Public

November 2017

Finland´s Transmission System Operator

FINGRID

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Table of Contents

Executive summary

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

Fingrid transmits in its own network approximately

78%

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

14 600 km
of power lines
300 km
of submarine cable

over
49 000 towers

116 substation

10 reserve power
plants
> 935 MW reserve

Fingrid has achieved its targets in 2011 - 2016

	2011	2016
Net profit	MEUR 33	MEUR 139
Return	Below regulatory allowed	Below regulatory allowed
Dividend	MEUR 7	MEUR 98
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

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	Continuously improved operating profitability in past three years
Rating	Fingrid benefits from AA-/A+ ratings (S&P, Fitch)

* Source: Prime Minister's Office, Finland. (2016). *Government resolution on state-ownership policy.*

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

Company overview

Vision

We are a forerunner in transmission system operation

- We are respected and influential in energy matters in Finland and abroad
- We are a manifestation of professional skills and efficiency
- We are able to renew ourselves and we boldly embrace changes

Mission

Fingrid is Finland’s transmission system operator. We secure reliable electricity for our customers and society and we shape the clean, market-oriented power system of the future.

Our values

In all our operations, we are

transparent	impartial
efficient	responsible

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.

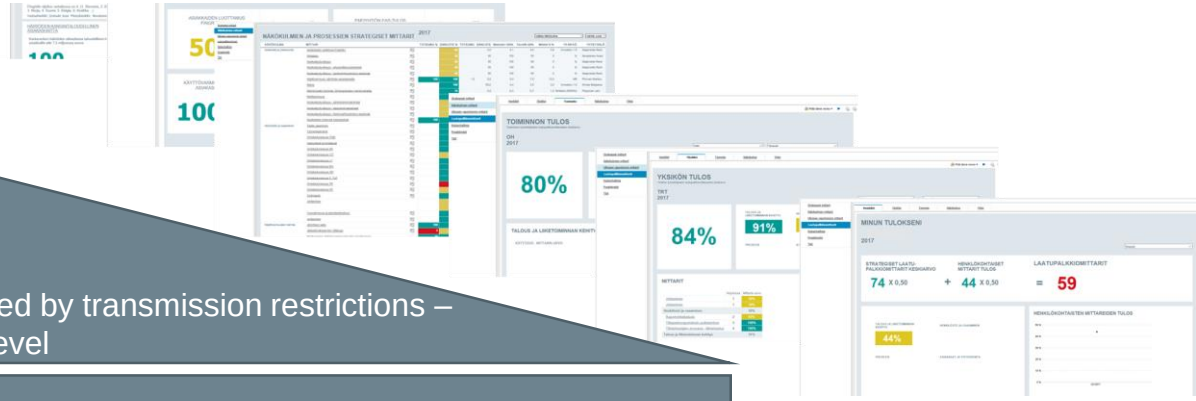
Promoting the electricity market

We actively maintain and develop the electricity market.

Personnel and expertise

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

Strategic key performance indicators



Customers and society

Customer losses from disturbances – Market disturbances caused by transmission restrictions – Customers' trust in Fingrid – Tariff level

Finance

FAS-profit – Credit rating – Dividend payment ability

Internal processes

Ensuring transmission capacity

Realization of investments – Efficiency of maintenance – Occupational safety

System security maintenance

System security of power system – Adequacy of reserves

Promoting the electricity market

Success in promoting the electricity market – Timing of interruption in Swedish connections

Personnel and expertise

Dedication – Leadership – Sharing of information – Innovation

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
						
Jussi Jyrinsalo	Kari Kuusela	Reima Päivinen	Asta Sihvonen-Punkka	Jan Montell	Kari Suominen	Tiina Miettinen

Customers	Jussi Jyrinsalo
Finance and business development	Jan Montell
Adequacy of transmission system System operation Promotion of market functioning	Kari Kuusela Reima Päivinen Asta Sihvonen-Punkka
Personnel and competence	Tiina Miettinen

81% of Fingrid's personnel holds an academic degree

Full-time, permanent employees at the end of 2016

Executive management team is highly regarded in the Finnish business community

Fully implemented matrix structure ensures efficient strategy implementation and personnel engagement

Fingrid's business model

Resources

- Personnel and expertise
- Suppliers and business partners
- Income and 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 infrastructure

Business operations

We set ambitious targets.

Our corporate culture is open, collaborative, renewing and target-oriented and complies with good governance practices. We develop our operations in a balanced way and with a long-term approach, from the perspectives of our customers, society, finances and personnel. We seek efficiency by combining our core expertise with that of the best operators in the industry. This is how we earn the trust of our customers, society, shareholders and the working community.

Business processes

Adequacy of the transmission system

- Grid planning
- Grid building
- Grid maintenance

System operation

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

Promoting the electricity market

- Ensuring the continuity of the electricity market
- Harmonising the rules of the electricity market
- Increasing the transparency of electricity market information

Services for customers

- Linking consumption and production to the grid
- Transmission system security
- Imbalance power trade and imbalance settlement
- A well-functioning electricity market
- Electricity market information
- Exchange of data in the electricity market (EDI)
- Guarantee of origin certificate

Impacts

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

Responsibility is part of our values, strategy and everything we do

Corporate responsibility management is founded on the company's strategy and guided by the company's Code of Conduct

Focus on materiality

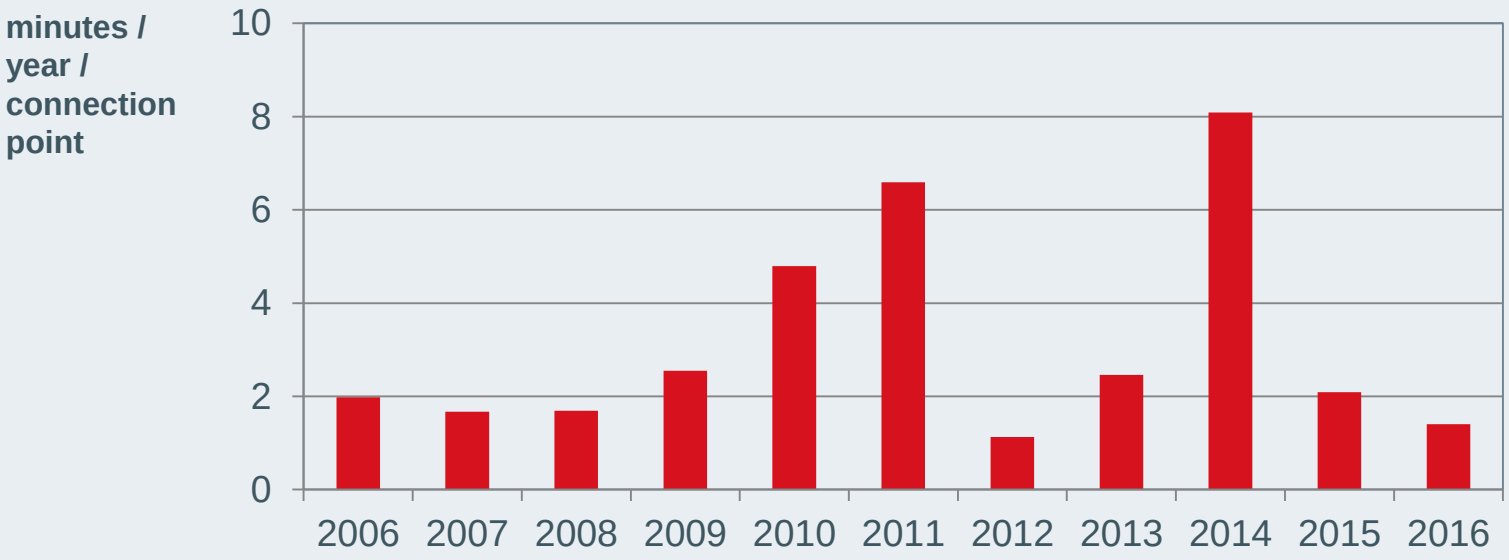
Systematic and target-oriented approach

Engagement of the personnel and suppliers

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

Excellent reliability in the grid

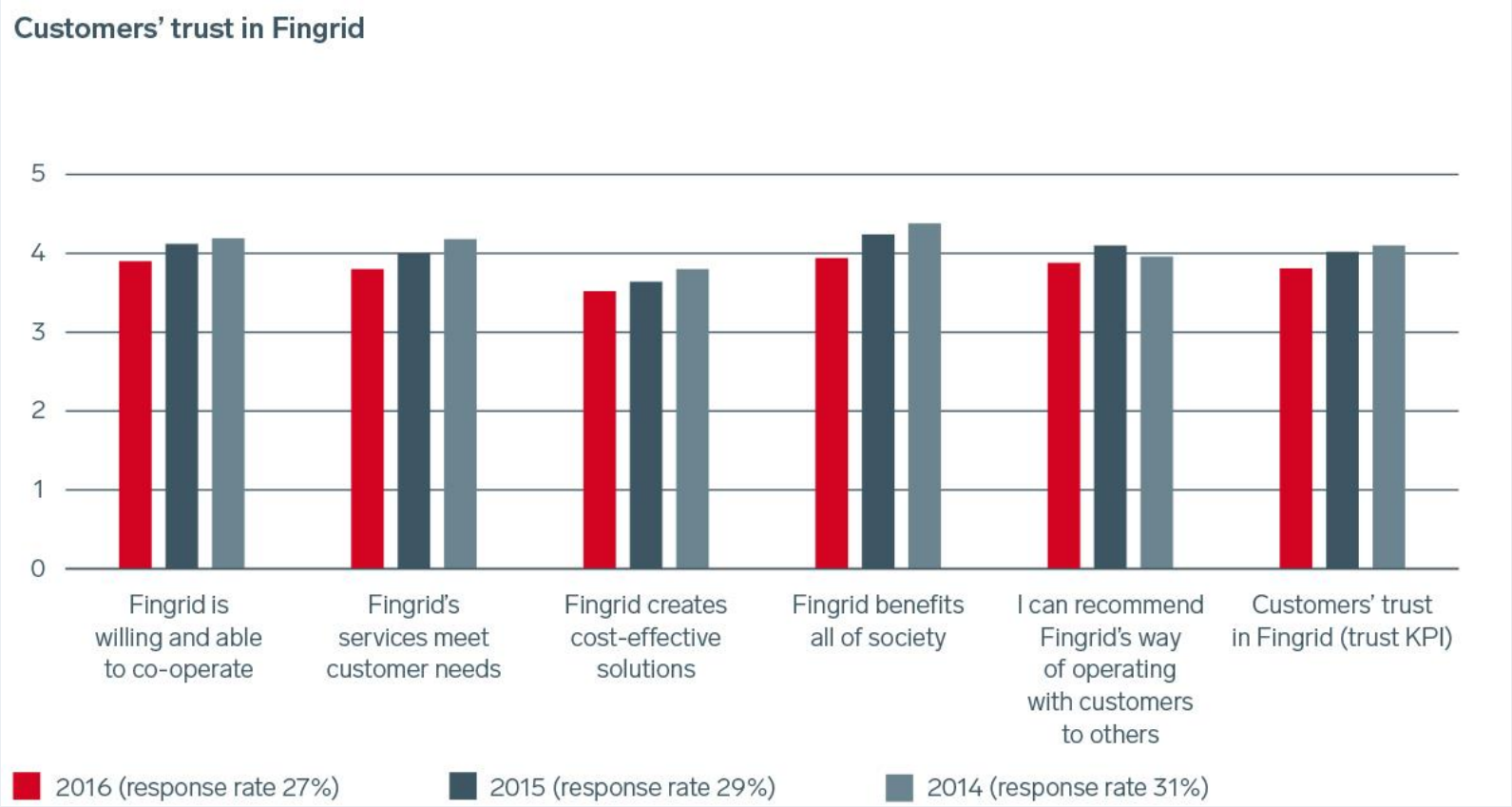
Economic losses caused by disturbances



Only 1.4 minutes outage caused by faults in the grid in 2016

For the benefit of customers and society

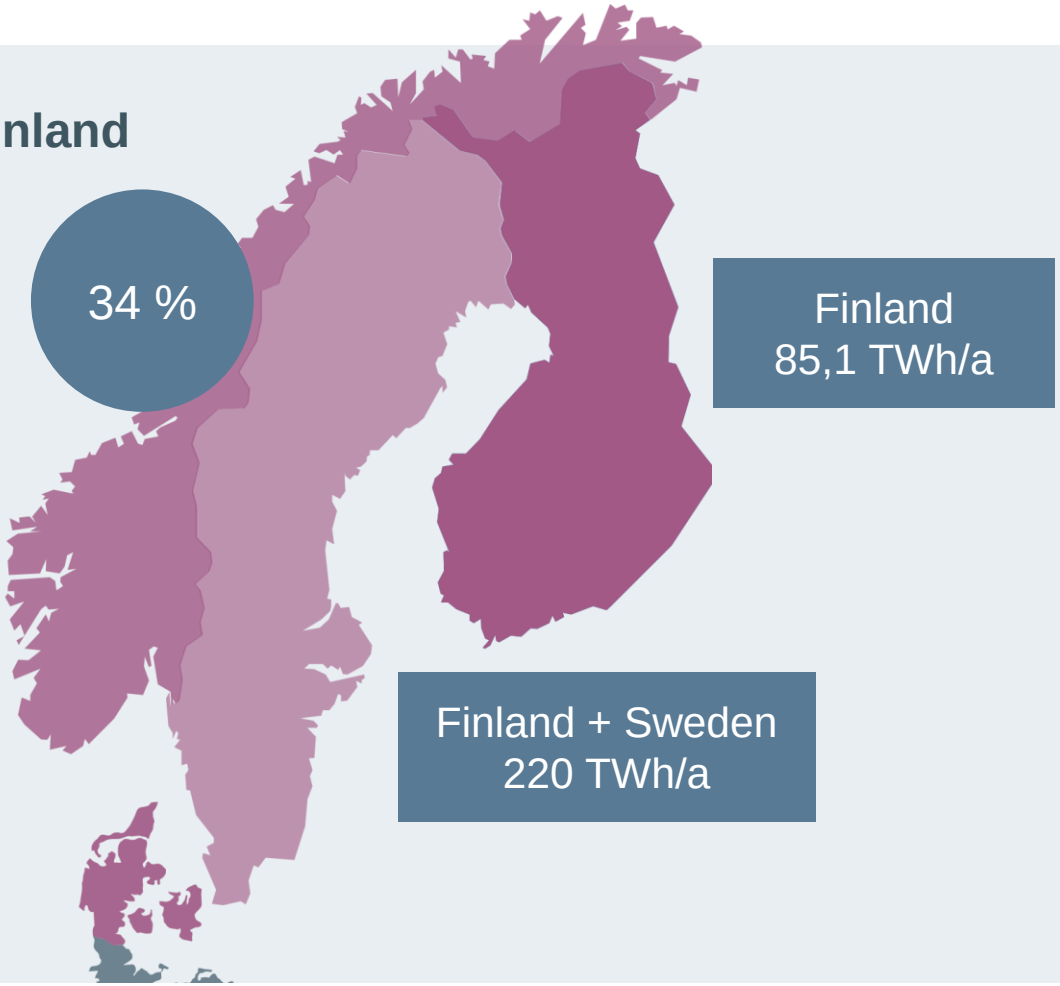
Customer satisfaction: High quality services



