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Nordic-Baltic energy conference, Tallinn

Development of clean energy in Finland

Maarit Uusitalo, Fingrid Oyj

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Transformation of the system is happening fast – Situation in Finland

2018

- First market-based wind power installations
- Low prices for fossil fuels and emissions
- Finland dependent on imports
- Interest started to wake towards production investments + development of wind power technology

2023

- Wind power production grow with speed
- Onshore wind in Finland is one of the cheapest ways to produce electricity in Europe
- Solar growing rapidly
- Olkiluoto 3 nuclear unit in operation
- Emissions prices have multiplied
- Demand for clean and affordable energy
- Finland becoming net-exporter

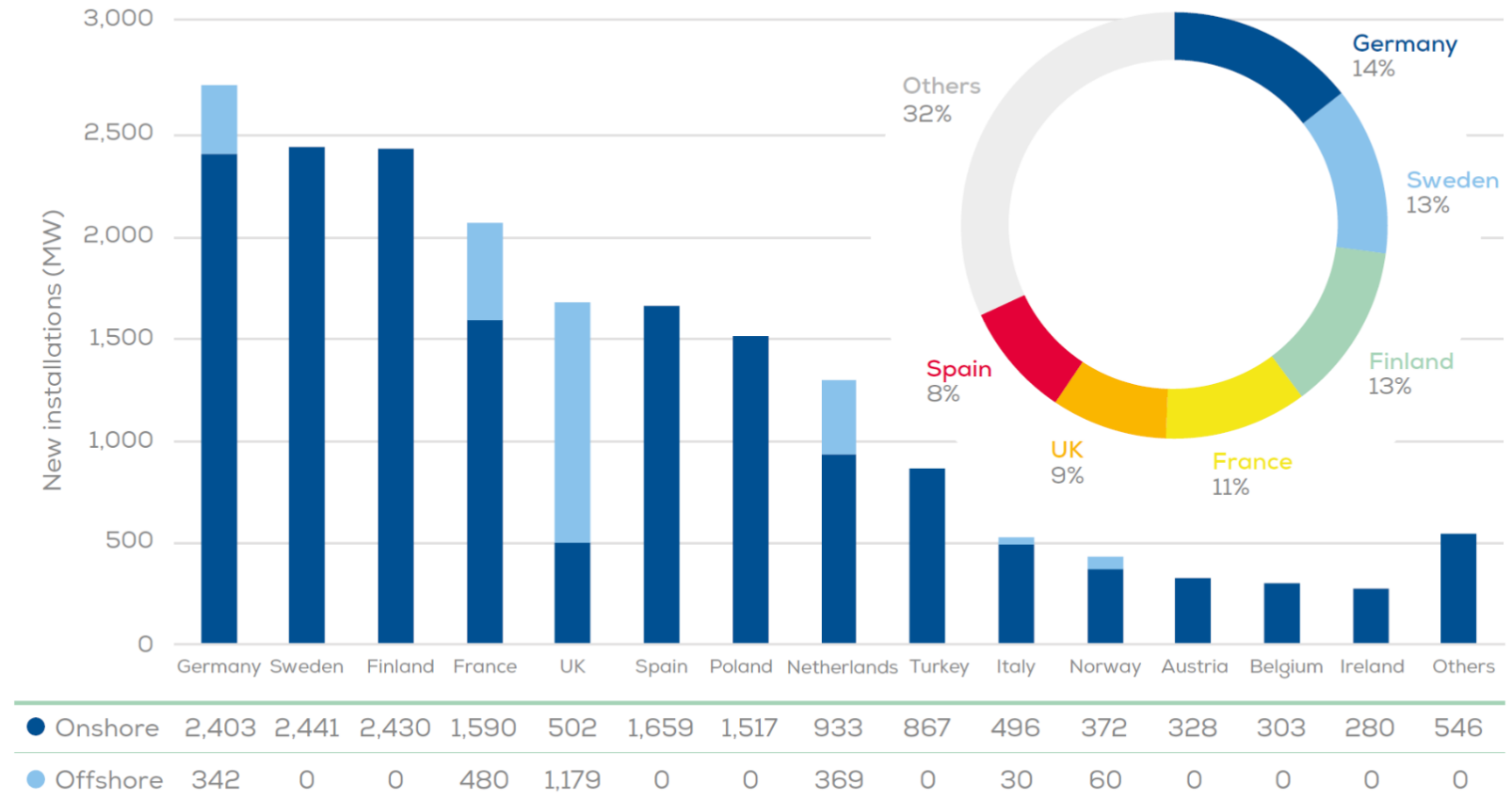
Finland among the TOP 3 to install new wind in 2022 in Europe

