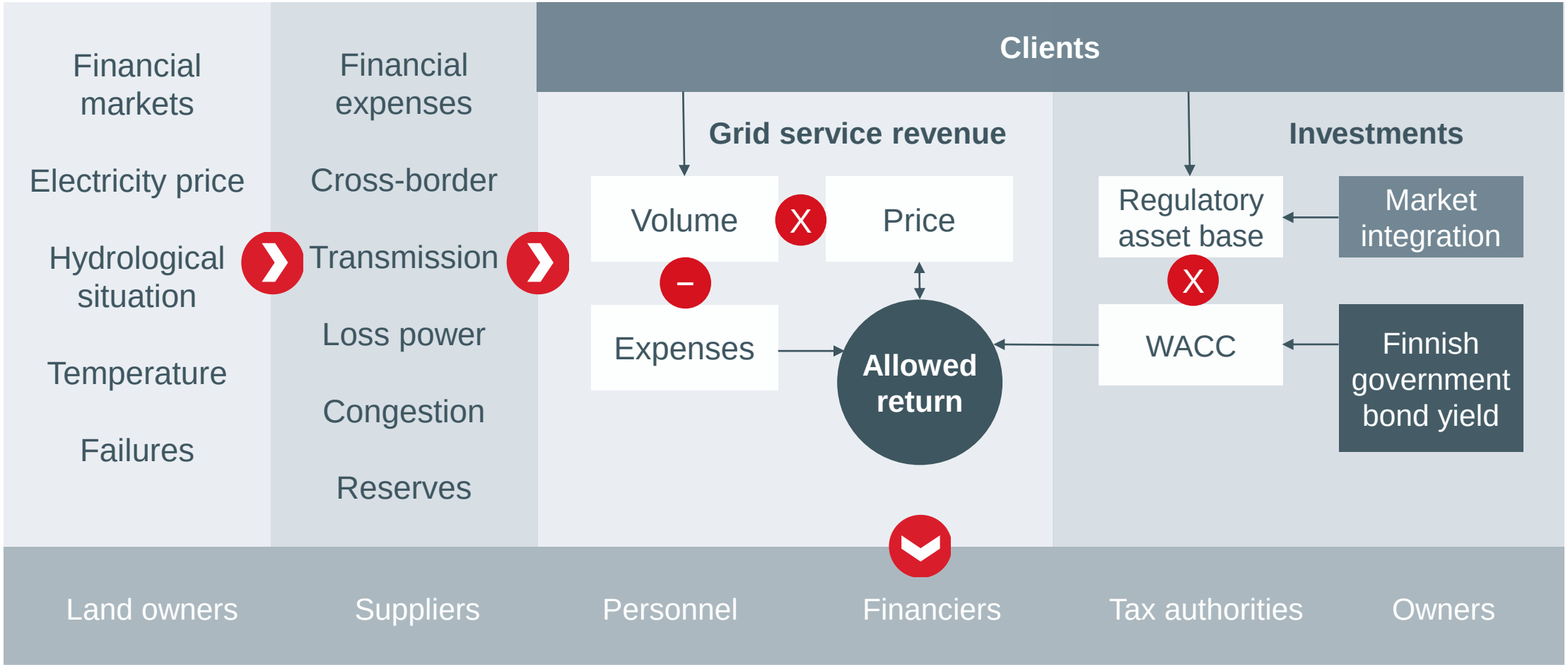


Power generation is unregulated whereas transmission and distribution are regulated by national authorities