The customers' trust survey grade was 4,0 (scale 1-5) in 2016

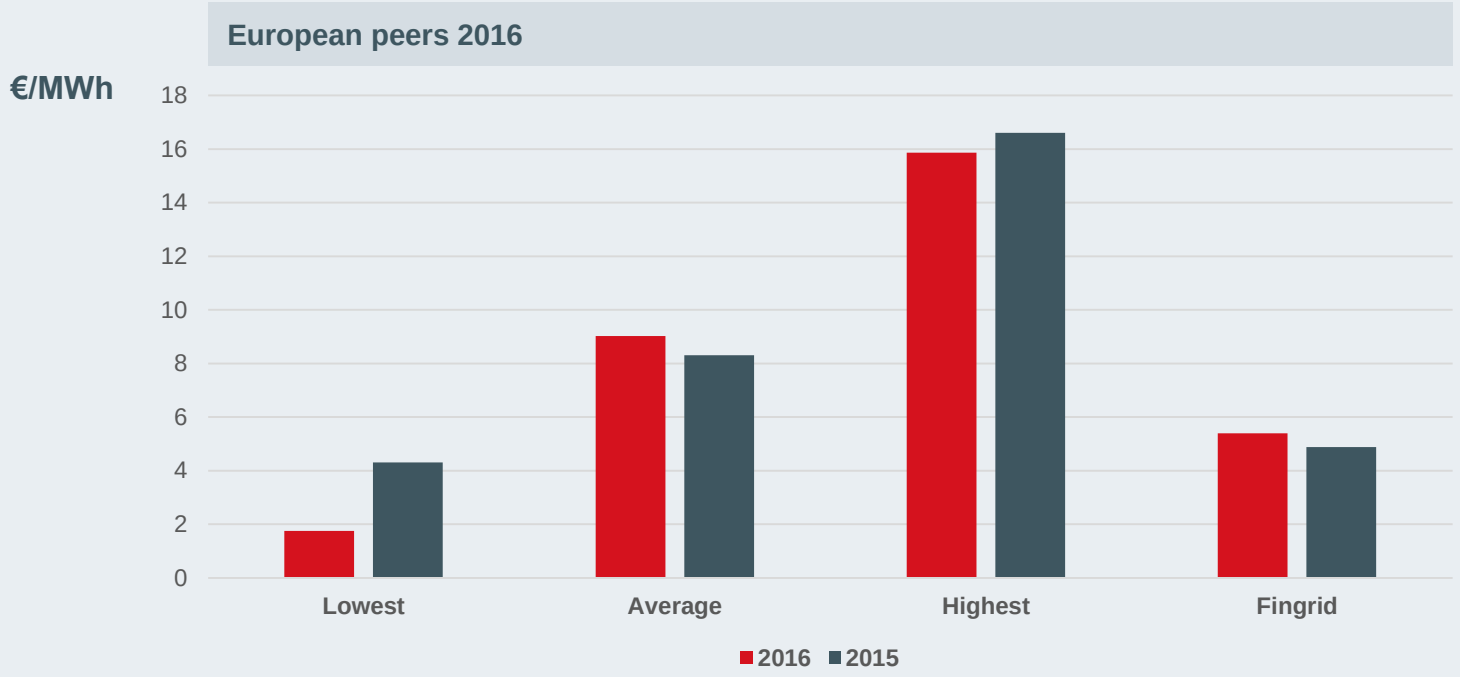
Network bottlenecks: Functioning electricity market

Congestion hours between Finland and Sweden in 2016



Affordable fees for grid services

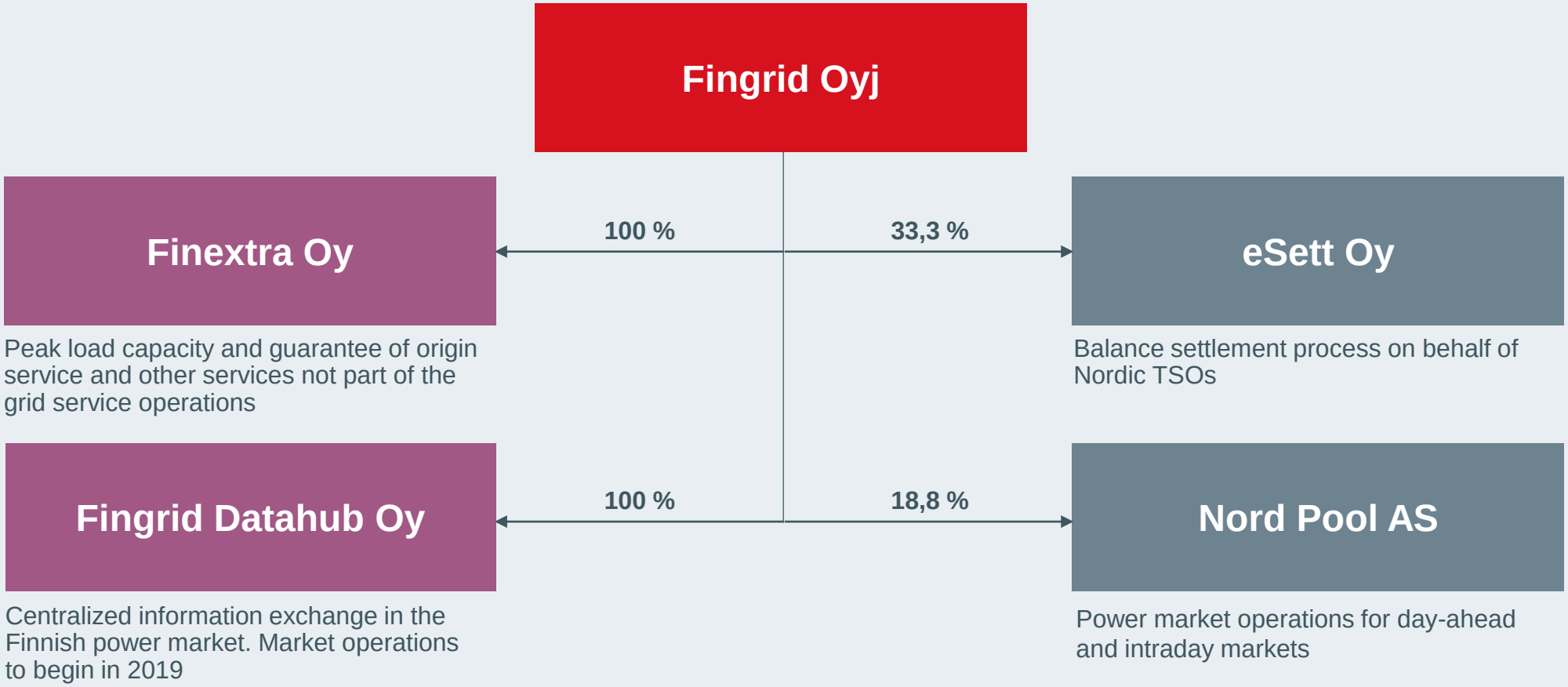
ENTSO-E comparison on grid service fees



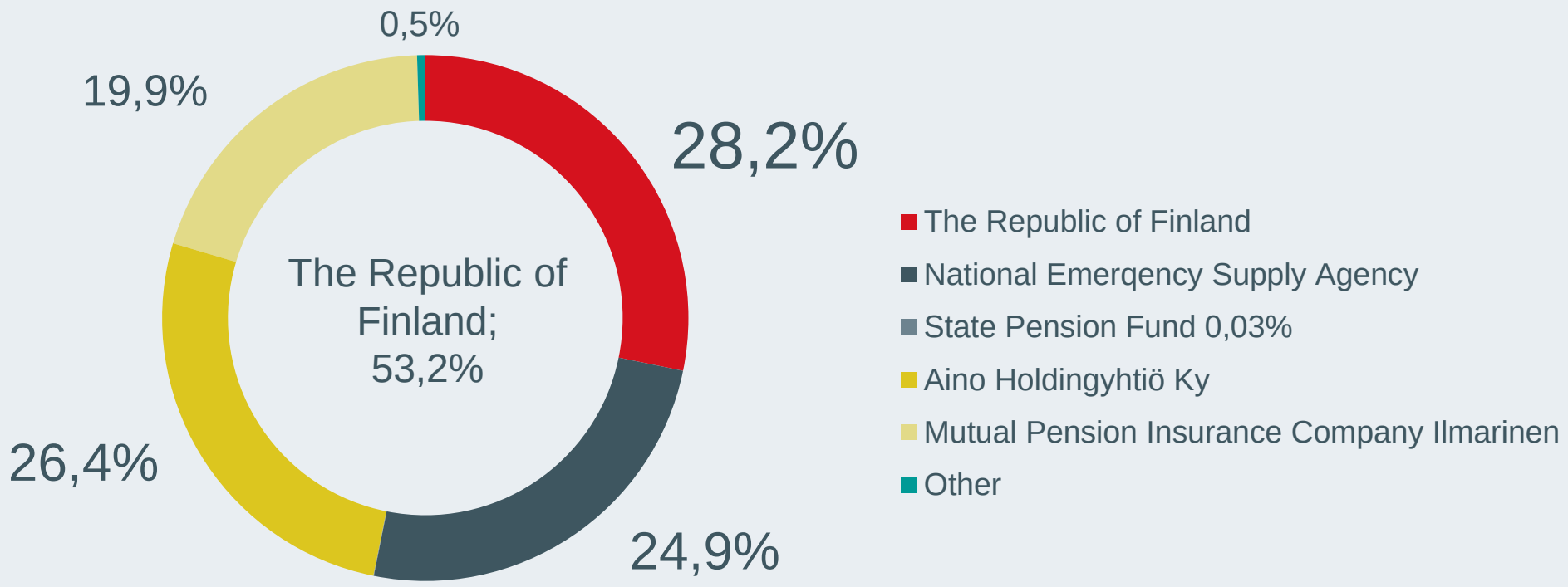
* Source: ENTSO-E

Operational targets are centered around cost competitiveness and customer service

Legal structure

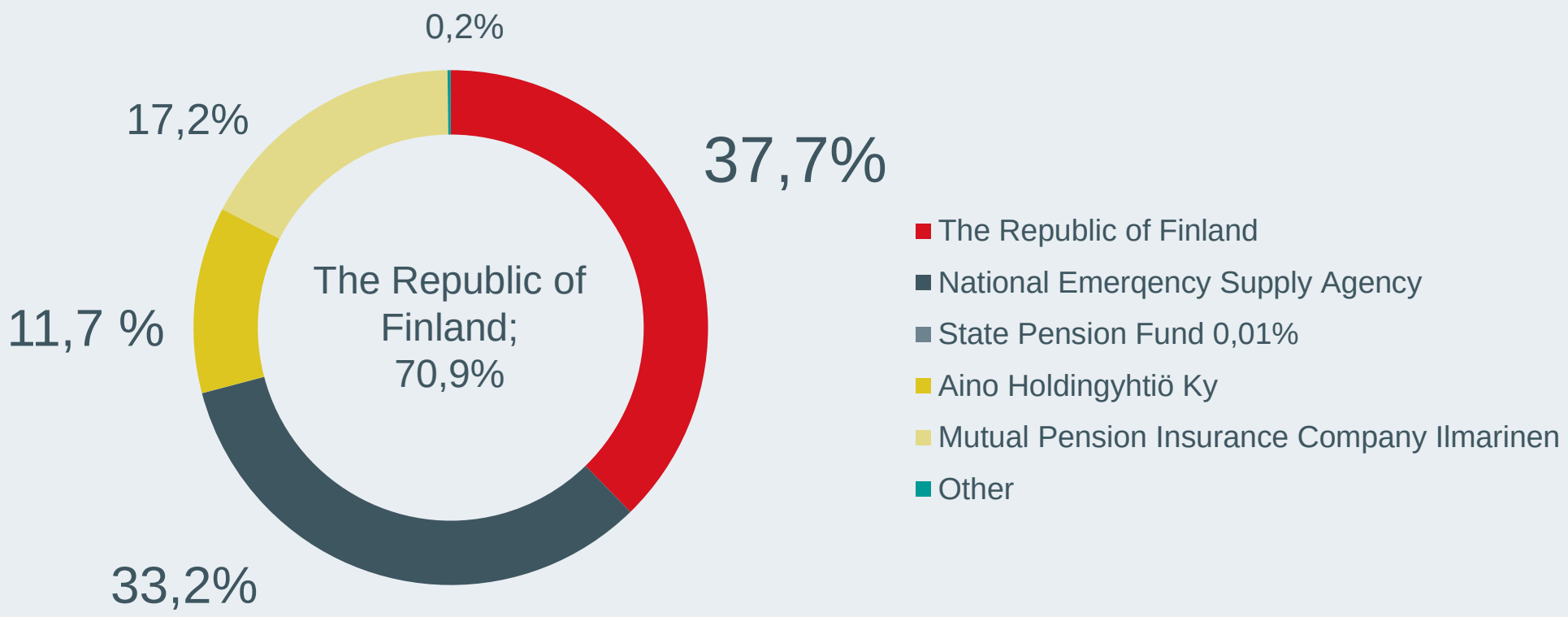


Shares



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

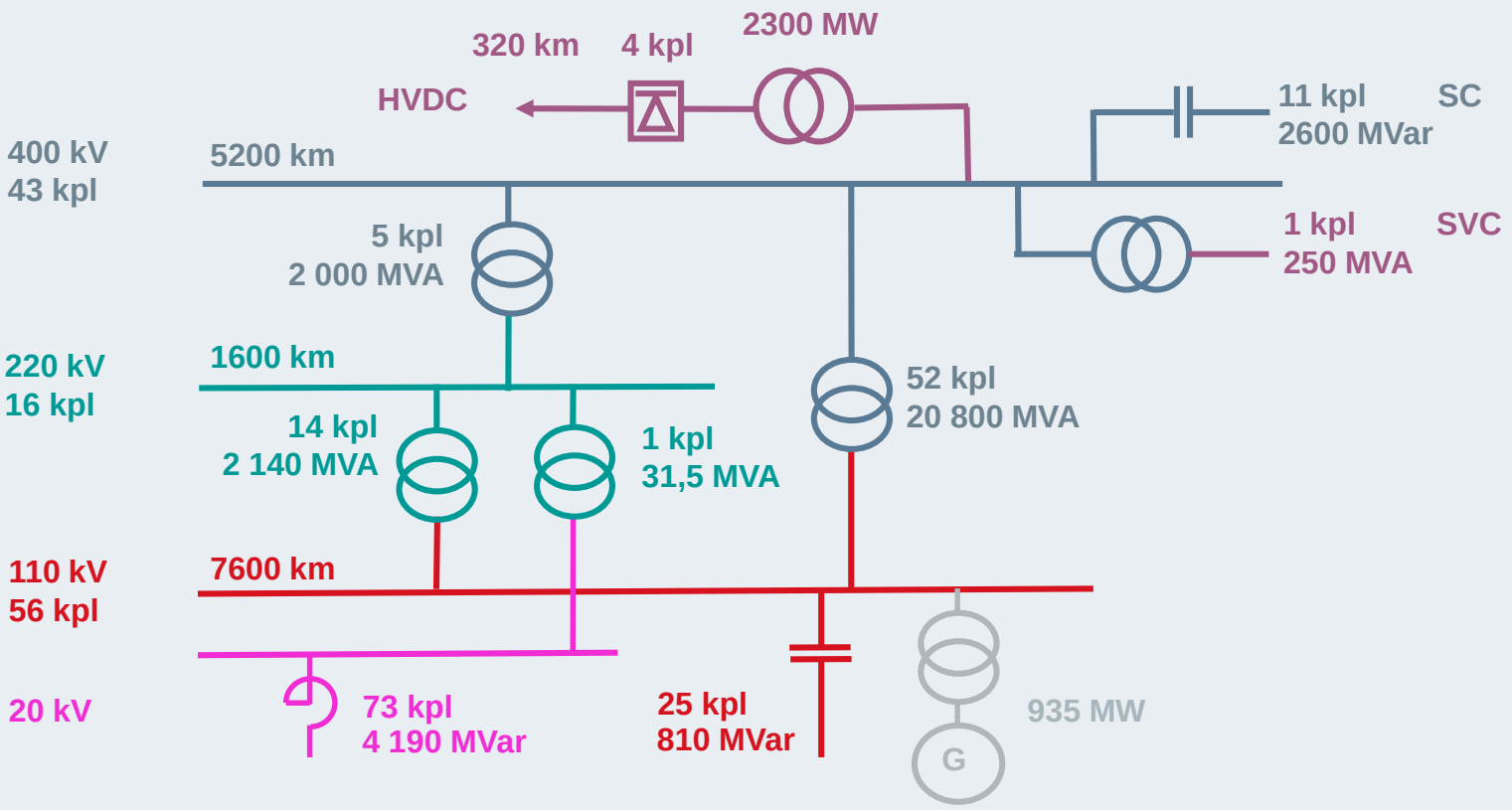
Operations

Description of operations

Fingrid owns and operates the transmission network in Finland

Fingrid transmits in its own network approximately **78 %** of electricity transmitted in Finland

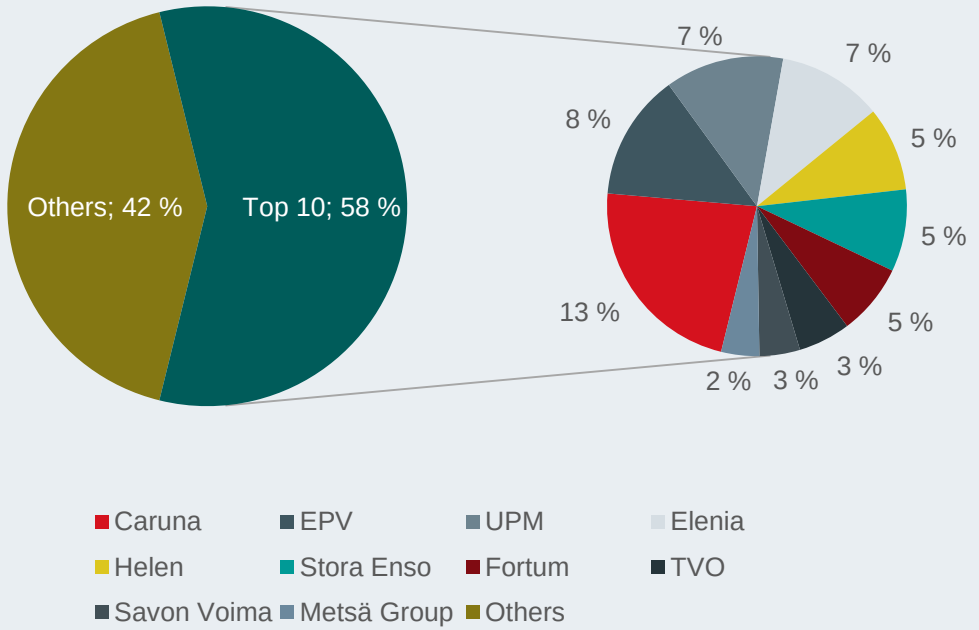
Fingrid is a part of ENTSO-E, European Network of Transmission System Operators for Electricity.