This is one-year snapshot

Today (end 2023) installed capacity of wind in Finland is ca 6400 MW

Electricity produced with wind power covered 14 % of the total consumed electrical energy in 2022

New wind installations in Europe per country in 2022



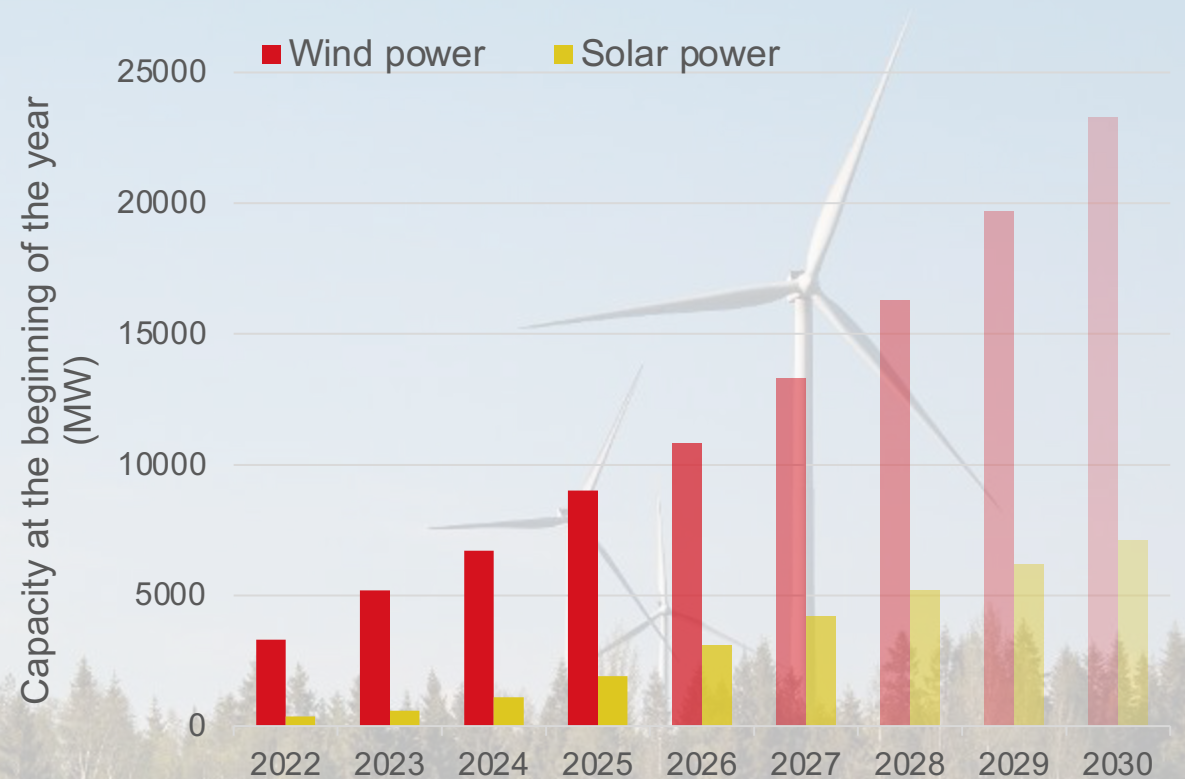
Source: WindEurope

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Finland will have a lot of clean and affordable electricity – and a diverse production mix!