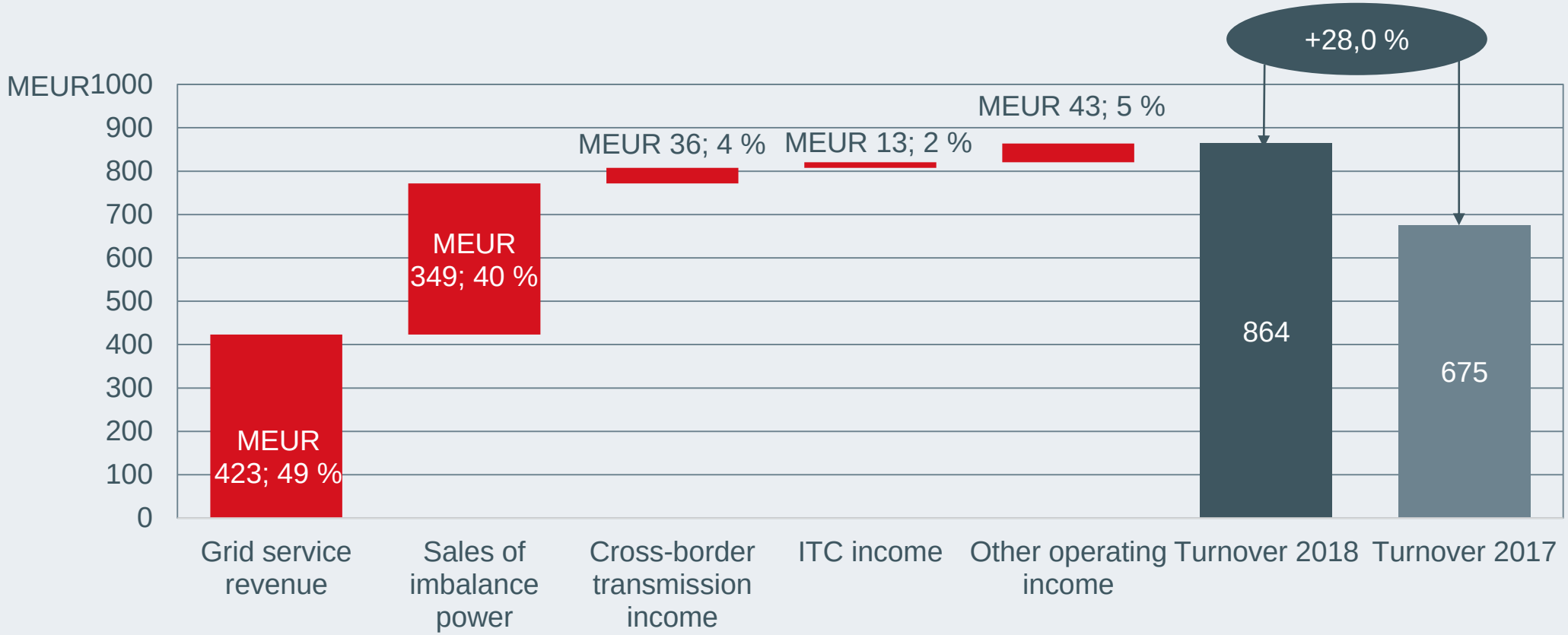
Financials

Financial performance

Main economic drivers of transmission network operations



IFRS Turnover breakdown in 2018



Breakdown of main sources of turnover

Grid service revenue

- Grid service revenue consists mainly of the unit price for electricity transmission multiplied by electricity consumption and production

Sales of imbalance power

- Fingrid sells and purchases imbalance power in order to stabilise the hourly power balance of the balance responsible parties
- The net of imbalance power sales and purchases is slightly positive and used to cover reserve costs
- Imbalance power boosts turnover as well as costs