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

Grid service customer base consists of around 150 entities

- Customers comprise mainly of electricity producers, process industry and electricity distribution companies
- Fingrid is obligated to provide its customers a network connection point
- A new grid service agreement with customers was enacted from January 1st, 2016
- Ten largest customers account for 58 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

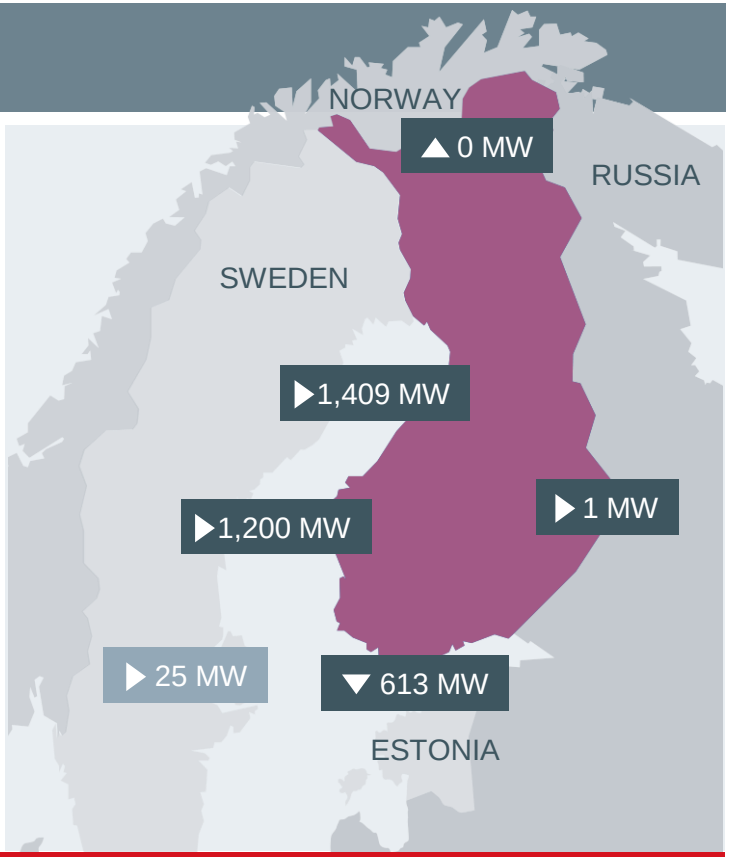
Fingrid procures the needed amount of reserve capacity to maintain the balance of the power system

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**

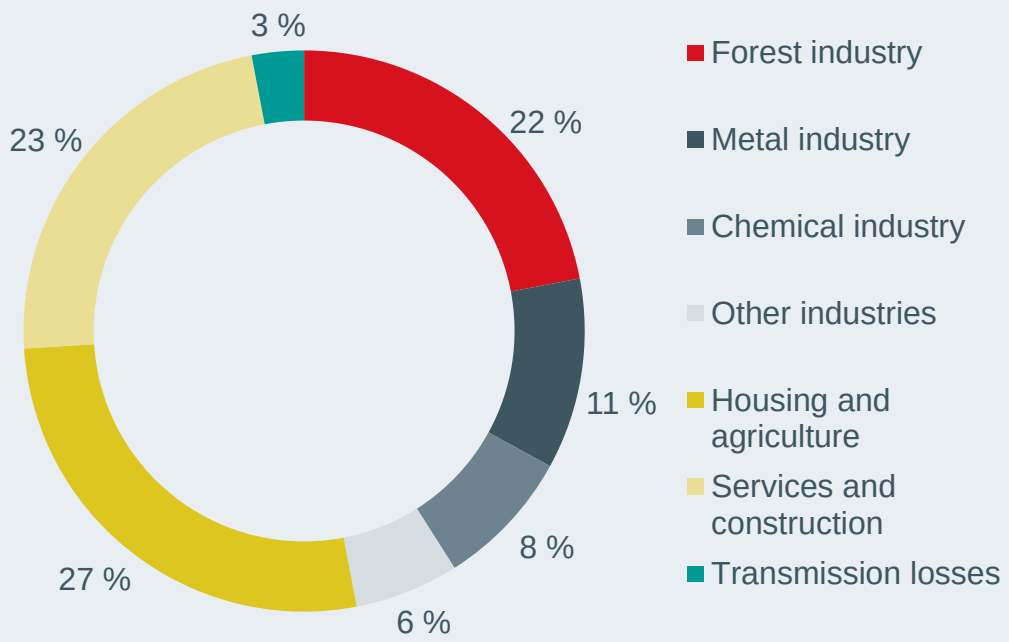


Fingrid procures the needed amount of reserve capacity to maintain the balance of the power system

Electricity consumption in Finland

Fingrid continuously maintains production and consumption balance

Electricity consumption was 85,1 TWh in Finland in 2016. Electricity imports accounted for 19 TWh or 22 % of total consumption



Energy-intensive industry is a major consumer in Finland accounting for 47 % of consumption in 2016

Advanced markets for all time frames

Nasdaq	NORD POOL		FINGRID (Statnett, Svenska Kraftnät, Energinet/DK, eSett)		
Financial market	Physical market (Elspot)	Intra-day market (Elbas)	Regulating power market	Delivery	Imbalance power
			Reserve market		
Trading					
10 years- one day ahead	Auction: Tomorrow	Continuous trading: Tomorrow and present day	Real-time		Past−time
Products					
Futures, DS futures, options Annual, quarterly, monthly and weekly	Hour	Hour	1-60 min		Imbalance settlement

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

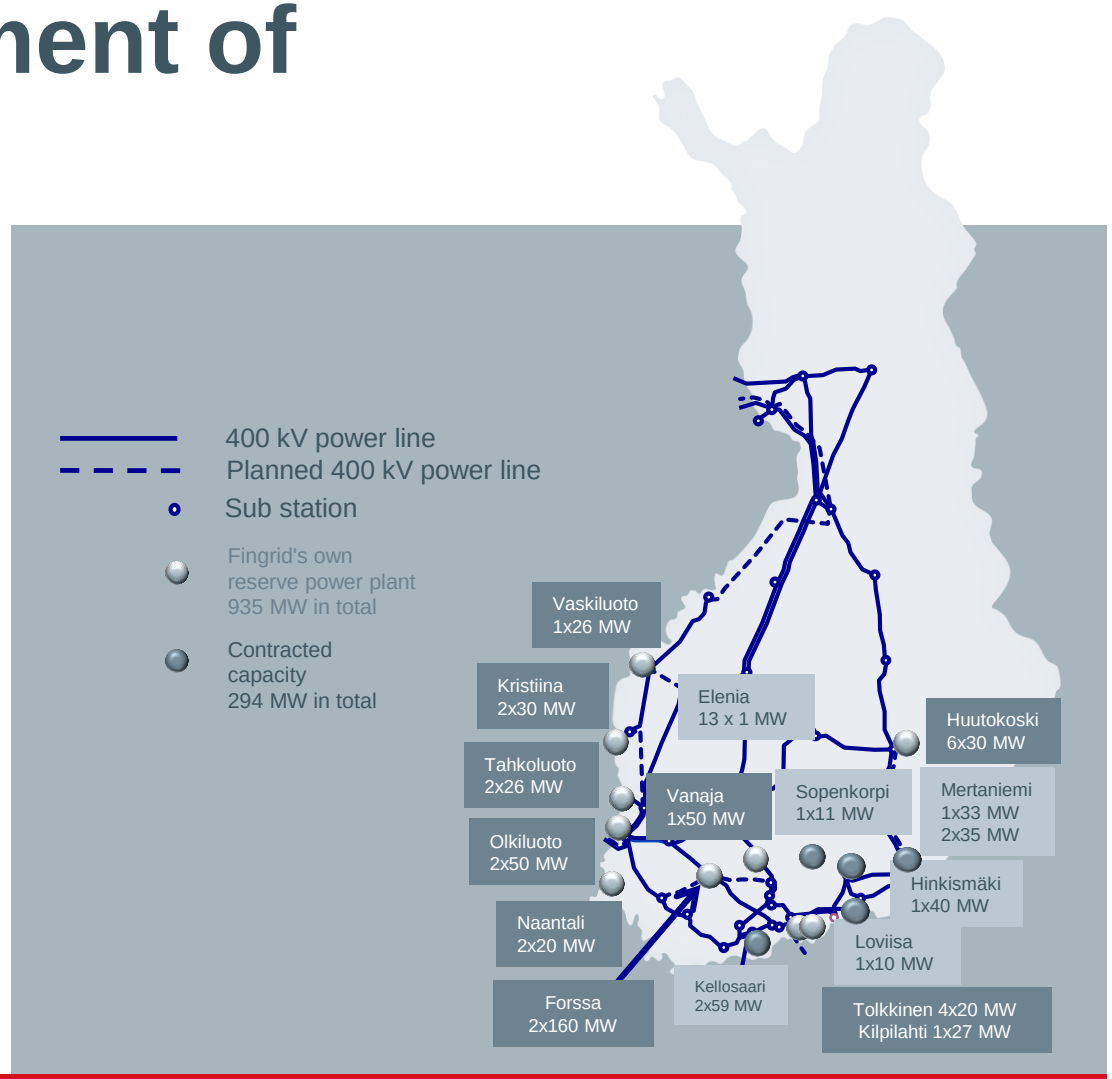
eSett Oy, the joint company of the three Nordic Transmission System Operators (TSOs) Fingrid, Statnett and Svenska kraftnät launched a joint Nordic Balance Settlement service on the first of May 2017.The new company has the objective of providing balance settlement services to participants of electricity 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 935 MW of backup power plants and leases further 295 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

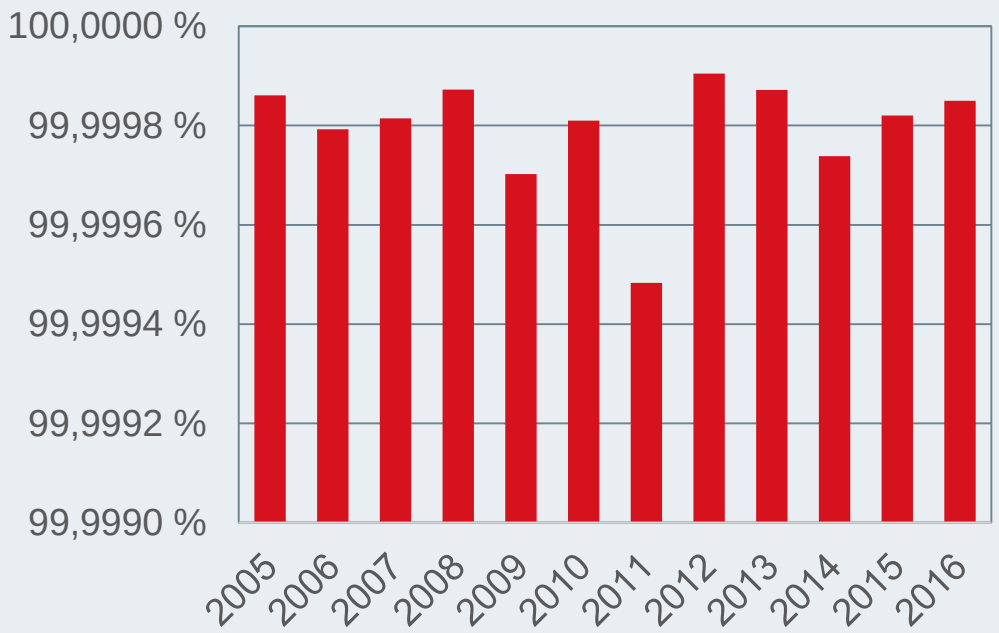


Fingrid's own backup power plants ensure reliable activation of reserves in disturbance situations

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 network construction and maintenance

- Core feature of Fingrid's operating model is outsourcing
- Network construction and maintenance as well as substation and secondary equipment maintenance are outsourced
- Regional maintenance is tendered among external service providers
- Fingrid has around 40 core suppliers, of which 10 account for around 57 percent of total financial value of procurements

Network 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

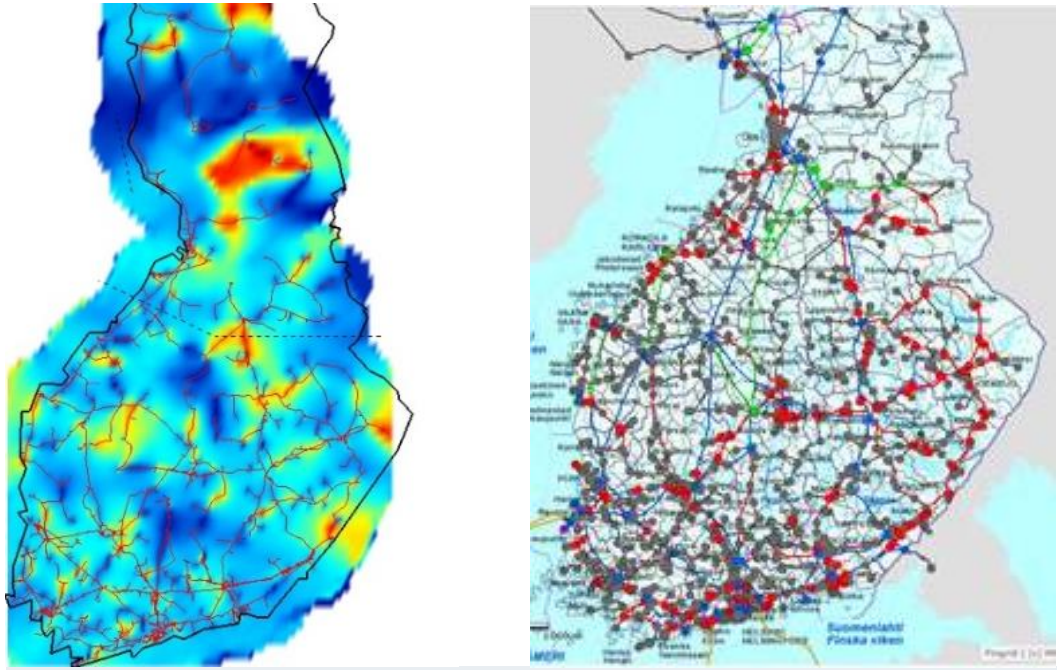
* In accordance with the EU based public procurement legislation for the sector

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 (2016-)

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



New ERP provides real-time network condition on map

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

Fingrid's efficient operations are highly recognized

- Excellent results from international benchmark studies
- Fingrid has continuously ranked among the best TSOs in the International Transmission Operations and Maintenance Study (**ITOMS**)*
- Fingrid ranked the best in the latest International Transmission Asset Management Study (**ITAMS)**
- Fingrid was "exceptionally efficient" in 2013 in a study done for the Council of European Energy Regulators (**CEER**)

Publicly Available Specification (PAS)

PAS 55 is the British Standards Institution's (BSI) Publicly Available Specification for the optimized management of physical assets - it provides clear definitions and a 28-point requirements specification for establishing and verifying a joined-up, optimized and whole-life management system for all types of physical assets. Now internationally recognized, PAS 55 is proving to be an essential, objective definition of what is required to demonstrate competence, establish improvement priorities and make better, clearer connections between strategic organizational plans and the actual day-to-day work and asset realities.