- Wind power to overtake nuclear power as largest production technology 2027
- Solar power has big potential
- Hydro power to remain at the current level
- Current nuclear power capacity as base load capacity
- Other thermal power to decrease significantly

Development of wind and solar power capacity



Green transition investments in Finland

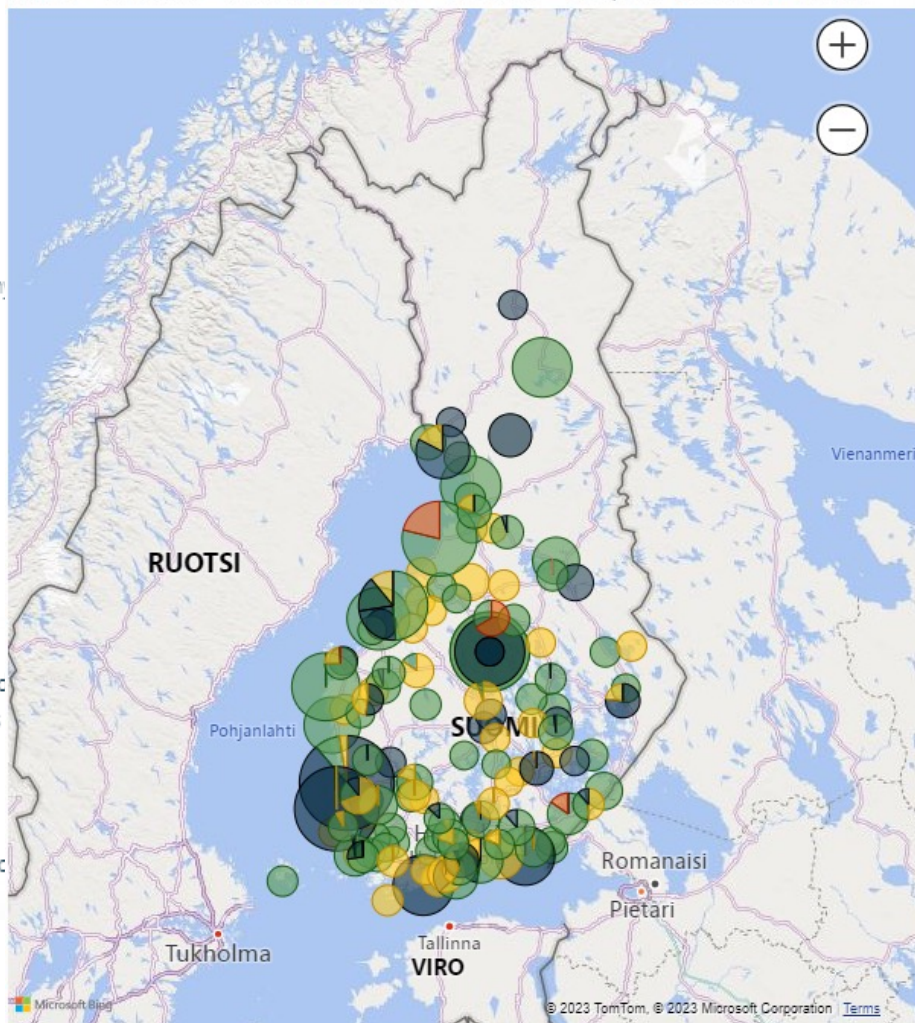
Updated: 28.11.2023



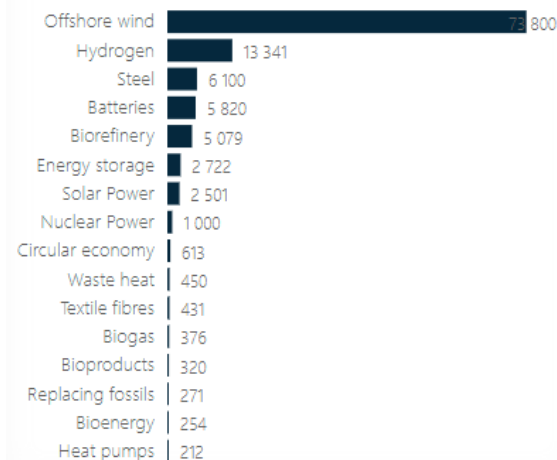
Theme

- Batteries
- Biochar
- Bioenergy
- Biogas
- Bioproducts
- Biorefinery
- Carbon capture
- Circular economy