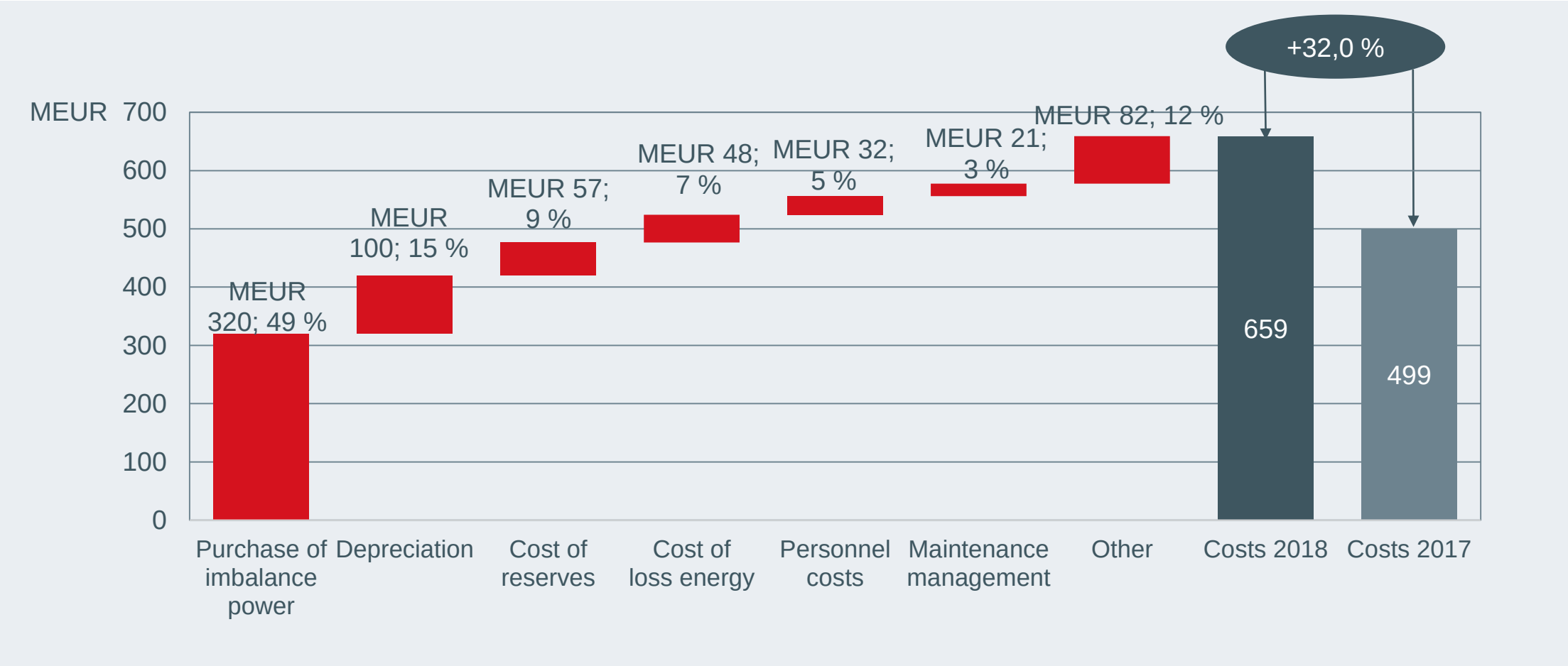
Cross-border transmission income

- Fingrid offers transmission services on the cross-border connections with Russia available to all electricity market parties. The contractual terms are equal and public.

ITC income (Inter TSO Compensation)

- Income received for the use of Fingrid's grid by other European TSOs

IFRS Cost breakdown 2018



Breakdown of main costs

Purchase of imbalance power

- Fingrid sells and purchases imbalance power in order to stabilise the hourly power balance of the balance responsible parties
- The net of imbalance power sales and purchases is slightly positive and used to cover reserve costs
- Imbalance power boosts turnover as well as costs

Depreciation

- The level of yearly depreciations are stable thanks to continuous and stable investments

Cost of reserves

- Fingrid maintains reserve power to balance the frequency of the electricity grid
- The cost of reserves is recovered in grid network tariff and payments collected in balance services

