

Nordic Power System Solutions

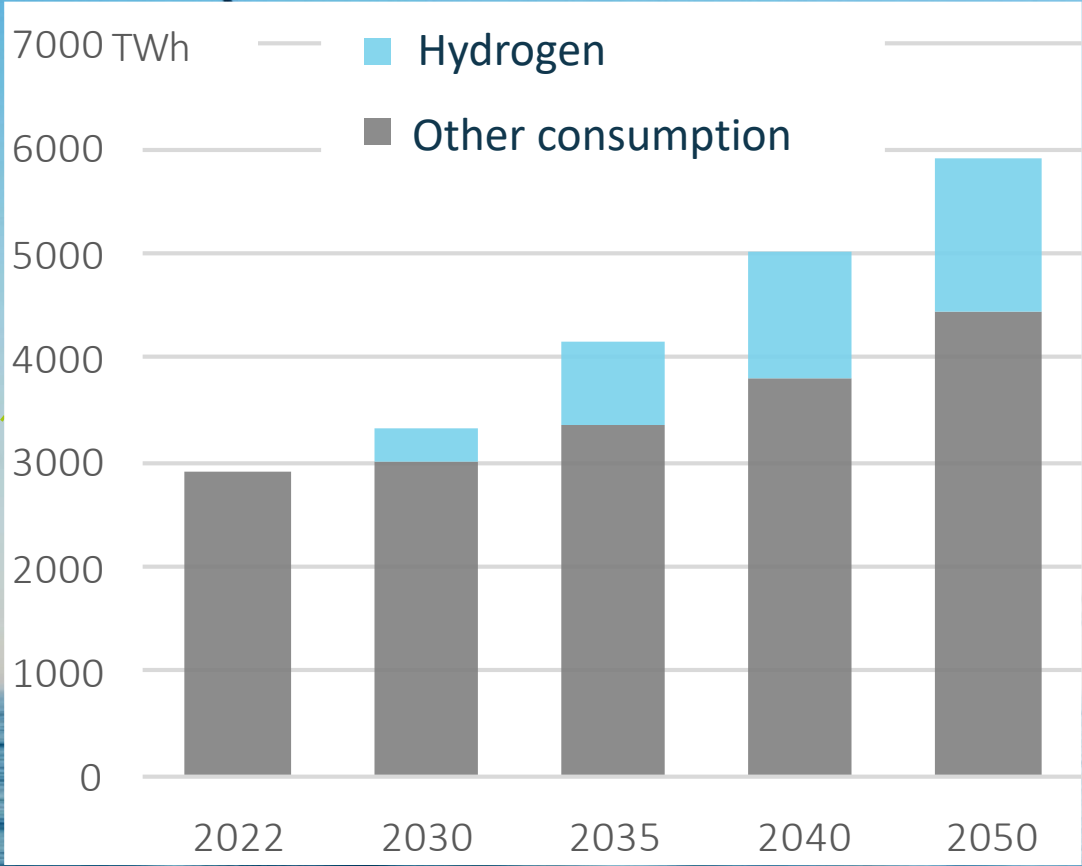


Gunnar Løvås, Nordic Energy Day,
24 th. August, 2023

Det grønne taktskiftet

The green transition is happening

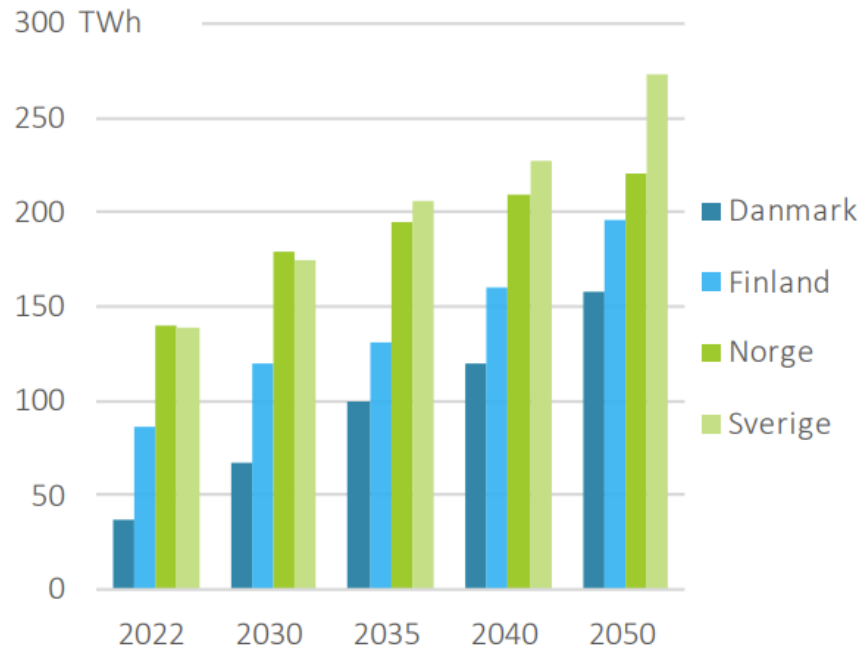
Europe needs enormous volumes of renewable energy