Source: http//:pas55.net

In 2016 Fingrid's asset management again received Publicly Available Specification **PAS 55** certificate.

Fingrid also received new ISO 55001 certification that sets out standards for asset management

* Thirty-one TSOs from around the world participated in the 2015 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 planning to organise a new e3grid study in 2017-2018

E3GRID2012 – European TSO Benchmarking Study
July 2013

Operations

Earnings model

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

Total capital invested in transmission network operations

Regulatory capital (equity and liabilities)

X

Main driver is the risk-free rate, i.e. Finland's 10y government bond yield

WACC

=

Calculated annually, monitored by the EA in four year periods

Allowed return, MEUR

=

Operating profit (Finnish GAAP)

Interest expenses are excluded in the regulatory P&L

Accounting item and regulatory adjustments

Book depreciations adjusted (returned)

Incentives

Investment, quality, efficiency, innovation

Incentives do not have a major impact on regulatory profit on net basis

=

Realized regulatory profit

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 updated by end 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

Calculating the allowed return in euros: WACC x Regulatory capital

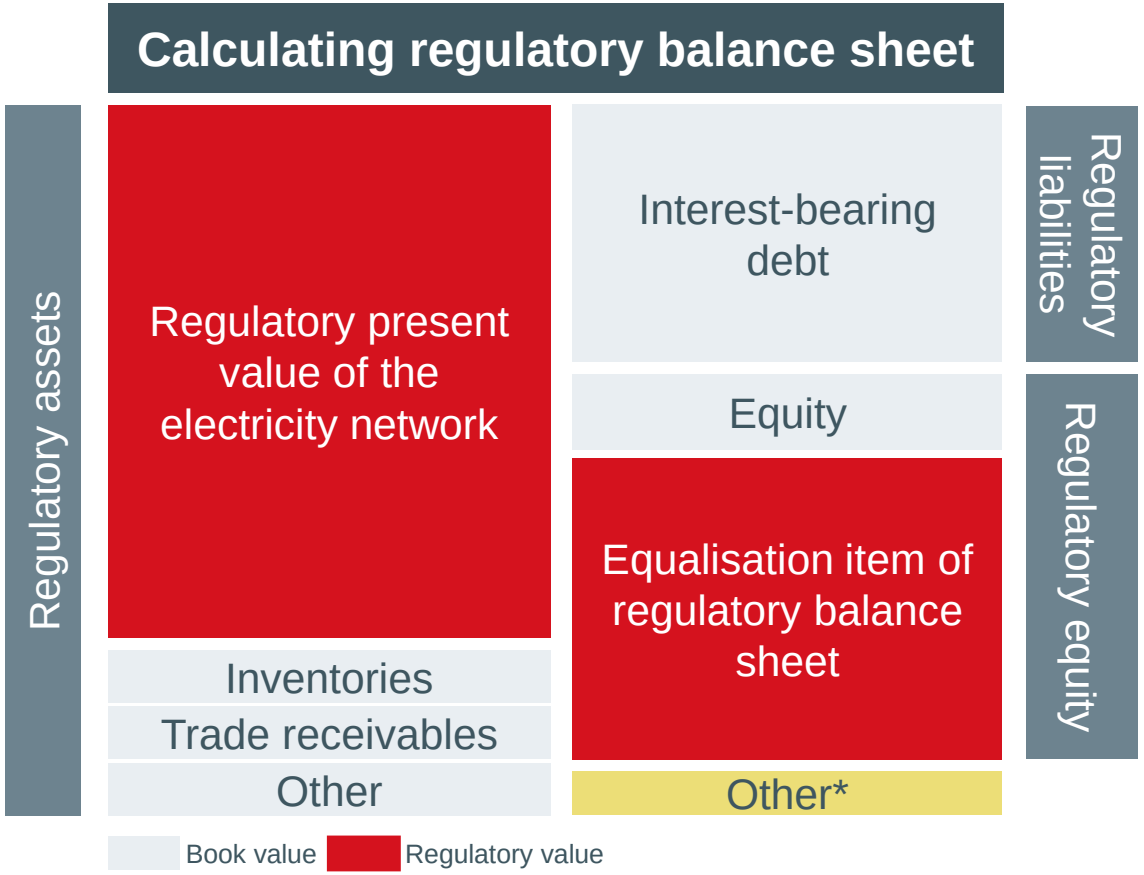
- Reasonable return in euros is calculated as follows:

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

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

$$R_{pre\text{-}tax\ 2016} = 6{,}55\% \times \sim 2{,}950\ M€ = \sim 190\ M€$$

- 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



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

Regulatory assets (RAB) is mainly based on regulatory present value of the electricity network

Parameter	Regulatory model 2016-2023
Present value of the electricity network	Based on the unit prices in the beginning of the regulatory period and component age / maximum age in regulation
Unit prices of components	Prices were updated to repurchase value in 2016 based on the unit prices (5Y historical)
Investments in construction	Investments in construction are included in the RAB.
IT systems treatment	Value in RAB and regulatory depreciation according to book value
Regulatory allowed cash	10 % of regulated turnover

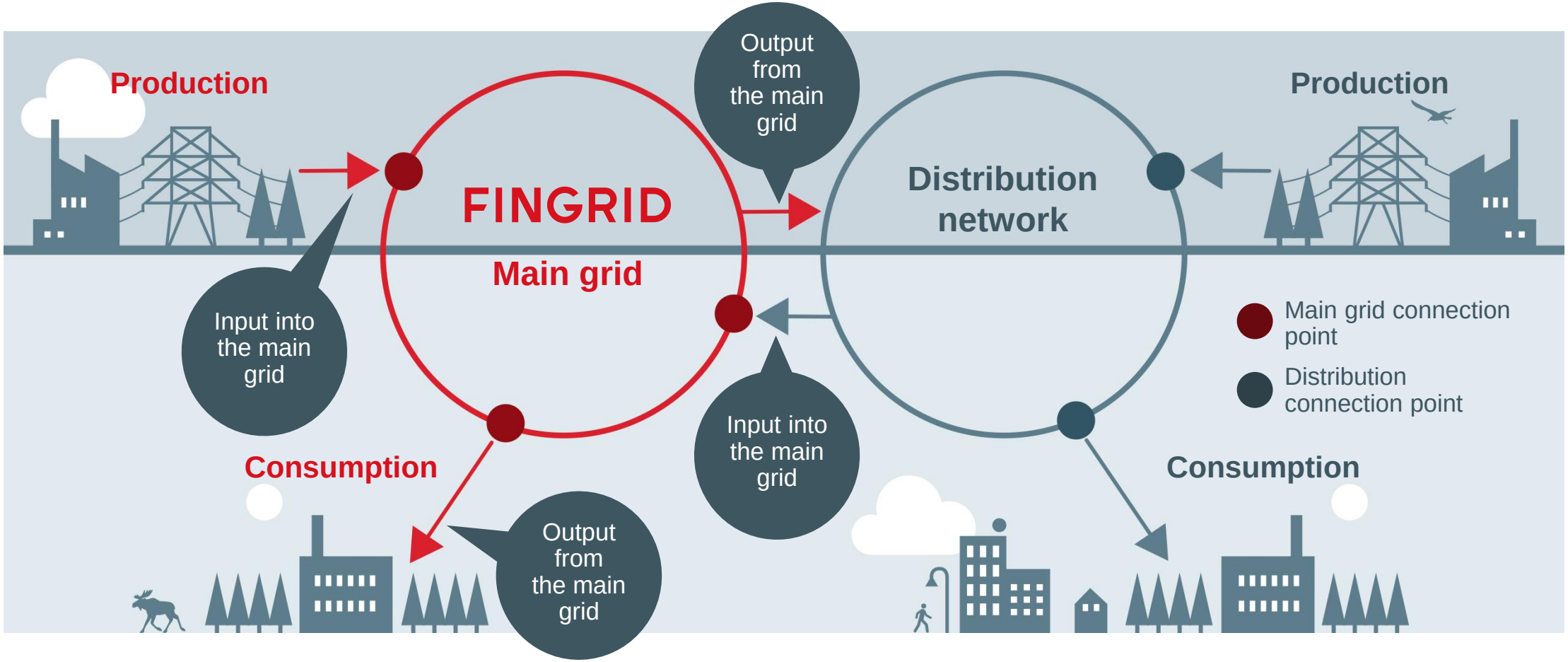
Limited contribution from incentives and adjustments to allowed return

Parameter	Regulatory model 2016-2023
Investment incentive	Investments are practically covered with regulatory depreciation and reasonable return
Quality incentive	Cost of non-delivered electricity for the society 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 % is reimbursed in allowed return
Congestion income	Treated separately from the regulatory allowed return
Component maximum age in regulation	Components are included in depreciation in repurchase value as long as they are utilized
Inflation adjustment to regulatory depreciation	Indexed annually with CPI to match current repurchase value

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	2018
Consumption, winter period*	9,00
Consumption, other times	2,70
Output from the grid	1,09
Input into the grid	0,72
Power plant capacity fee	1950 €/MWh/a
Reactive power fee	666 €/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

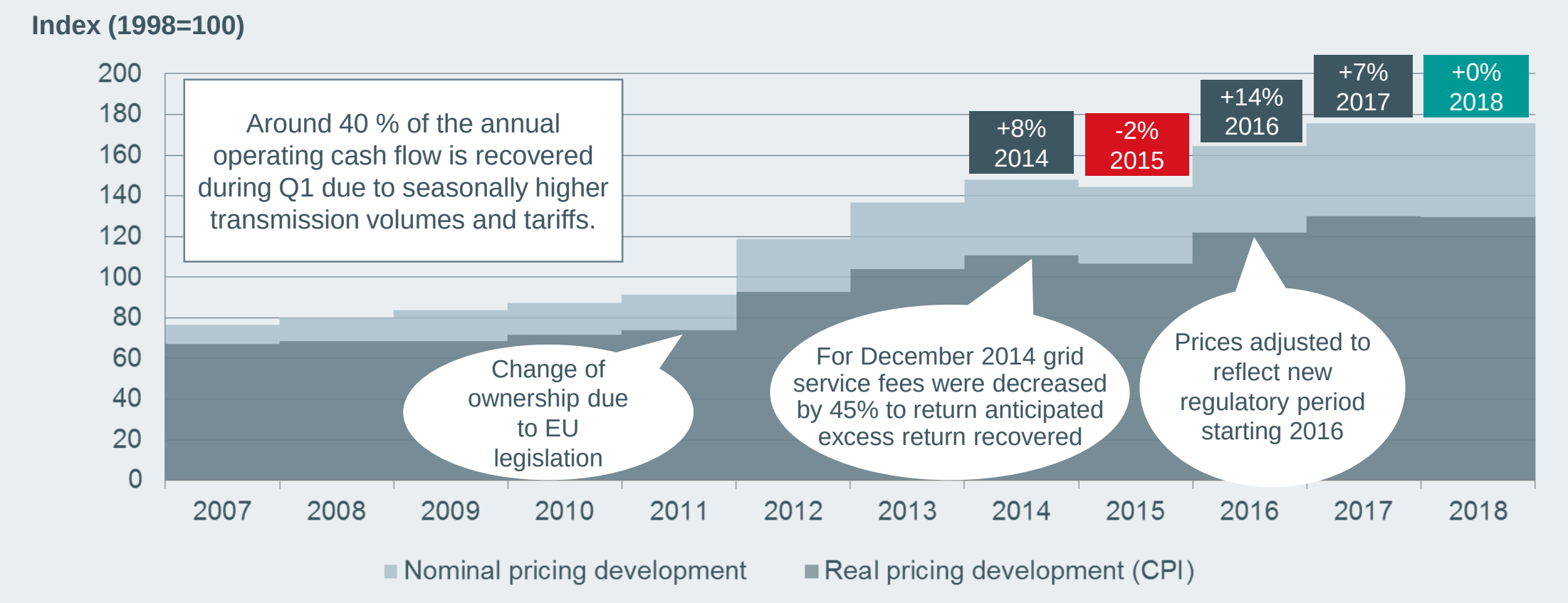
The cost of reserves is recovered in pricing

Balance service pricing	
Frequency containment reserve for disturbances (FCR-D) **10%**	Fast disturbance reserve **10%**
Frequency containment reserve for normal operation (FCR-N) **100%**	Automatic frequency restoration reserve **100%**

Grid service pricing	
Frequency containment reserve for disturbances (FCR-D) **90%**	Fast disturbance reserve **90%**

The cost of reserves is recovered in the income from balancing operations and transmission

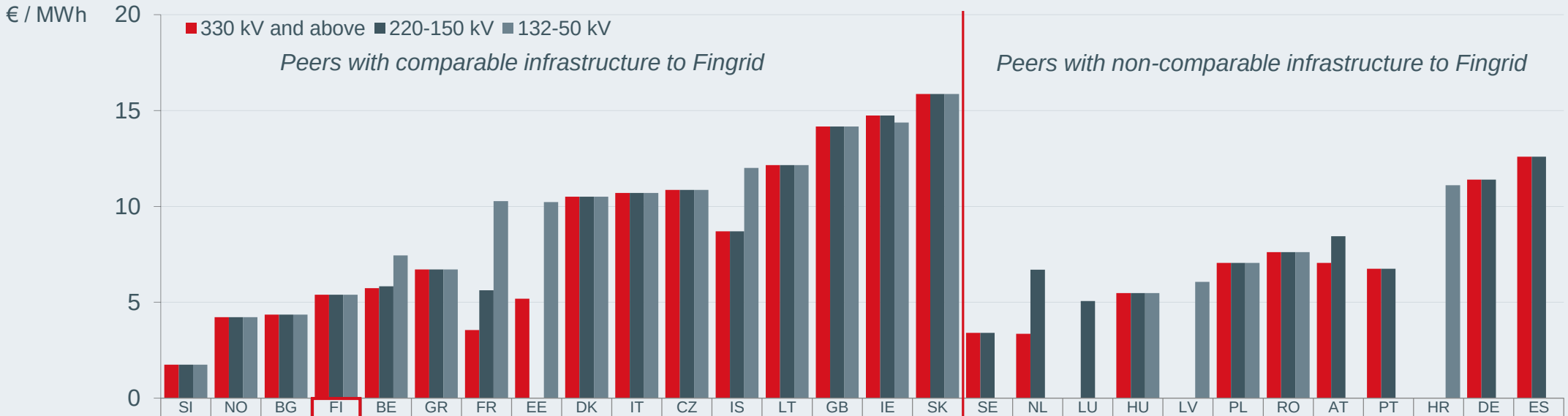
Development of announced grid service pricing in 2007−2018



The current tariff level allows Fingrid to achieve allowed regulatory return

Transmission charges from generation to consumption

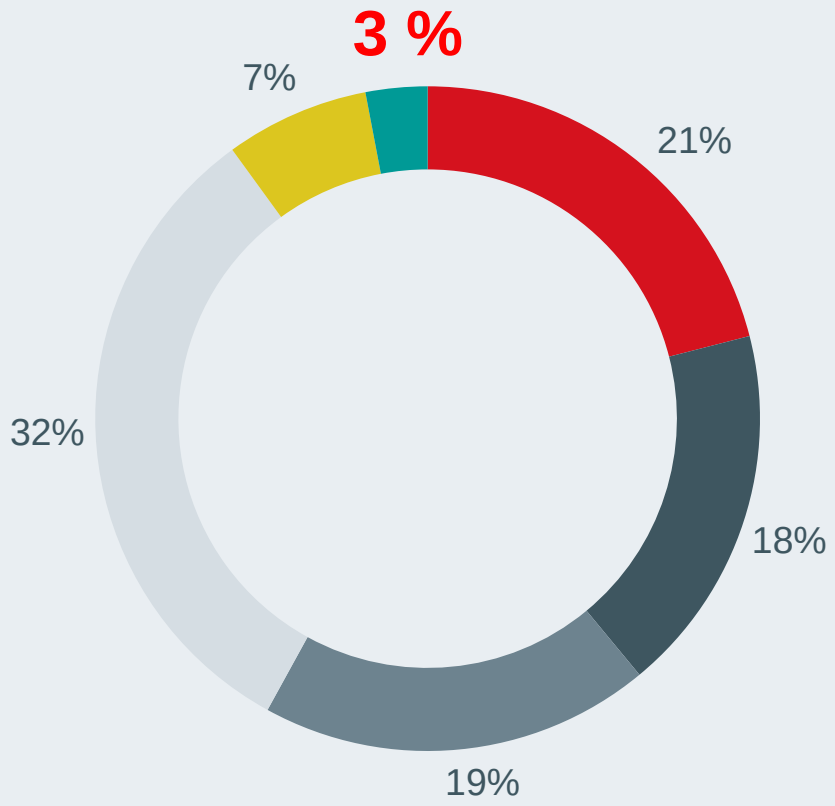
Transmission charges from generation to consumption in Europe 2016 – including EU and ETA countries