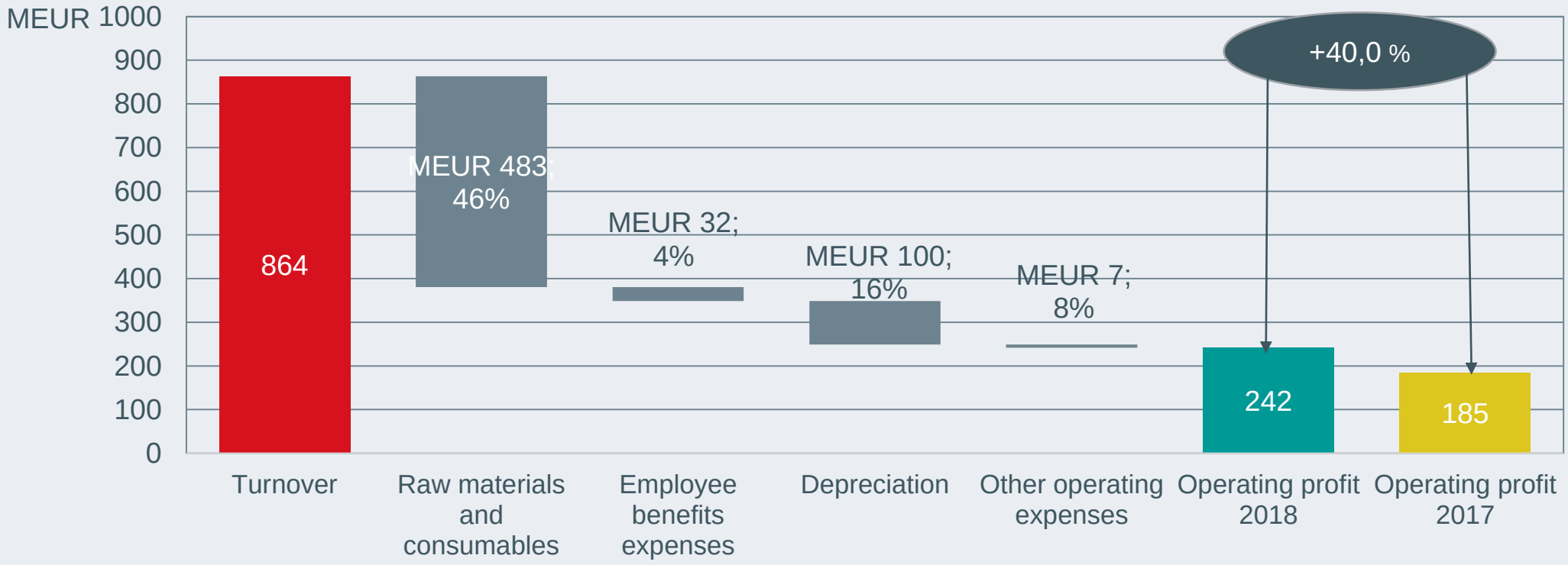
Cost of loss energy

- Loss energy is hedged up to four years in advance to ensure stable tariff

Personnel costs

- Fingrid's personnel costs are moderate thanks to outsourcing model used in most operations

IFRS Operating profit in 2018



FINGRID

Fingrid Oyj consolidated profit and loss (IFRS)

- Turnover has increased because of pricing increases and imbalance power sales treated as external turnover
- Since 2016, congestion income is no longer presented as turnover in profit and loss statement
- Employee expenses remain at notably low level due to outsourced operating model

IFRS profit and loss 2012 – 2018 in MEUR							
	2018	2017	2016	2015	2014	2013	2012
TURNOVER	**864**	**675**	**599**	**605**	**572**	**547**	**526**
Raw materials and consumables used	-483	-302	-248	-241	-264	-270	-267
Employee benefits expenses	-32	-29	-29	-26	-25	-23	-22
Depreciation	-100	-97	-99	-94	-92	-82	-76
Other operating expenses	-7	-62	-30	-82	-48	-58	-66
OPERATING PROFIT (EBIT)	**242**	**185**	**192**	**163**	**143**	**115**	**95**
EBIT-%	*28 %*	*27 %*	*32 %*	*27 %*	*25 %*	*21 %*	*18 %*
Finance income and costs	-15	-23	-19	-34	-11	-29	-7
PROFIT BEFORE TAXES*	**229**	**164**	**174**	**129**	**133**	**87**	**88**
Income taxes	-46	-33	-35	-26	-26	3	-21
PROFIT FOR THE PERIOD	**183**	**131**	**139**	**104**	**106**	**91**	**67**
Other comprehensive income**	0	-1	6	5	0	-5	6
TOTAL COMPREHENSIVE INCOME	**183**	**130**	**145**	**109**	**106**	**86**	**73**

* Includes share of profit of associated companies

** Other comprehensive income consists of cash flow hedges, translation reserves and available-for-sale financial assets.

Operating profit stabilized on a solid level

Fingrid Oyj consolidated assets (IFRS)

- Tangible assets stabilized because of stabilized investments in grid assets
- Tangible assets were on average 77 % of total assets
- Current assets on average 10 % of total assets

IFRS assets 2012 – 2018 in MEUR							
	2018	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Intangible assets	190	188	185	183	183	181	179
Tangible assets	1 634	1 676	1 690	1 677	1 640	1 623	1 485
Investments (associated companies and available for sale)	12	10	10	10	11	11	9
Receivables	58	46	40	51	55	60	103
NON-CURRENT ASSETS	**1894**	**1 920**	**1 925**	**1 922**	**1 889**	**1 875**	**1 776**
Inventories	12	14	12	13	13	11	10
Derivative instruments	19	0	3	3	11	2	4
Trade receivables and other receivables	100	96	82	70	57	76	88
Financial assets recognised in income statement at fair value	71	73	58	93	116	195	207
Cash and cash equivalents	14	10	22	23	63	22	6
CURRENT ASSETS	**216**	**193**	**177**	**203**	**261**	**307**	**316**
TOTAL ASSETS	**2 110**	**2 113**	**2 102**	**2 124**	**2 151**	**2 182**	**2 092**

Tangible assets on a stable level thanks to a defined long-term investment plan

Fingrid Oyj consolidated liabilities (IFRS)

- Growth in equity has resulted from low dividend payments in 2010-2015
- Current liabilities on average total 17 % of total equity and liabilities
- Borrowings (current and non-current) totalled on average 55 % of total equity and liabilities
- Trade payables on average 19 % of current liabilities