- Electric mobility
- Energy storage
- Heat pumps
- Heating
- Hydrogen
- Hydropower
- Nuclear Power
- Offshore wind
- Onshore wind
- Other
- Plant-based food
- Replacing fossils
- Solar Power
- Steel
- Textile fibres
- Transmission grid
- Waste heat

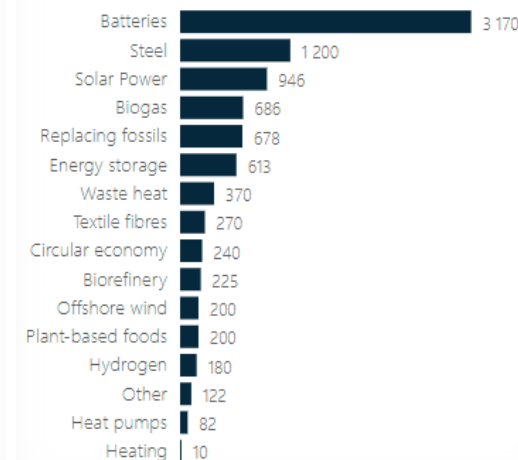
Phase ● 0. Feasi... ● 1. Plan... ● 2. Inve... ● 3. Start... ● 4. Expa... ● 5. Disc... ● Invest...



Investment amount (M€) by theme



Jobs by theme



On-shore wind investments

94 650

Amount (M€)

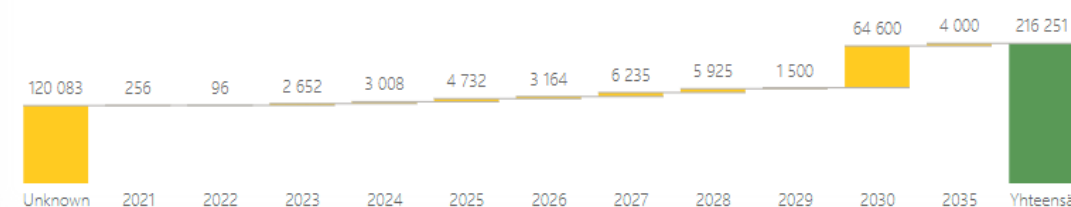
Transmission grid investments

8 000

Amount (M€)