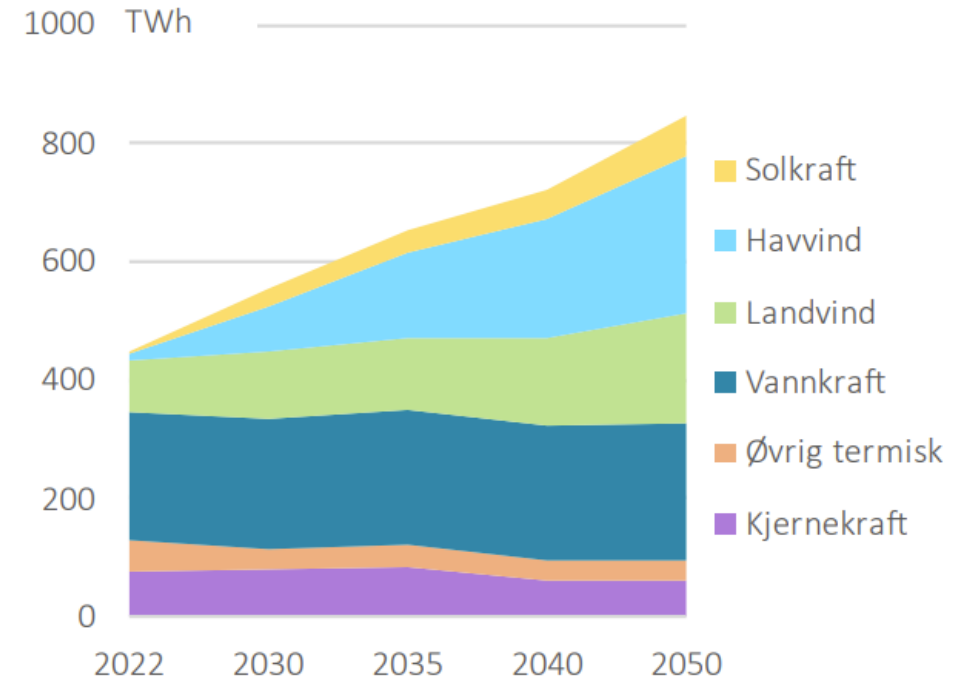
Power consumption in our model

Clear direction: Larger and carbon free Nordic Power system

2x consumption

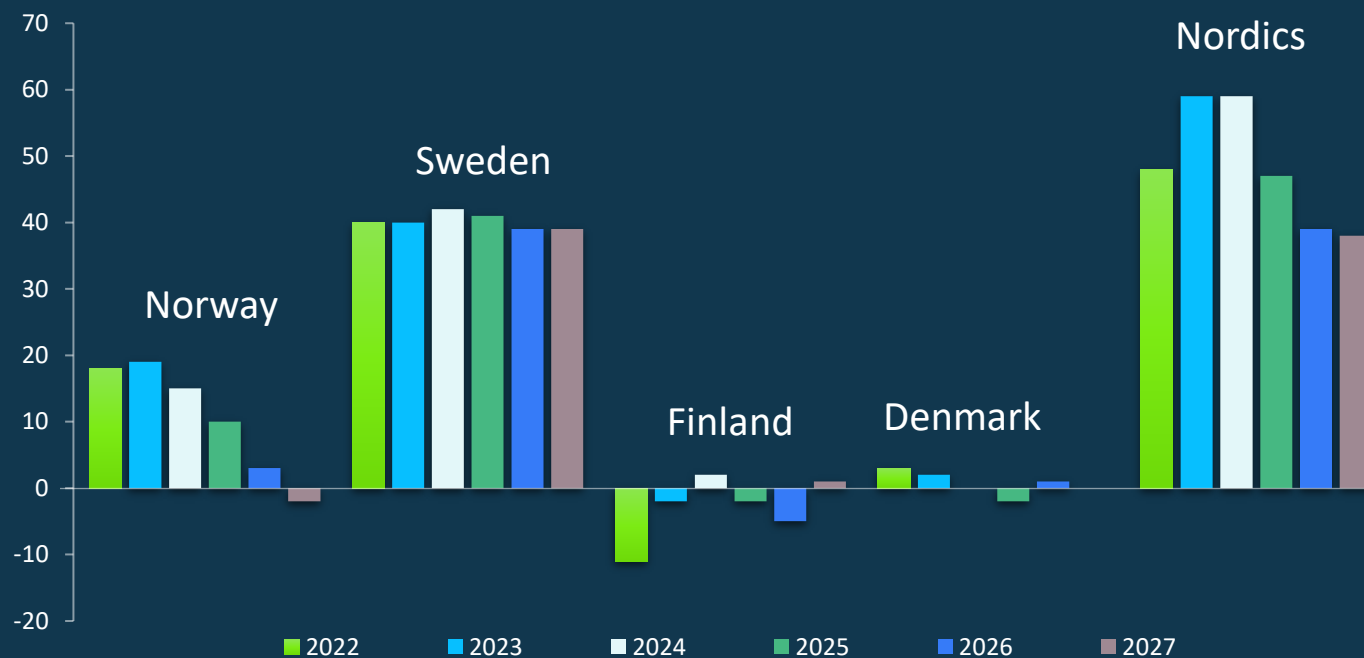