IFRS liabilities 2012 – 2018 in MEUR							
	2018	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**
Share capital and premium	112	112	112	112	112	112	112
Retained earnings	662	687	654	606	567	542	465
Other equity	-1	0	0	-6	-12	-12	-7
EQUITY	**772**	**798**	**766**	**711**	**667**	**643**	**570**
Borrowings	772	813	843	907	962	975	1 032
Other non-current liabilities	131	141	146	174	170	160	185
NON-CURRENT LIABILITIES	**903**	**954**	**989**	**1 081**	**1 132**	**1 136**	**1 217**
Borrowings	288	269	265	236	263	319	212
Derivative instruments	4	8	8	30	17	16	11
Trade payables and other liabilities	142	84	75	66	72	70	83
CURRENT LIABILITIES	**434**	**361**	**347**	**332**	**352**	**404**	**305**
TOTAL EQUITY AND LIABILITIES	**2 110**	**2 113**	**2 102**	**2 124**	**2 151**	**2 182**	**2 092**

Balance sheet has remained stable in 2012-2018

Fingrid Oyj consolidated cash flow (IFRS)

- Strong operating cash flow
- Peak investment years behind and now stabilized
- Cash and cash equivalents reduced to achieve more appropriate capital structure

IFRS cash flow 2012 – 2018 in MEUR							
	2018	2017	2016	2015	2014	2013	2012
Cash flow from operations	303	273	252	279	227	202	181
Change in working capital	-18	-40	-20	-63	-21	-43	-37
Net cash flow from operations	**285**	**233**	**232**	**216**	**206**	**159**	**145**
Net cash flow from investments	-82	-107	-139	-135	-111	-226	-146
Net cash flow after investments	**204**	**126**	**94**	**80**	**95**	**-68**	**-1**
Net borrowings	-29	-24	-40	-78	-51	84	22
Dividends paid	-174	-98	-90	-65	-82	-13	-11
Net cash flow from financing activities	**-202**	**-122**	**-130**	**-143**	**-133**	**71**	**11**
Net change in cash and cash eqv.	**2**	**4**	**-37**	**-62**	**-38**	**3**	**10**
Cash and cash equivalents 1 Jan	84	80	117	179	217	214	204
Cash and cash equivalents at the end of period	85	84	80	117	179	217	214

Strong and improving net cash flow after investments

Financials

Financing

Financial risk management principles

Liquidity risk

- Cash, cash equivalents and committed credit facilities cover at least 110 percent of short-term debt
- Undrawn MEUR 300 revolving credit facility (RCF) until 2022
- Continuous cash flow forecasting

Refinancing risk

- Refinancing in any given year less than 30 % of total debt
- Even maturity profile
- Diversified funding sources
- Strong credit rating from at least two major rating agencies

Credit and counterparty risk

- Prequalification of suppliers based on predetermined financial criteria
- Continuous credit risk analysis and monitoring
- Counterparty credit rating requirements and limits
- ISDAs in force for derivatives

Market price risk

- Derivatives only for hedging purposes
- Interest rate risk hedging of debt; convergence towards 12 months' average interest re-fixing time
- Material currency and commodity risk fully hedged
- Loss power hedging horizon up to 4 years, deliveries of each forthcoming year fully hedged in advance

Fingrid applies a conservative financial policy

Fingrid debt programme overview

- Long presence in the capital and money markets since 1998 with debt programmes:
  - EMTN Programme, MEUR 1,500 since 1998
  - ECP Programme, MEUR 600 since 1998
  - CP Programme, MEUR 150 since 1998
- MEUR 300 Revolving Credit Facility (RCF) until December 2022 is provided by the dealers. The facility supports the company's liquidity reserve and is undrawn
- A total of MEUR 50 uncommitted overdraft limits to be used for liquidity management
- Long-term bilateral loans provided by the European Investment Bank (EIB) and Nordic Investment Bank (NIB)

Fingrid's core relationship banks are the dealers of the EMTN Programme

BNP PARIBAS
Danske Bank
ING
Nordea
SEB
OP
Swedbank

Fingrid is a well-established issuer on international private and public debt capital markets

Green bond framework established

Note: Click to view more information of Fingrid's Green Financing

- Fingrid established a Green Bonds Framework in 2017 that enables the company to acquire financing for green projects
- Fingrid's Green Bond Framework received a Medium Green** assessment from third party CICERO
- Fingrid has defined eligible investment projects as those i) reducing losses, ii) connecting renewable power* iii) cross-border projects and/or iv) smart grids
- Around MEUR 150 in 16 investment projects identified as Green bond eligible investment costs mainly in 2015-2018