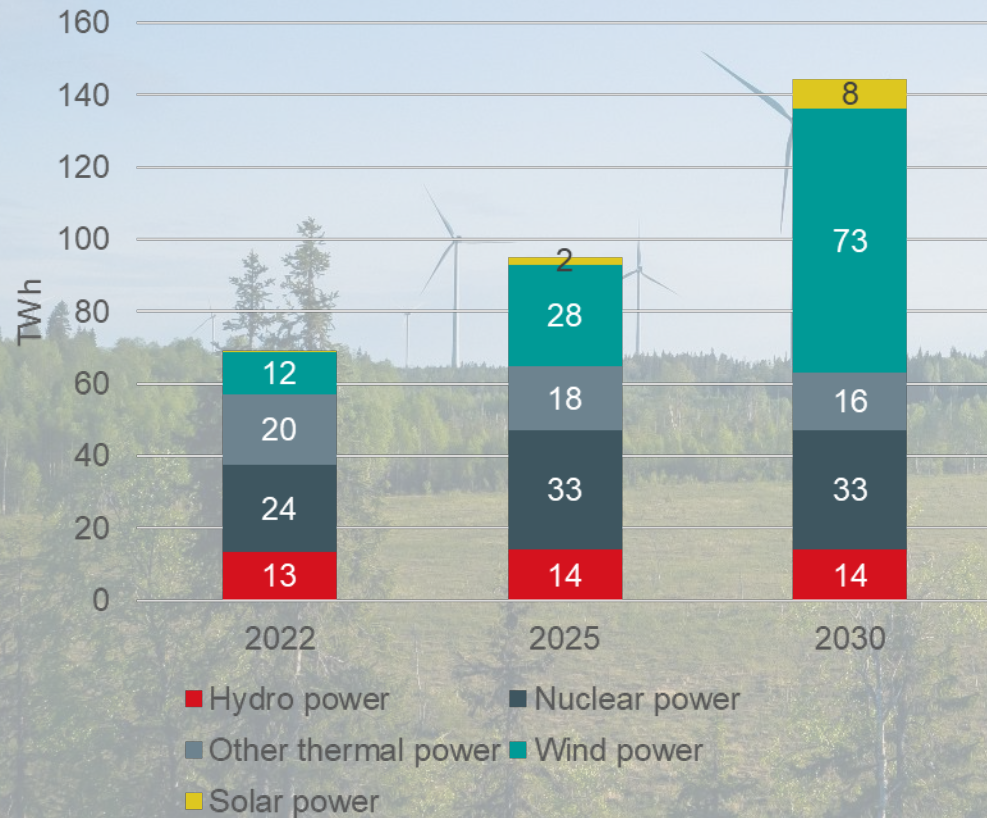
Investment amount by Completion year

M€

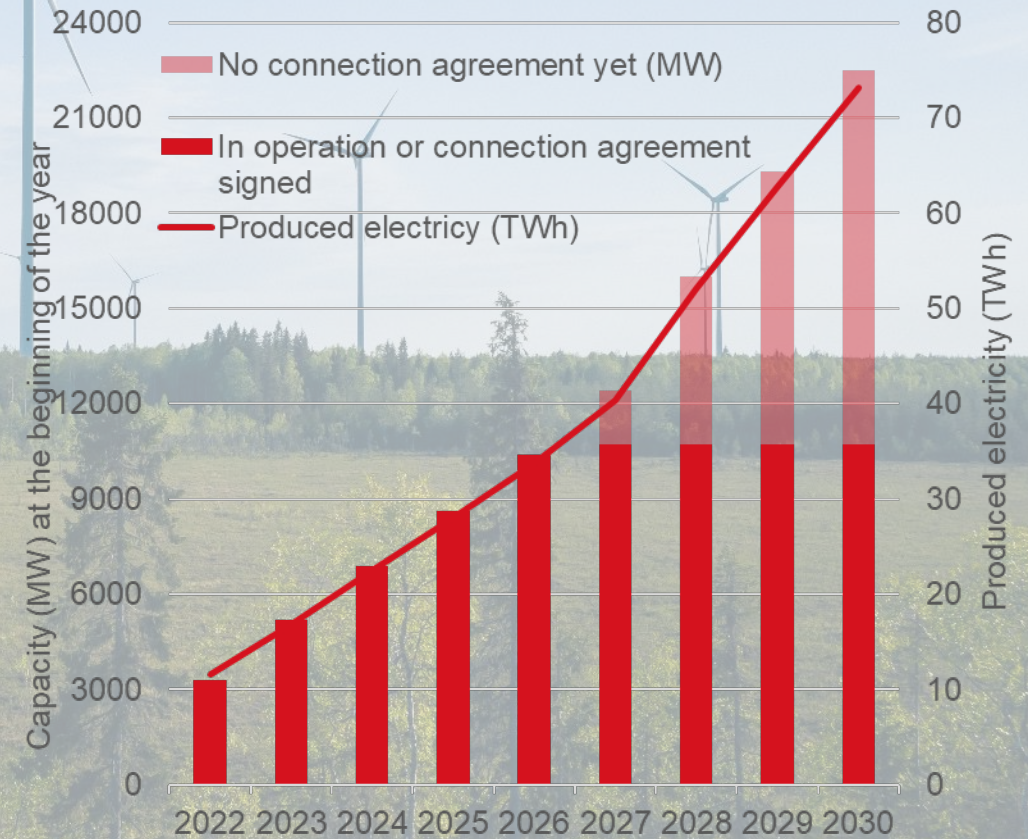


Finland can offer a lot of clean and affordable electricity!