	SI	NO	BG	FI	BE	GR	FR	EE	DK	IT	CZ	IS	LT	GB	IE	SK	SE	NL	LU	HU	LV	PL	RO	AT	PT	HR	DE	ES
330 kV and above	1,7	4,2	4,3	5,3	5,7	6,7	3,5	5,1	10,	10,	10,	8,7	12,	14,	14,	15,	3,4	3,3	-	5,4	-	7,0	7,6	7,0	6,7	-	11,	12,
220-150 kV	1,7	4,2	4,3	5,3	5,8	6,7	5,6	-	10,	10,	10,	8,7	12,	14,	14,	15,	3,4	6,7	5,0	5,4	-	7,0	7,6	8,4	6,7	-	11,	12,
132-50 kV	1,7	4,2	4,3	5,3	7,4	6,7	10,	10,	10,	10,	10,	12,	12,	14,	14,	15,	-	-	-	5,4	6,0	7,0	7,6	-	-	11,	-	-

Fingrid's effectiveness and efficiency enable low charges

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: 2.2.2016, consumption 18 000 kWh/year, electricity total price 12,61 cent/kWh

Fingrid's share of consumer price is approximately three percent

Operations

Capex

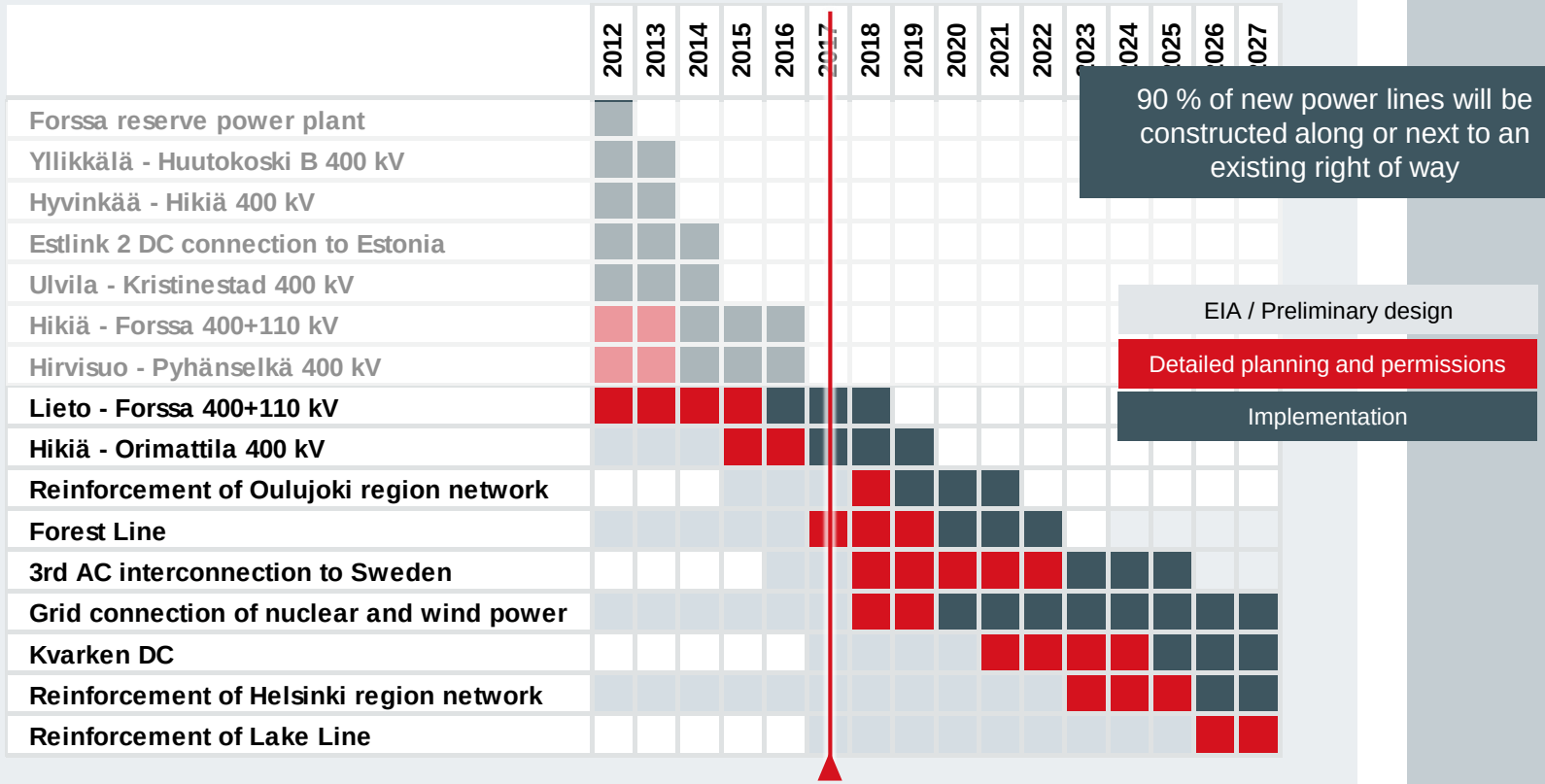
Investments are based on 5-25 year grid development plans

- 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 as Fingrid applies EIA before the investment decision

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

Flexible and long-term investment strategy

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

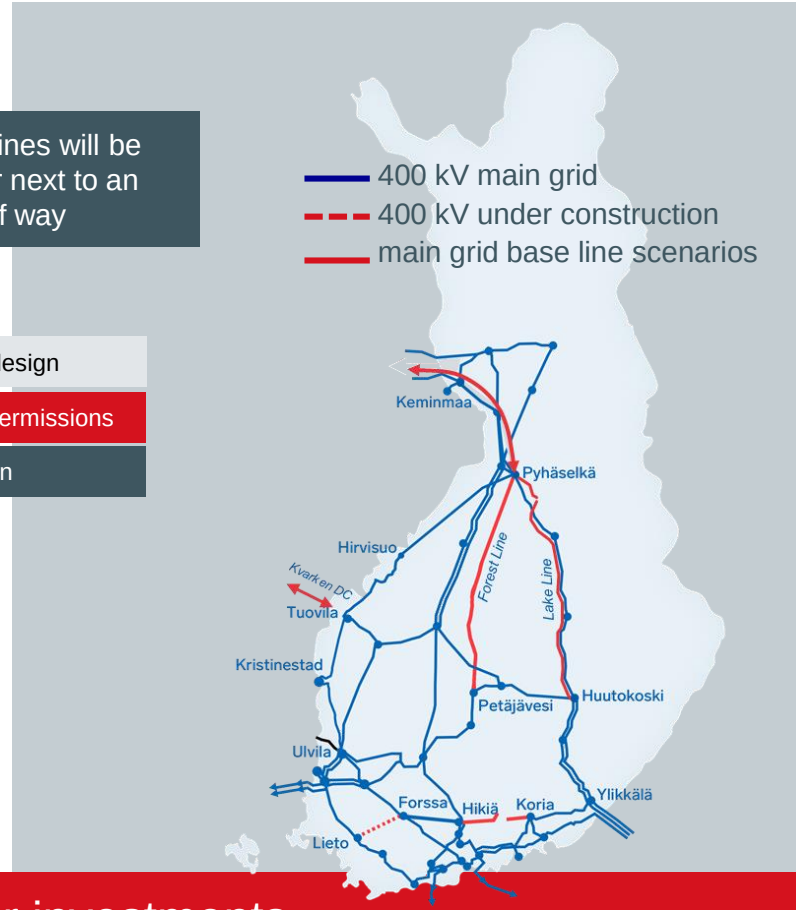


90 % of new power lines will be constructed along or next to an existing right of way

EIA / Preliminary design

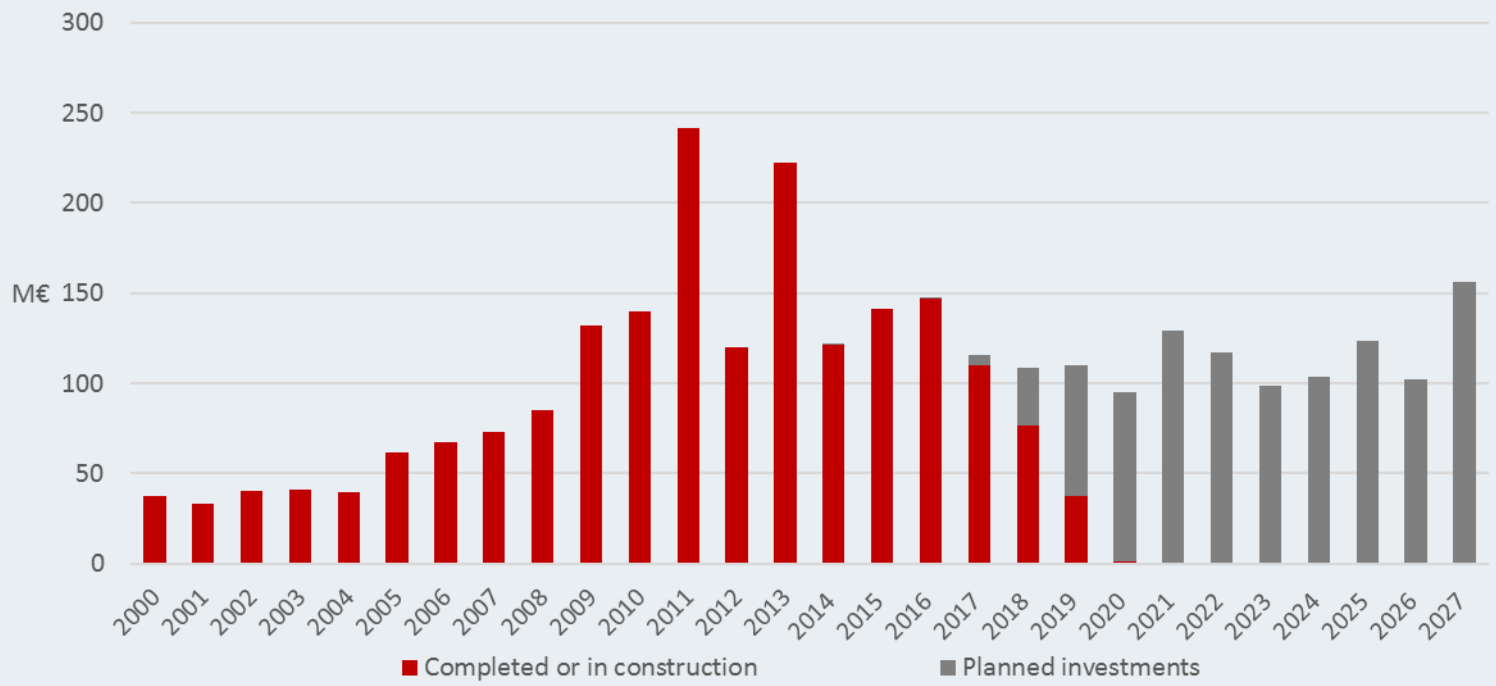
Detailed planning and permissions

Implementation

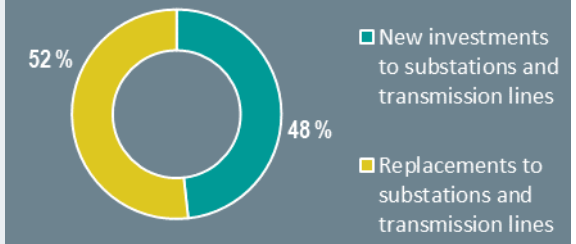


Fingrid has a long-term planning horizon for investments

Investments in 2000–2027



Investments in 2018-2027 MEUR 1150



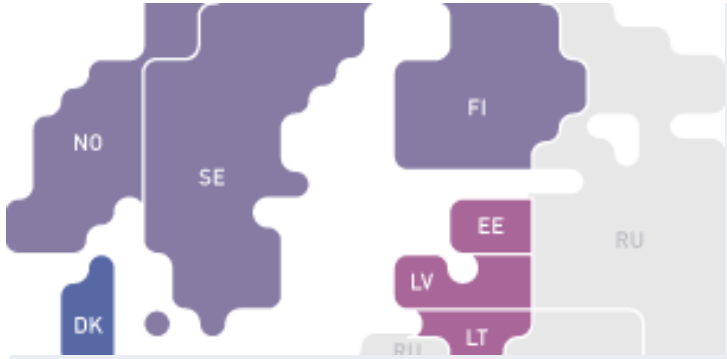
Investments are driven by network aging, market development and connecting new production capacity

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 double by 2020
- Stronger connection between the Nordic region, Baltic states and Poland

Finland

- Energy and climate strategy: climate goals achieved via nuclear and renewables
- Share of price elastic generation decreases
- Modest growth in electricity demand
- Role of cross-border connections increases

Towards a highly developed electricity market in Europe

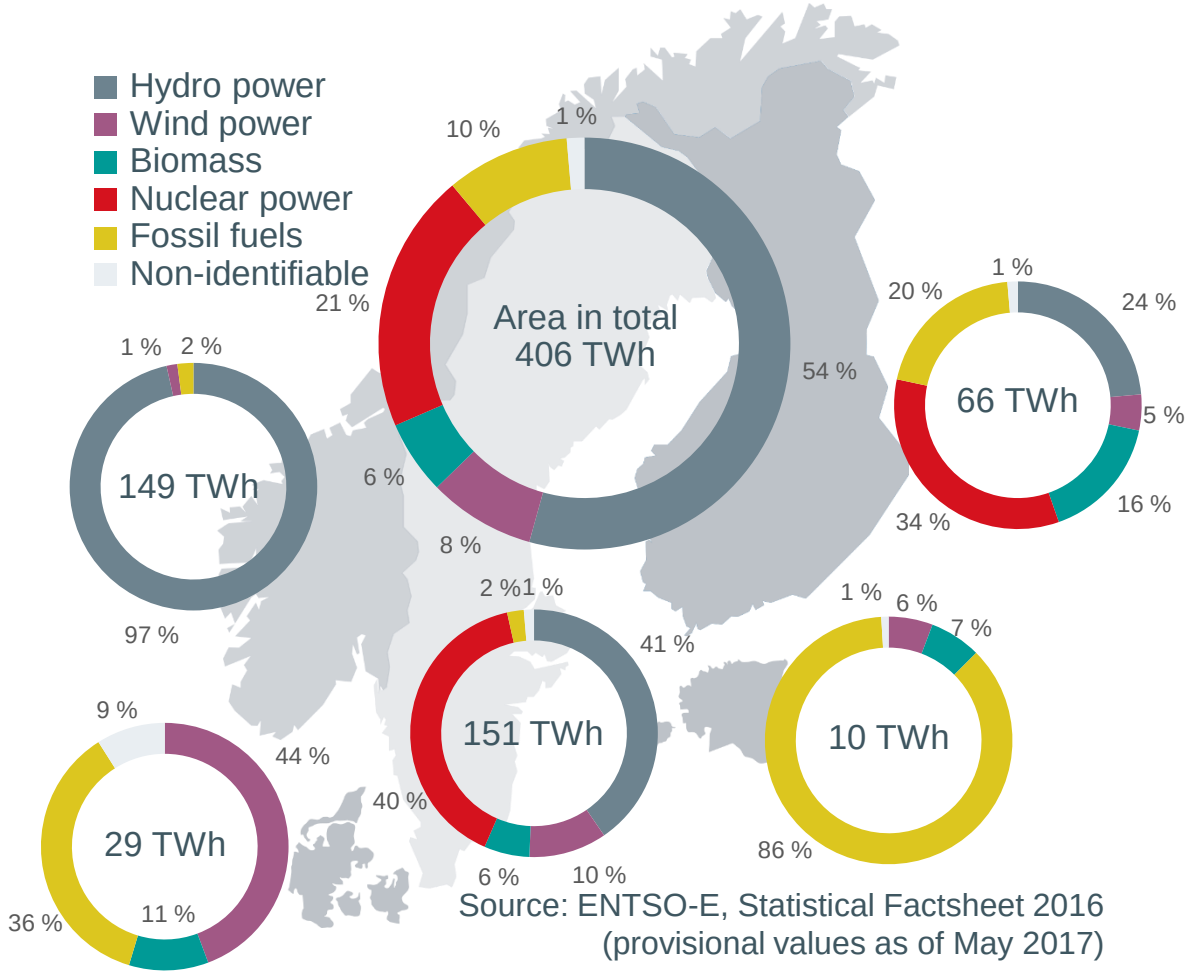
- Improving efficiency and competitiveness of the power sector
  - efficient market price
  - cross-border trade
  - efficient dispatching via "the invisible hand" of the markets
- Delivering benefits for end-users and trust to market players
- Contributing to the security of supply
- Reaching the 20-20-20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