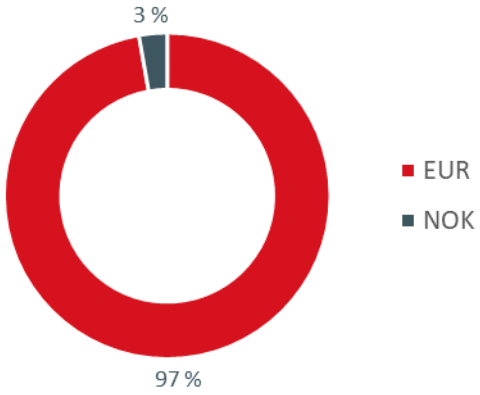
* Wind, hydro, solar and bioenergy
** Scale: dark green, medium green, light green, brown

Fingrid issued inaugural MEUR 100 green bond in November 2017

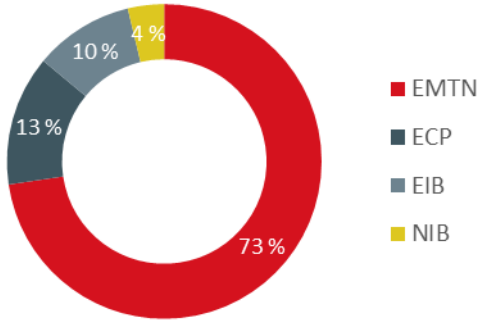
Weighted average debt maturity was 5,3 years at the end of June 2019

- Fingrid aims to maintain a well-distributed debt maturity profile
- Debt portfolio consists mostly of private placements and a couple of public bonds

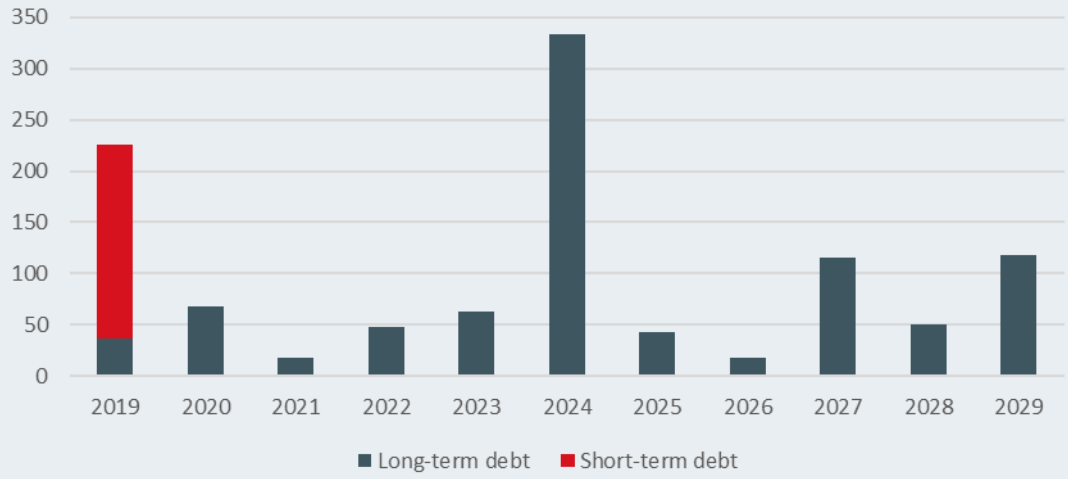
Total debt by currency 6/2019



Total debt by source 6/2019



Debt maturity profile as of 30 June 2019



Short-term debt*	**21% of total**	**MEUR 230****
Long-term debt	79% of total	MEUR 869**
Total gross debt		**MEUR 1 099****