Electricity production 2022-2030



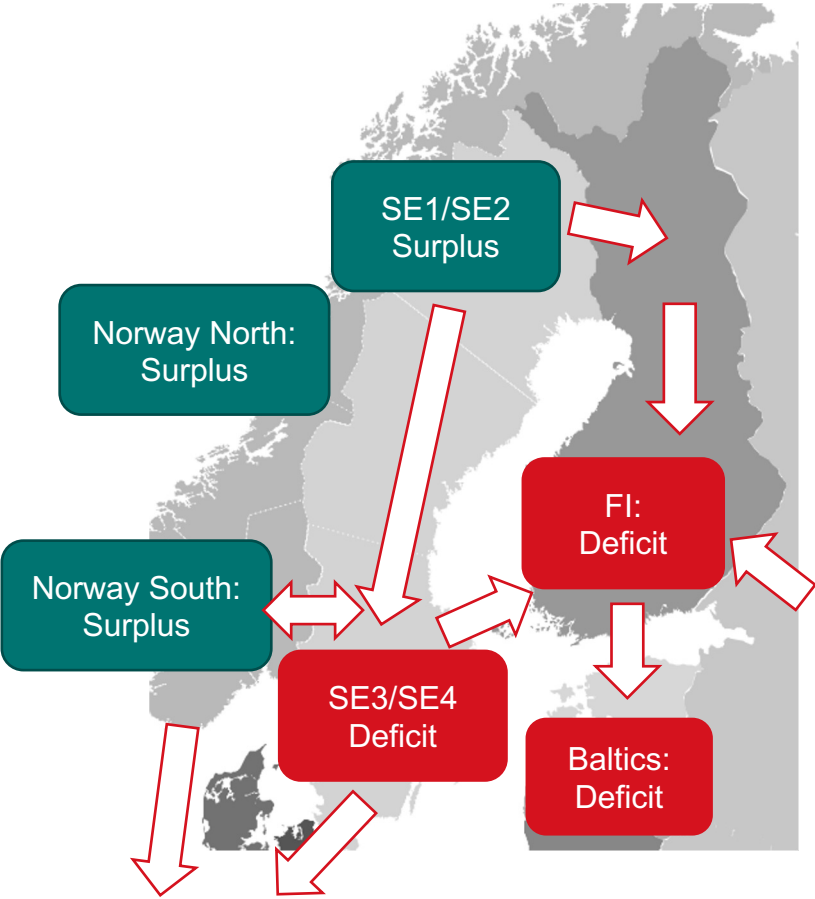
Wind power development



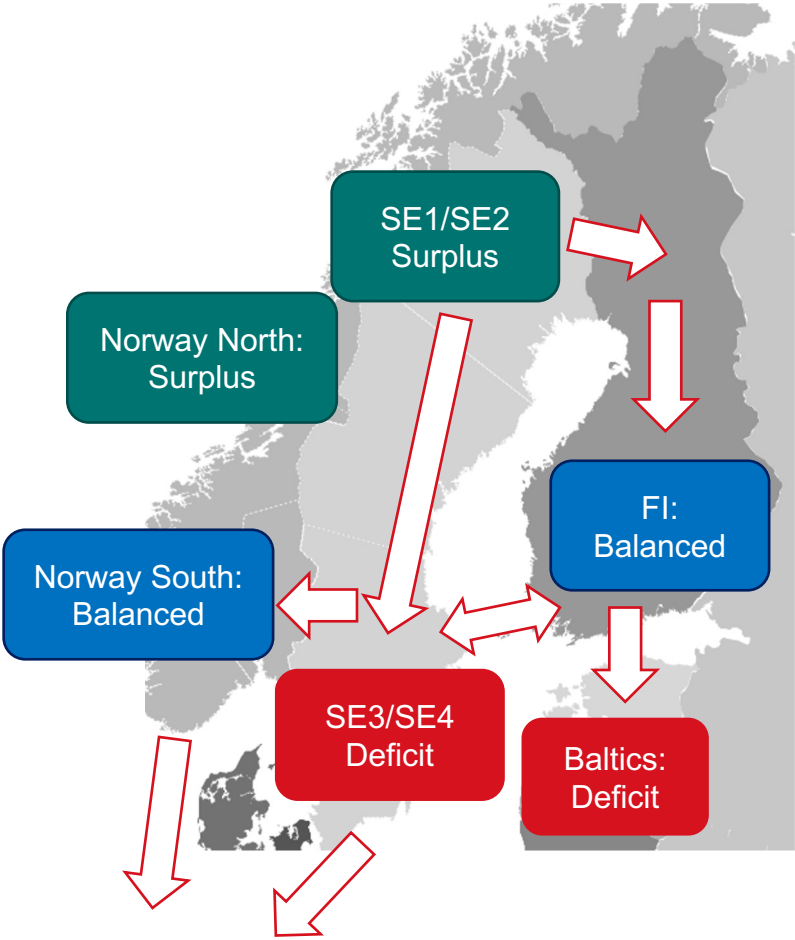
Shifts in the Nordic power balance

Finland becomes an exporter while Norway becomes an importer