Market coupling

Electricity market from Helsinki to Lisbon in 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
- Coal is the main fossil fuel used in Nordic countries
- Renewable power generation consist of hydro power, biomass fired cogeneration and wind power

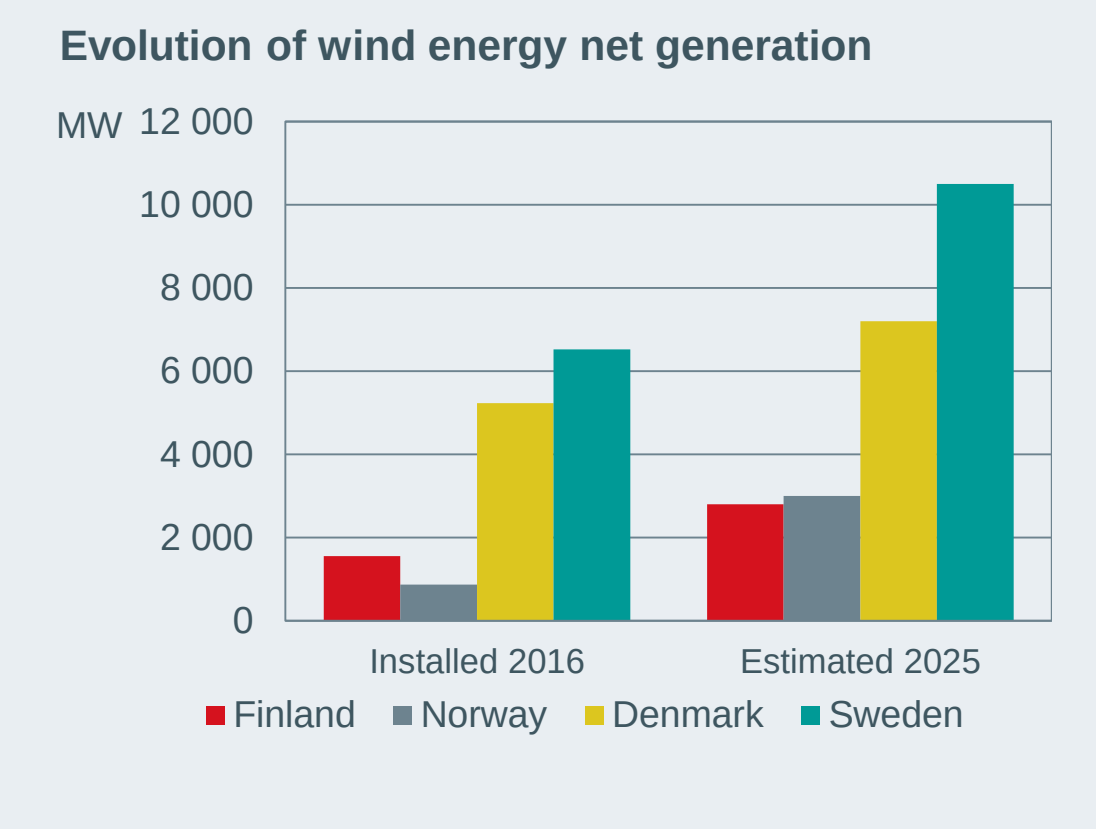


Source: ENTSO-E, Statistical Factsheet 2016 (provisional values as of May 2017)

Nordic electricity price is driven by hydrological conditions in Scandinavia

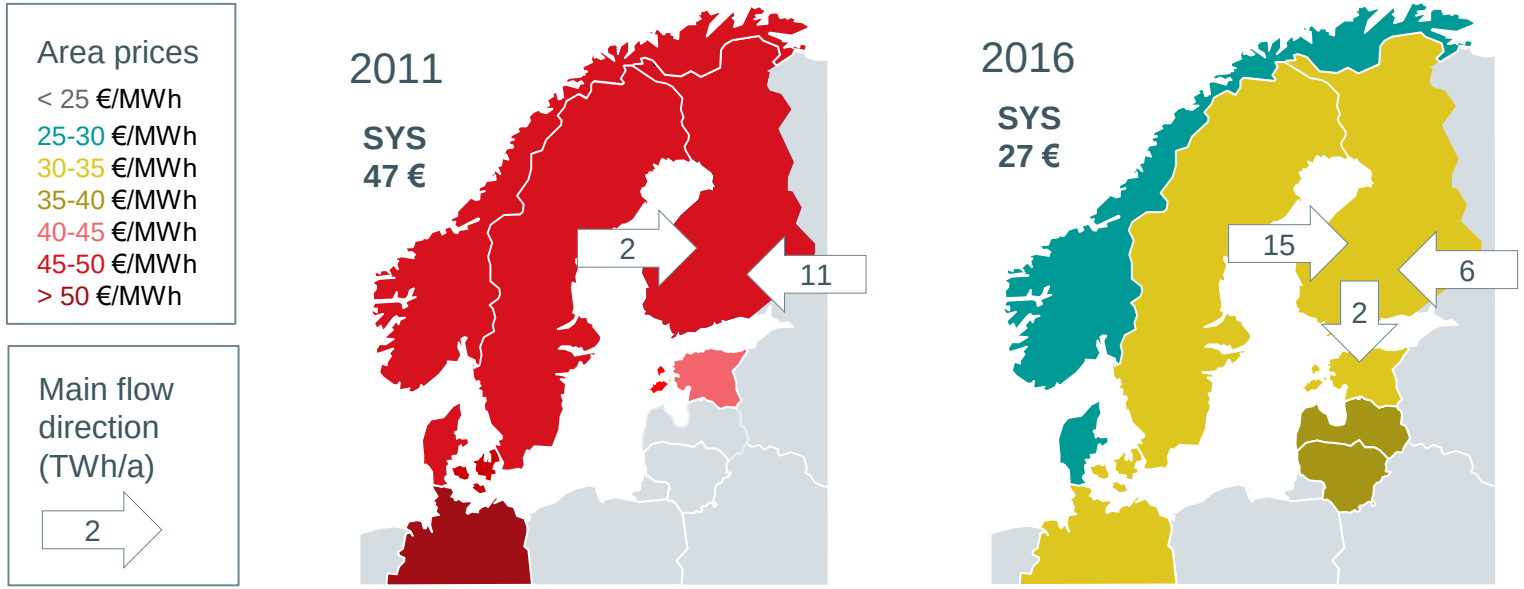
New wind power capacity is supported with feed in tariff in Finland

- A feed in tariff for 2500 MW of new capacity came into force in 2011
- The feed in tariff was EUR 105,3/MWh until the end of 2015 and EUR 83,5/MWh going forward
- New technology neutral subsidy scheme for renewable electricity was presented in national energy and climate strategy in 2016
- Most of the planned new onshore wind power projects (~10GW in total) are located along the west coast where Fingrid is already making significant network investments



Fingrid is prepared to accommodate 2500 MW of new wind power capacity by 2020

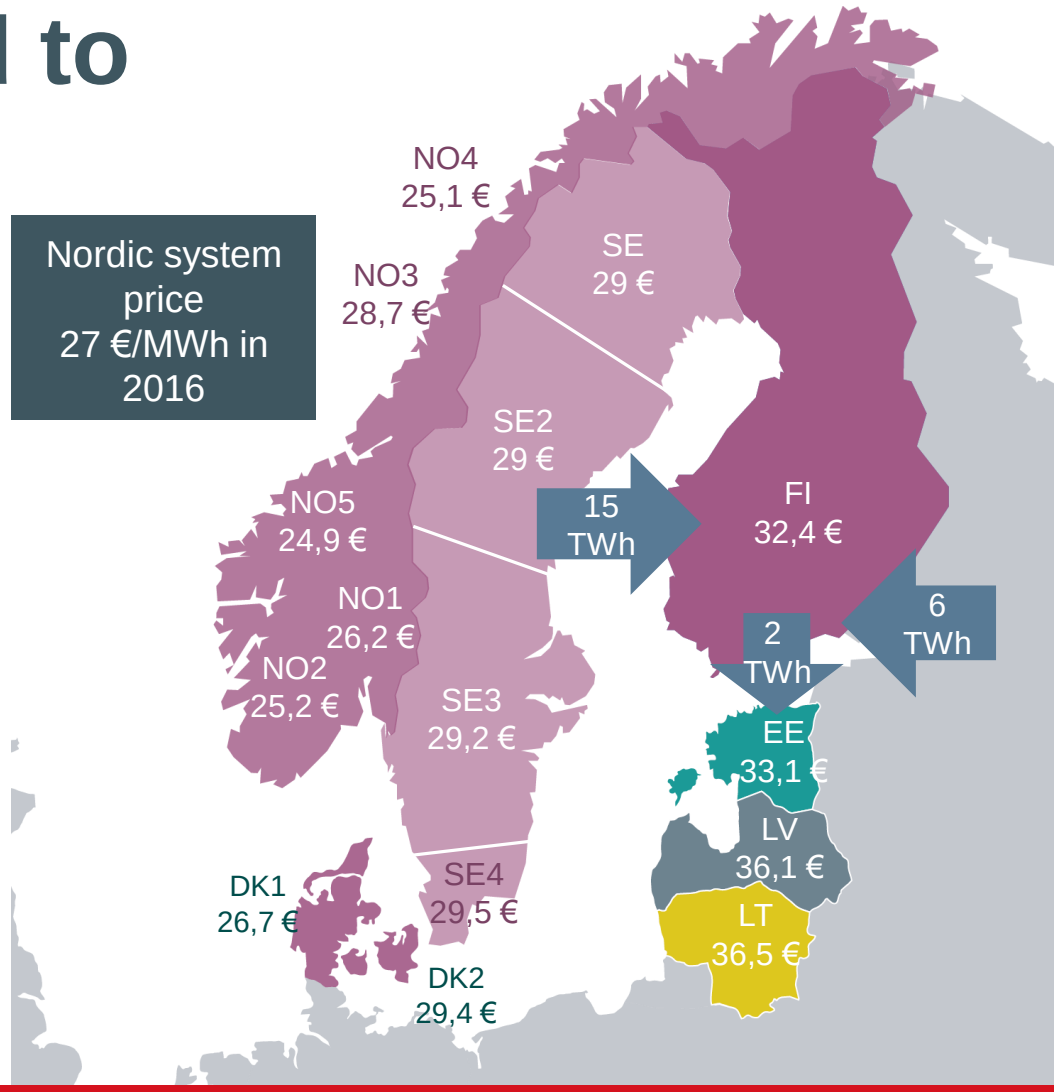
Nordic electricity spot prices still at a low level



- Subsidised wind power generation has pushed the wholesale price to an artificially low level
  - Producers have cut their capacity in response to low profitability
- Electricity consumption in Finland has started to slightly increase after large drop caused by the financial crisis
- Olkiluoto 3 nuclear power plant trial runs are expected to start in 2018. Olkiluoto 3 will increase Finnish production capacity roughly by 15%

Finland is well-connected to Baltic Sea power market

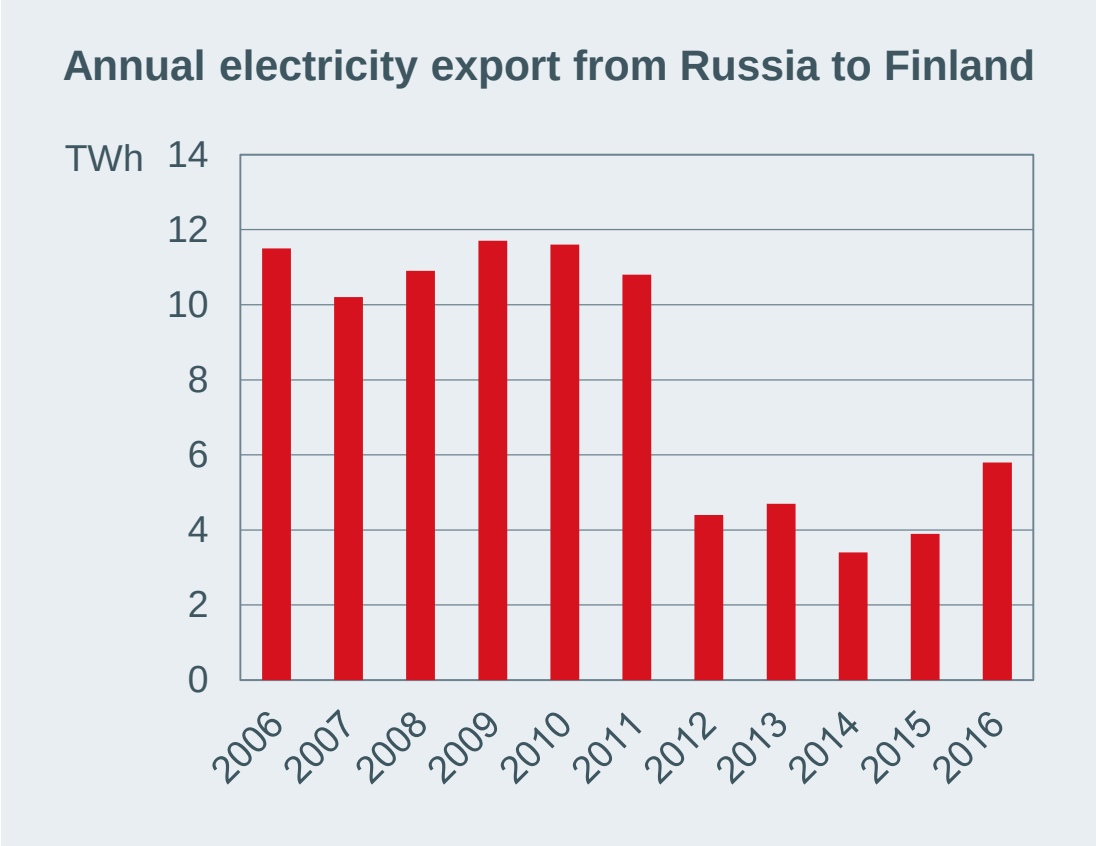
- Finland is a net importer of electricity mainly from Scandinavia
- Finland is expected to remain as a net importer of electricity mainly because of the delay of 1600 MW green field nuclear power plant project (OL3)
- If cross-border transmission capacity is constrained, the Finnish area price diverges from the Nordic electricity price