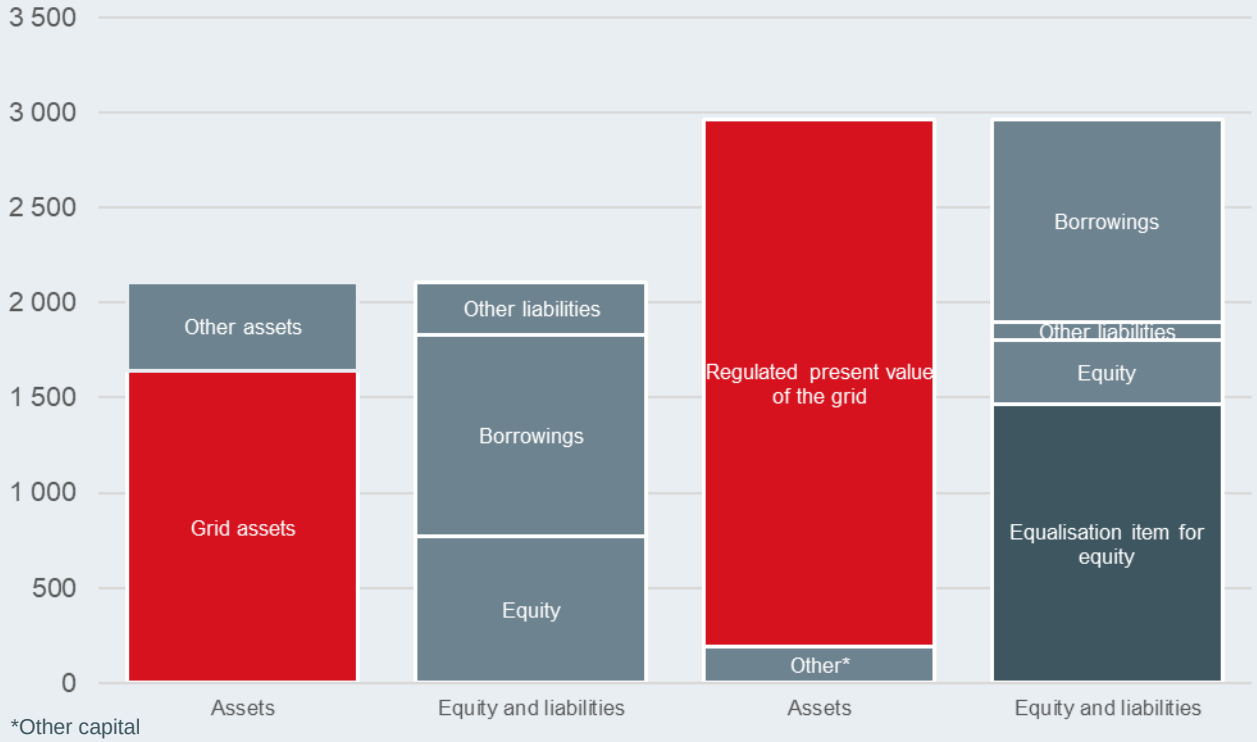
* Debt maturing in next 12 months
** Presented as notional values and hence, may differ from the published IFRS figures

Debt maturity profile is well-distributed

Strong capital structure

- Total shareholders' equity and liabilities amount to MEUR 2,110
- Regulatory balance sheet amount to around MEUR 2,950 of which approximately MEUR 2,900 is used as adjusted capital in calculation of allowed financial result
- Grid assets are recognised at fair value for the purposes of the company's regulatory balance sheet