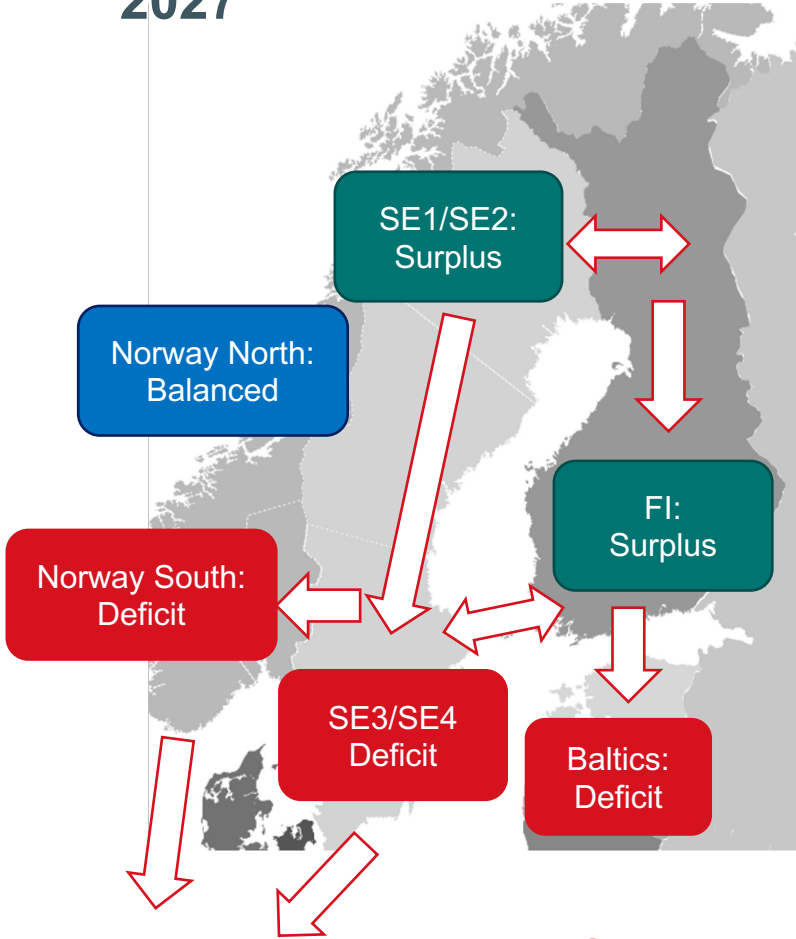
2021



2024



2027



Source: Fingrid Best Estimate scenario H2/2022. Direction of arrows refers to main direction of the power flow

Why Finland?