Finland is a net importer of electricity mainly from Scandinavia

Cross-border transmission between Finland and Russia

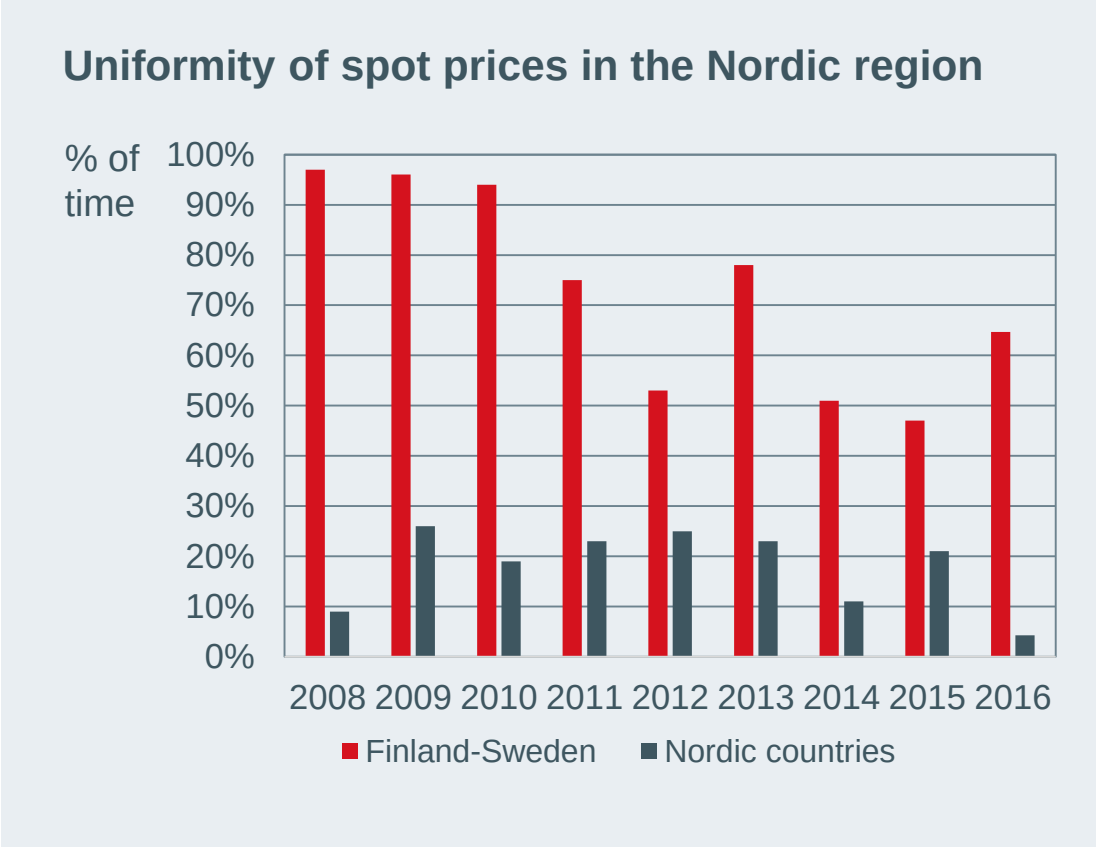
- Imports from Russia are currently low
  - Russia now has capacity payment of around 30-40€/MWh on exports to Finland
  - Rising power generation costs in Russia
- Towards more efficient trade
  - Increased cooperation between power exchanges
  - Two-way transmission with Russia possible since December 2014
  - Common rules between EU and Russia
  - Fingrid's new dynamic pricing model
- First commercial exports to Russia in 2015
  - Very small volumes



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

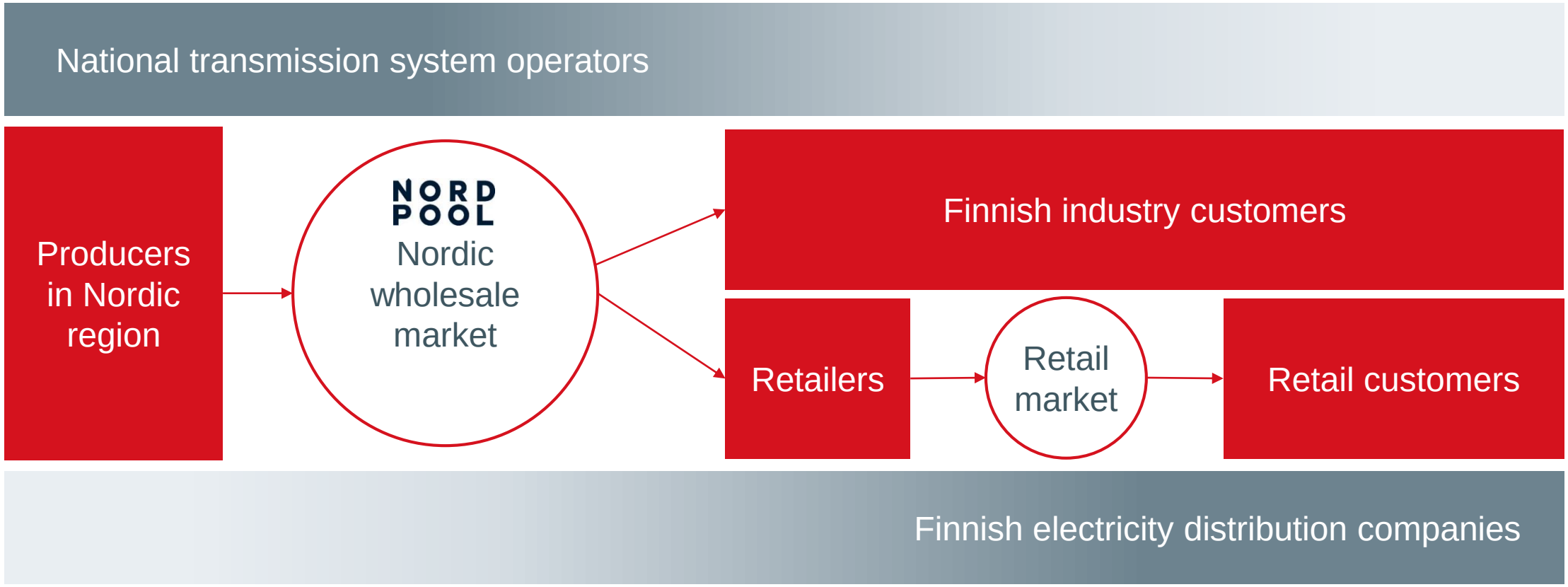
- In 2016 a single price area between Finland and Sweden existed 65 percent of the time and 4 percent of the time between all the Nordic countries
- This was caused by very good hydrological situation in Sweden and Norway that decreased the Swedish area price even further



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

Congestion income is used for developing further cross-border transmission capacity

Market structure and business areas in the Baltic Sea area

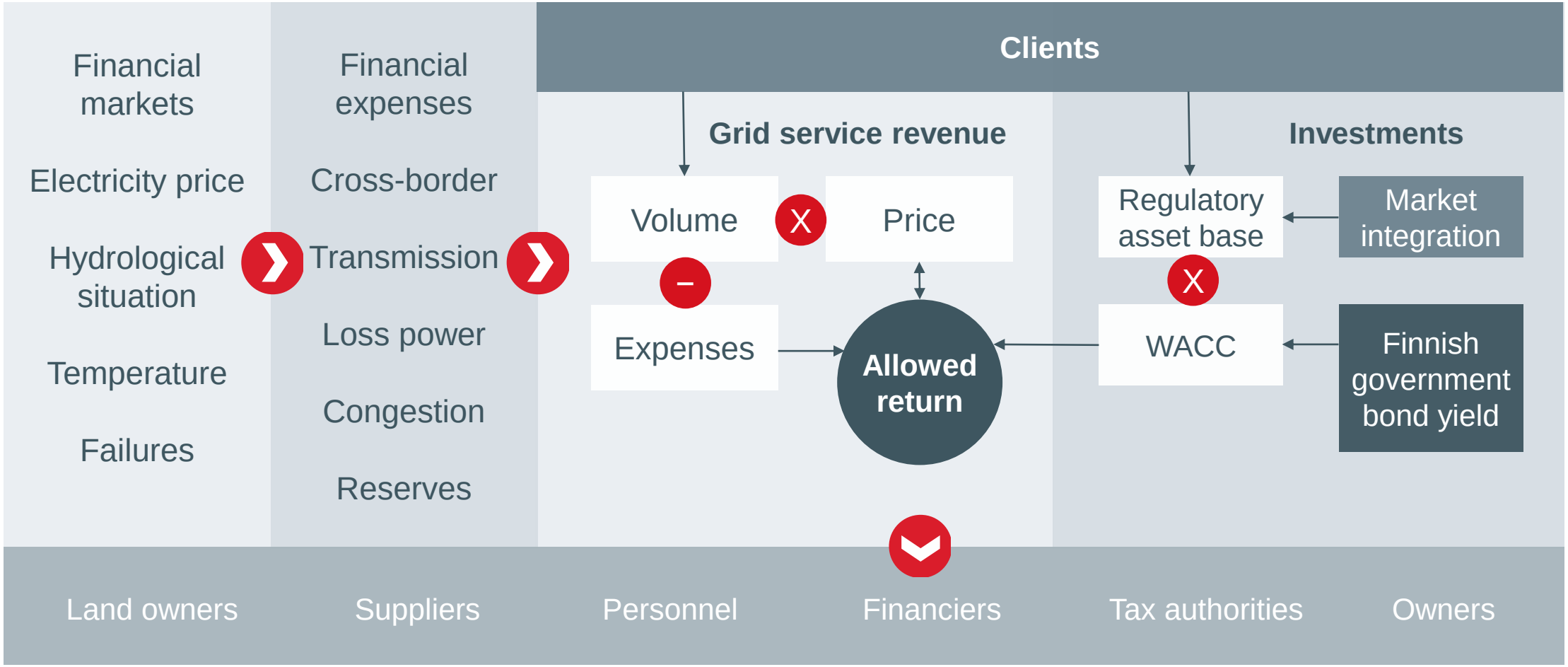


Power generation is unregulated whereas transmission and distribution are regulated by national authorities

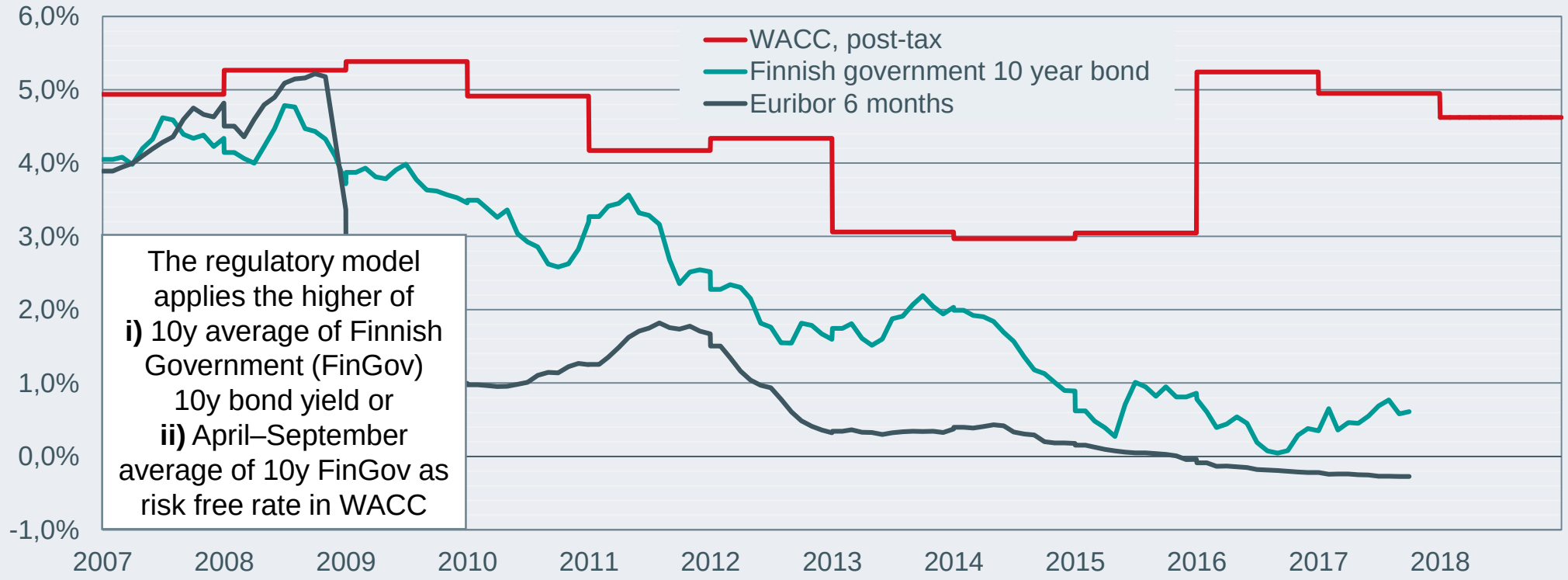
Financials

Financial performance

Main economic drivers of transmission network operations



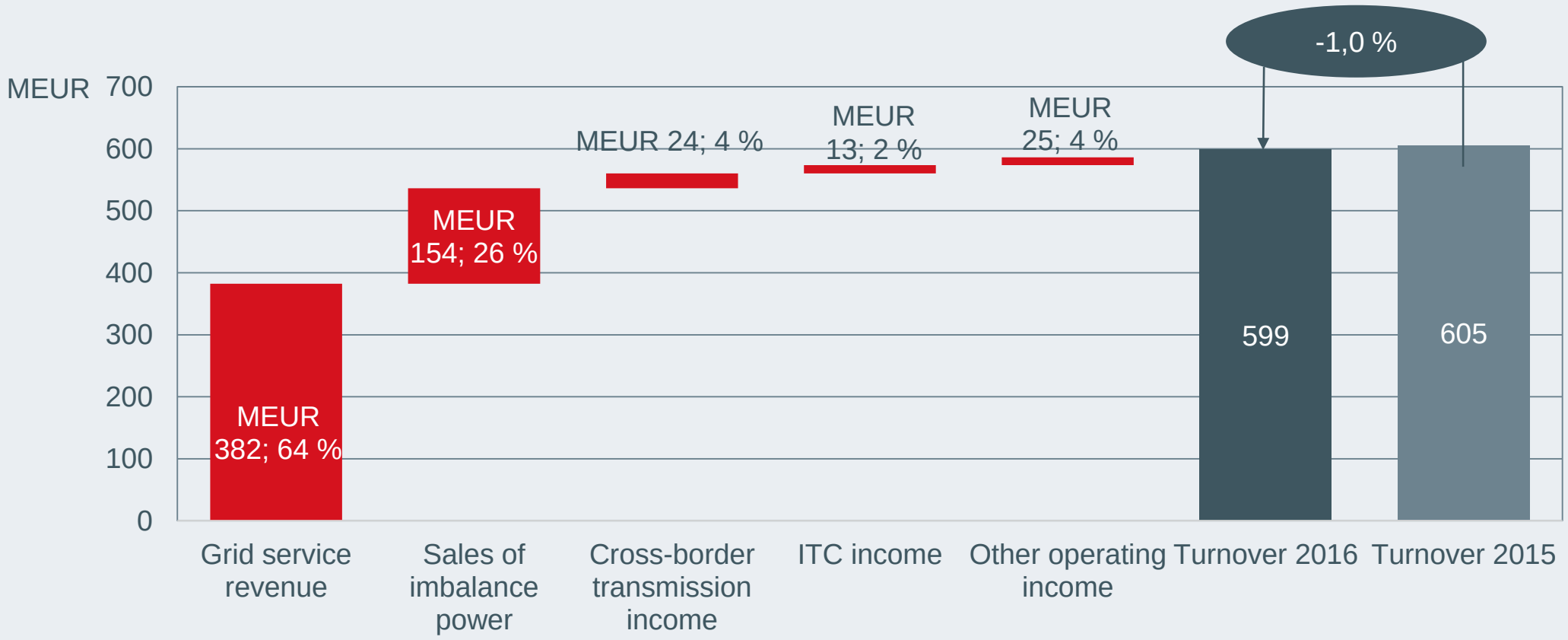
The current regulatory model benefits from relatively stable WACC* without capping upside



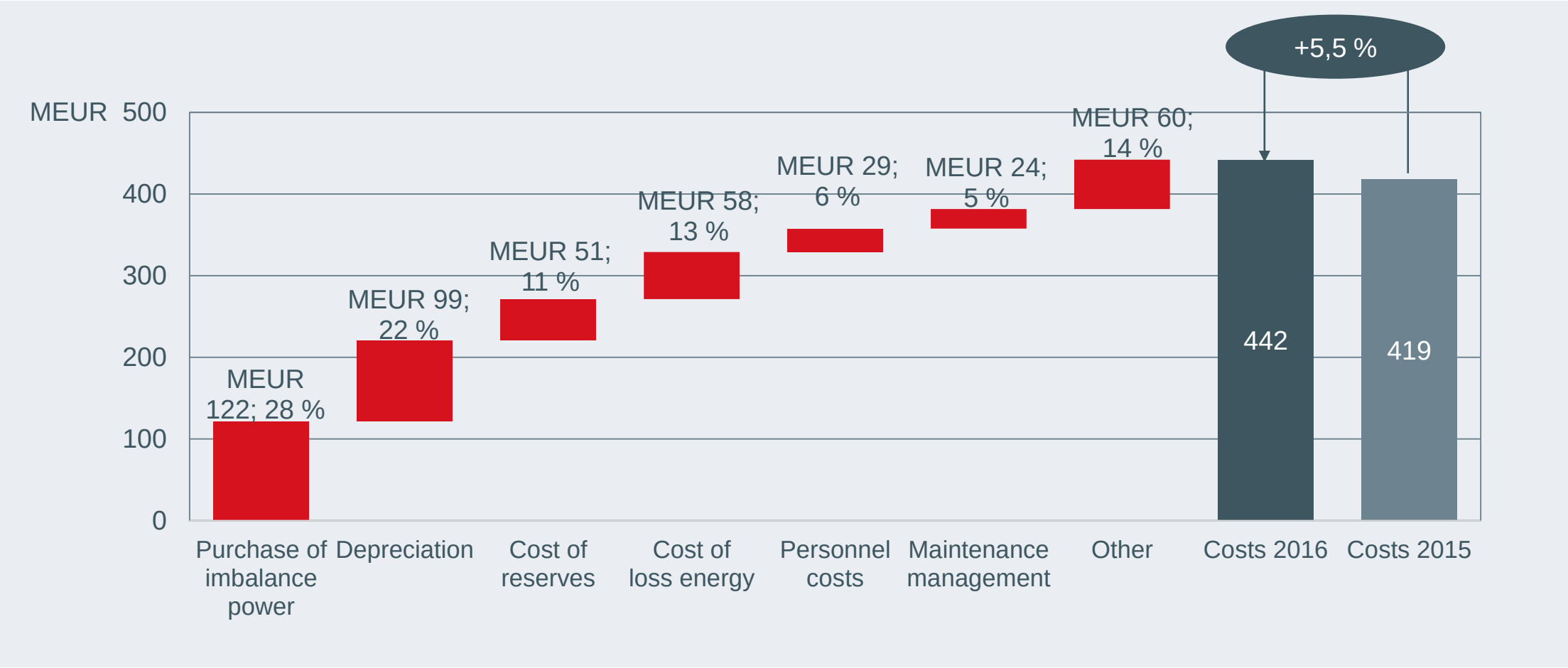
* Illustrative regulatory WACC 2007 – 2015 calculated as post-tax basis. From 2016 regulatory model applies pre-tax WACC.