IFRS and regulatory capital structure as of 31 December 2018

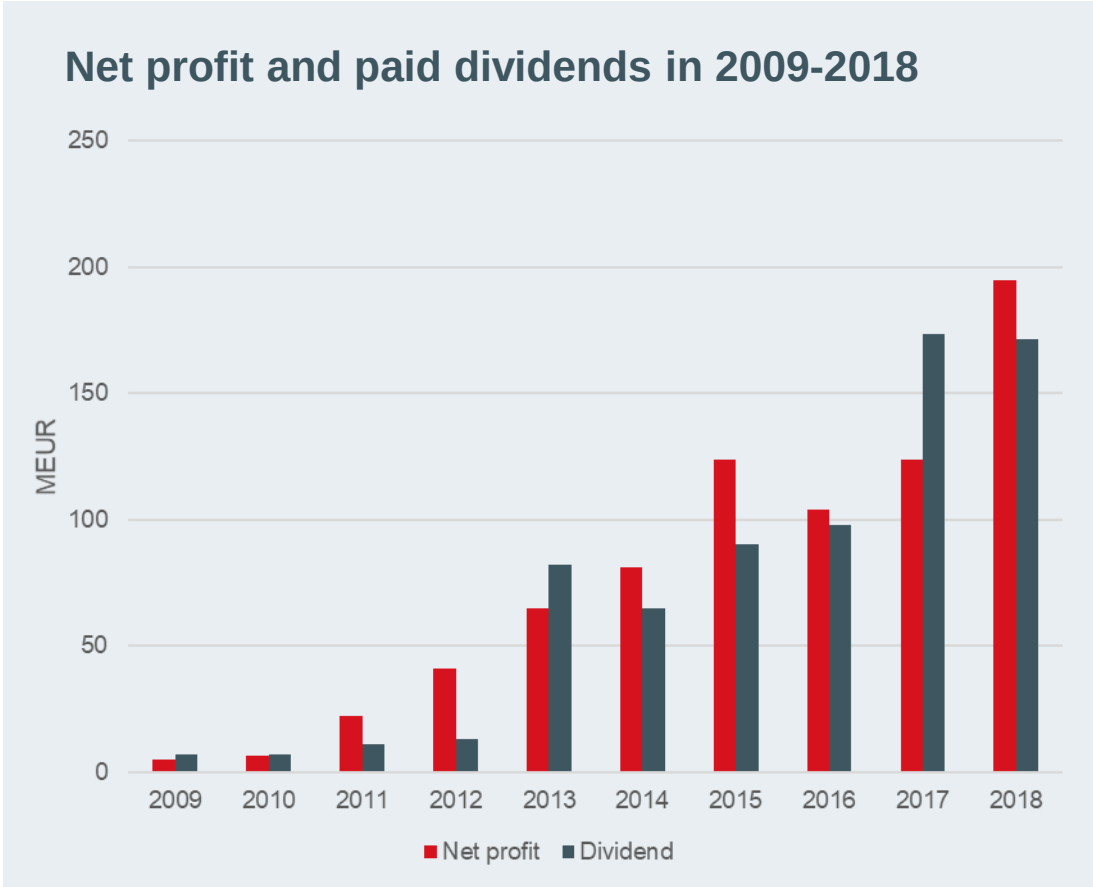


*Other capital committed to grid operations

Equity to total assets ratio is 37 % (IFRS) and 61% (regulatory)

Fingrid targets to distribute substantially all of parent company profit as dividend

- The guiding principle is to distribute substantially all of the parent company profit as dividend
- MEUR 171 dividend of 2018 parent company FAS net profit
- Prevailing conditions and investment needs are always considered before taking decision on dividend to be paid
- This will enable long-term implementation of the strategy while allowing operative flexibility



Dividend policy aims to ensure reasonable return and take company's financial targets into account

Ratings

Fingrid aims to maintain high credit ratings

S&P
A-1+/AA-
Stable

Short-term/
Issuer Rating

"*The upgrade primarily stems from the positive impact on Fingrid's earnings from modifications in the regulatory model for TSOs in Finland. These changes have increased Fingrid's allowed regulatory return, and made it more stable. Thanks to these changes, alongside previous tariff increases and the company's modest capital spending program, Fingrid has seen an improvement in its credit measures, which we believe should be sustainable*."

S&P Global, 28 October 2016

Fitch*
F1/A+
Stable

Short-term/
Senior
Unsecured

"The downgrade mainly reflects the change in the dividend policy . . . . Fingrid has a strong position for the remaining two ratios (net debt/regulatory asset base (RAB) ratio and FFO interest coverage), which is reflected in the Stable Outlook, together with the very solid business profile"

Fitch Ratings, 28 January 2019

"Fingrid's 'A' rating is the highest that Fitch assigns to a regulated network in Europe, reflecting a very strong business and financial profile."

Fitch Ratings, 28 January 2019

Fingrid is committed to maintain credit rating at least at 'A-' level in all circumstances

*Rating downgrade from 'AA-' on 28 January 2019

Key rating factors according to the rating agencies

S&P Global

1. Fingrid's business risk profile is underpinned by a strong, stable and predictable regulatory framework. Fingrid's financial risk profile benefits from low cash flow volatility
2. The Stable Outlook reflects our assumption that Fingrid will remain strategically important to the Finnish government as Finland's monopoly TSO, with stable and predictable underlying earnings supported by a favourable regulatory framework

Fitch

1. The company benefits from a benign regulatory framework, which includes the possibility of setting its own tariffs in the context of the allowed profits
2. Fingrid benefits from the ability to pass on its operational costs to tariffs. The company has been consistently ranked among the most efficient TSOs in global peer studies, demonstrating strong operational efficiency

Fingrid's low business risk profile and supportive regulatory framework are key credit strengths

Thank you!

Fingrid Oyj
Läkkisepäntie 21
00620 Helsinki
PL 530, 00101 Helsinki
Puh. 030 395 5000
Fax 030 395 5196

GREAT PLACE TO WORK® Best Workplaces 2016 Finland

FINGRID