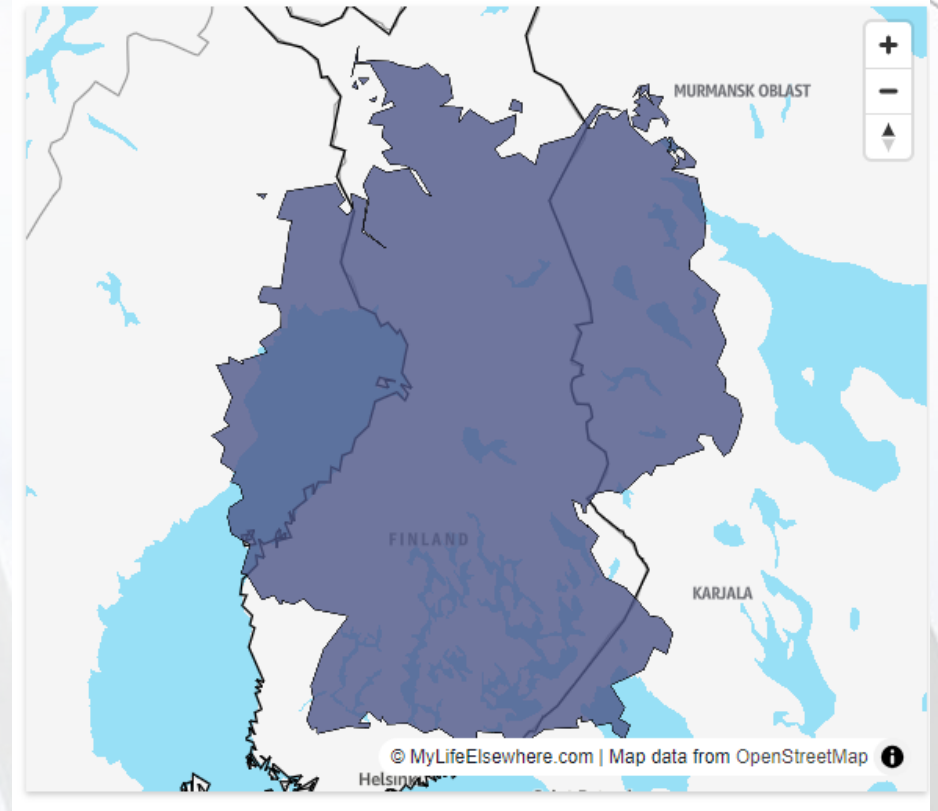
- Strong grid and top-class electricity reliability
- Part of the efficient European electricity markets and one price area
- Excellent competitiveness of onshore wind power.
- Effective permitting processes
- Highly electrified
- Clean and efficient electricity generation
- Large sparsely populated country, long coastline, competitive wind conditions,
- >Relatively low risk
- No subsidies needed!

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Finland can offer emission free and reliable electricity with a very competitive price!

Finland is around the same size as Germany.

Germany is approximately 357,022 sq km, while Finland is approximately 338,145 sq km, making Finland 94.71% the size of Germany. Meanwhile, the *population* of Germany is ~84.3 million people (78.7 million fewer people live in Finland). We have positioned the outline of Germany near the middle of Finland.



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An aerial photograph of a dense forest with a tall power line tower and its cables stretching across the scene. The text is overlaid on the image.

**Fingrid is Finland's
transmission system operator.**

**We secure cost effectively reliable
electricity for our customers and society
and we shape the clean, market-oriented
power system of the future.**



Thank you!

Fingrid Oyj

Läkkisepäntie 21

FI-00620 Helsinki

P.O.Box 530

FI-00101 Helsinki, Finland

Tel. +358 30 395 5000

Fax. +358 30 395 5196

www.fingrid.fi

FINGRID