Pre-tax WACC for 2018 calendar year is 5,78% (6,19% in 2017)

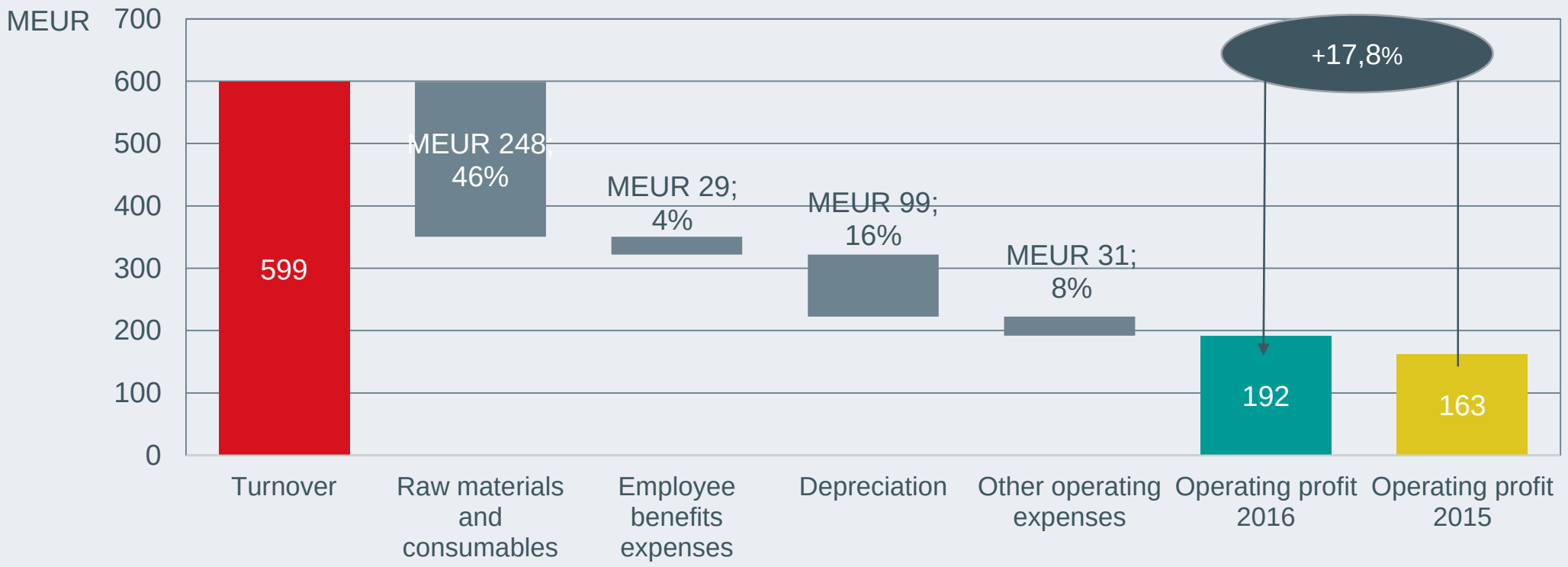
IFRS Turnover breakdown in 2016



IFRS Cost breakdown 2016



IFRS Operating profit in 2016



Fingrid Oyj consolidated profit and loss (IFRS)

- Turnover has increased because of pricing increases and congestion income 2012-2016
- 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 – 2016 in MEUR					
	2016	2015	2014	2013	2012
TURNOVER	**599**	**605**	**572**	**547**	**526**
Raw materials and consumables used	-248	-241	-264	-270	-267
Employee benefits expenses	-29	-26	-25	-23	-22
Depreciation	-99	-94	-92	-82	-76
Other operating expenses	-30	-82	-48	-58	-66
OPERATING PROFIT (EBIT)	**192**	**163**	**143**	**115**	**95**
EBIT-%	*32 %*	*27 %*	*25 %*	*21 %*	*18 %*
Finance income and costs	-19	-34	-11	-29	-7
PROFIT BEFORE TAXES	**174**	**129**	**133**	**87**	**88**
Income taxes	-35	-26	-26	3	-21
PROFIT FOR THE PERIOD	**139**	**104**	**106**	**91**	**67**
Other comprehensive income *	6	5	0	-5	6
TOTAL COMPREHENSIVE INCOME	**145**	**109**	**106**	**86**	**73**

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

Strong improvement in the operating profit both in absolute and percentage terms since 2012

Fingrid Oyj consolidated assets (IFRS)

- Tangible asset increase in 2012-2016 driven by investments in grid assets
- Tangible assets were on average 80 % of total assets
- Current assets on average 12 % of total assets

IFRS assets 2012 – 2016 in MEUR					
	2016	2015	2014	2013	2012
Intangible assets	184	183	183	181	179
Tangible assets	1 690	1 677	1 640	1 623	1 485
Investments (associated companies and available for sale)	10	10	11	11	9
Receivables	40	51	55	60	103
NON-CURRENT ASSETS	**1 925**	**1 922**	**1 889**	**1 875**	**1 776**
Inventories	12	13	13	11	10
Derivative instruments	3	3	11	2	4
Trade receivables and other receivables	82	70	57	76	88
Financial assets recognised in income statement at fair value	58	93	116	195	207
Cash and cash equivalents	22	23	63	22	6
CURRENT ASSETS	**177**	**203**	**261**	**307**	**316**
TOTAL ASSETS	**2 102**	**2 124**	**2 151**	**2 182**	**2 092**

Tangible asset increase is driven by a defined long-term investment plan

Fingrid Oyj consolidated liabilities (IFRS)

- Growth in equity has resulted from low dividend payments in 2012-2016
- Current liabilities on average total 17 % of total equity and liabilities
- Borrowings (current and non-current) totalled on average 56 % of total equity and liabilities
- Trade payables on average 21 % of current liabilities

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

Balance sheet has remained stable in 2012-2016

Fingrid Oyj consolidated cash flow (IFRS)

- Strong and improving operating cash flow 2012-2016
- Cash and cash equivalents were reduced in 2016 to achieve more appropriate capital structure

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

Operating cash flow has been mainly utilized to finance investments in 2012-2016

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 2021 with one-year extension option
- 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

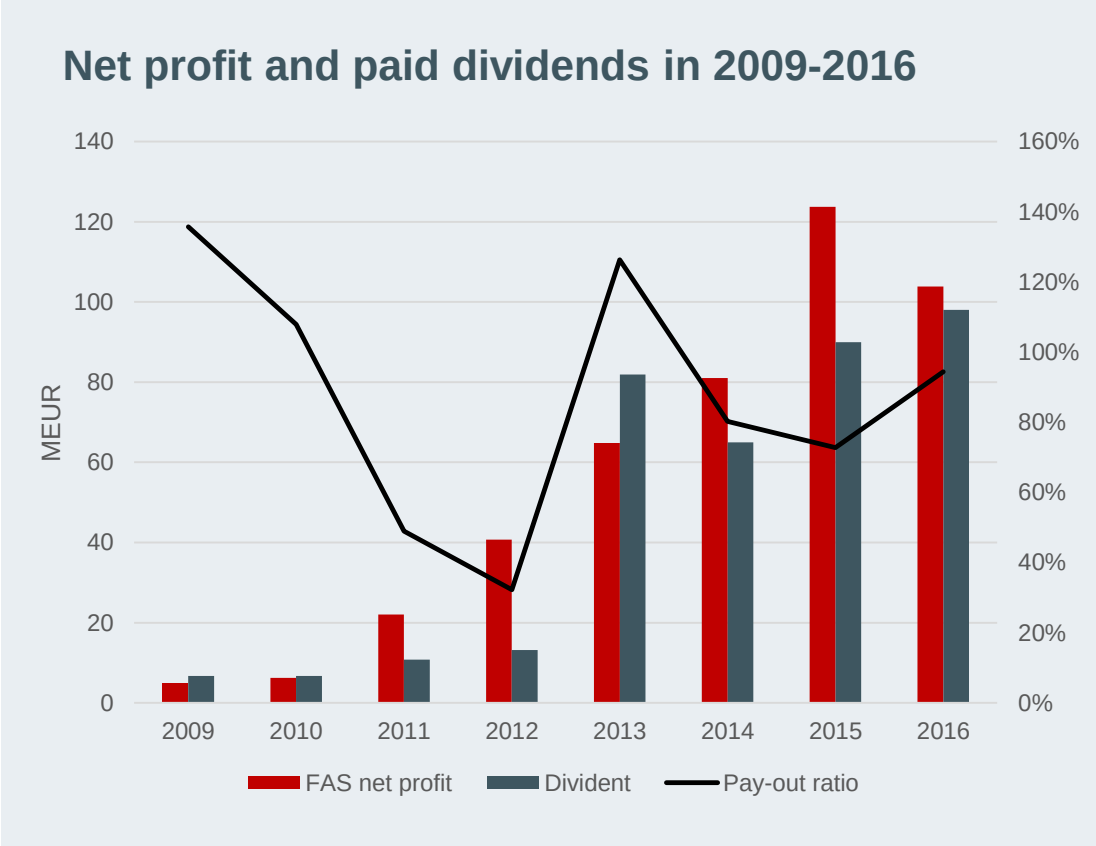
Market price risk

- 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, 12 months fully hedged

Fingrid applies a conservative financial policy

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 98 dividend of 2016 parent company FAS net profit
- Prevailing conditions and investment needs are always considered before taking decision on dividend to be paid
- The policy ensures that shareholders receive a reasonable ROI
- 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

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 2021 with two one-year extension options 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

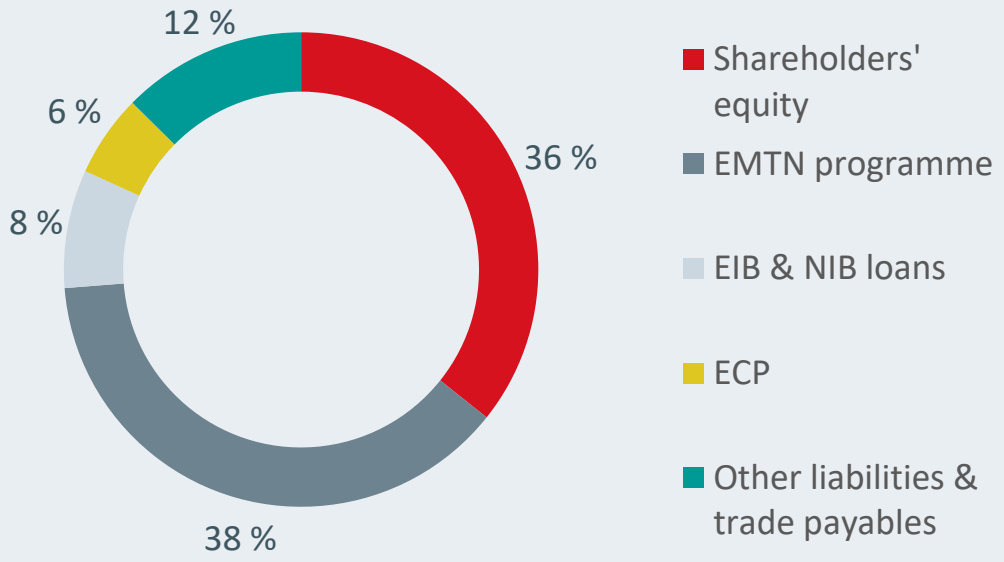
BNP PARIBAS
Danske Bank
ING
Nordea
SEB
Pohjola
Swedbank

Fingrid is a seasoned issuer on international private and public debt capital markets

Fingrid's capital structure in 2016

- Total shareholders' equity and liabilities amount to MEUR 2,102
- Equity to total assets at 36 percent
- Undrawn revolving credit facility of MEUR 300
- A total of MEUR 50 uncommitted overdraft limits available for liquidity management

Capital structure as of 31 December 2016

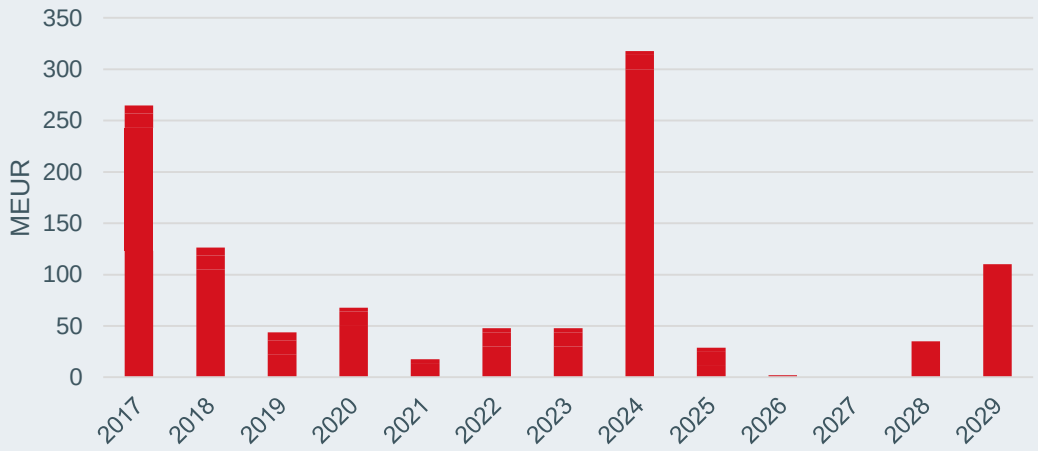


Fingrid's equity to total assets ratio is approximately 36 percent

Weighted average debt maturity was 5,7 years in December 2016

- Fingrid aims to maintain a well-distributed debt maturity profile
- Long-term debt maturity on any single year cannot exceed 30 percent of total debt

Debt maturity profile as of 31 December 2016



Short-term debt	**24% of total**	**MEUR 265***
Long-term debt	76% of total	MEUR 844*
Total gross debt		**MEUR 1109***

* Presented as notional values and hence, may differ from the published IFRS figures

Debt maturity profile is well-distributed

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/AA-
Stable

Short-term/
Senior
Unsecured

"The upgrade reflects the good earning visibility until end-2023, the favourable mechanism for the determination of the allowed profits, in particular a higher return on capital and the favourable treatment of congestion income, and the strengthening of the company's financial profile in 2015-2016."

Fitch Ratings, 30 January 2017

"Fingrid's issuer rating of 'A+' is the highest that Fitch assigns to a regulated network in Europe."

Fitch Ratings, 30 January 2017

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

Key rating factors according to the rating agencies

S&P Global

1. Company's excellent business risk profile and significant financial risk profile

2. A "high" likelihood that Finland would provide timely and sufficient extraordinary support to Fingrid the event of financial distress

Fitch

1. Fingrid's credit profile benefits from its monopoly position, low business risk and a highly supportive regulatory framework

2. The Stable Outlook reflects Fitch's expectation that, after the peak of investment spending in 2013, leverage will decline to within the guidance for an 'A' rating. Furthermore Fingrid benefits from ample liquidity to meet immediate funding needs

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

Thank you!

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