2x production

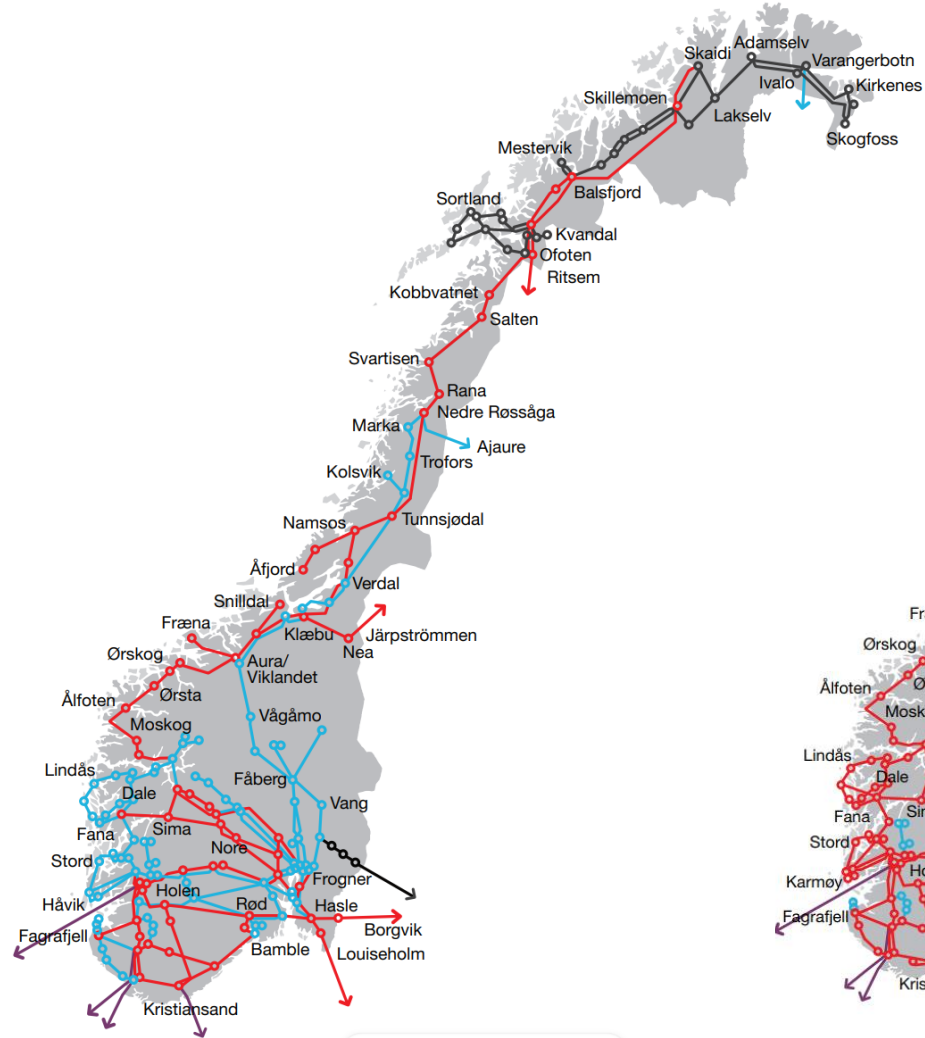


The Nordics - a surplus energy region

Power deficit in Norway expected



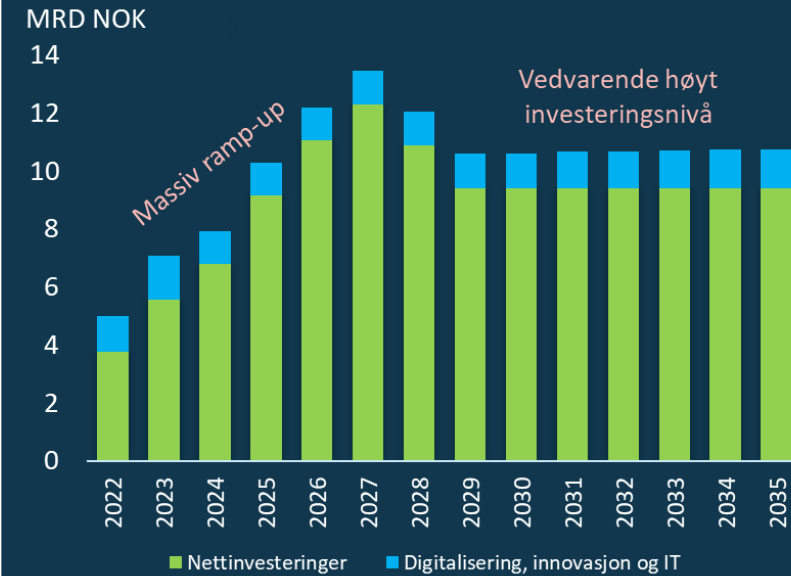
2022



Target grid 2040

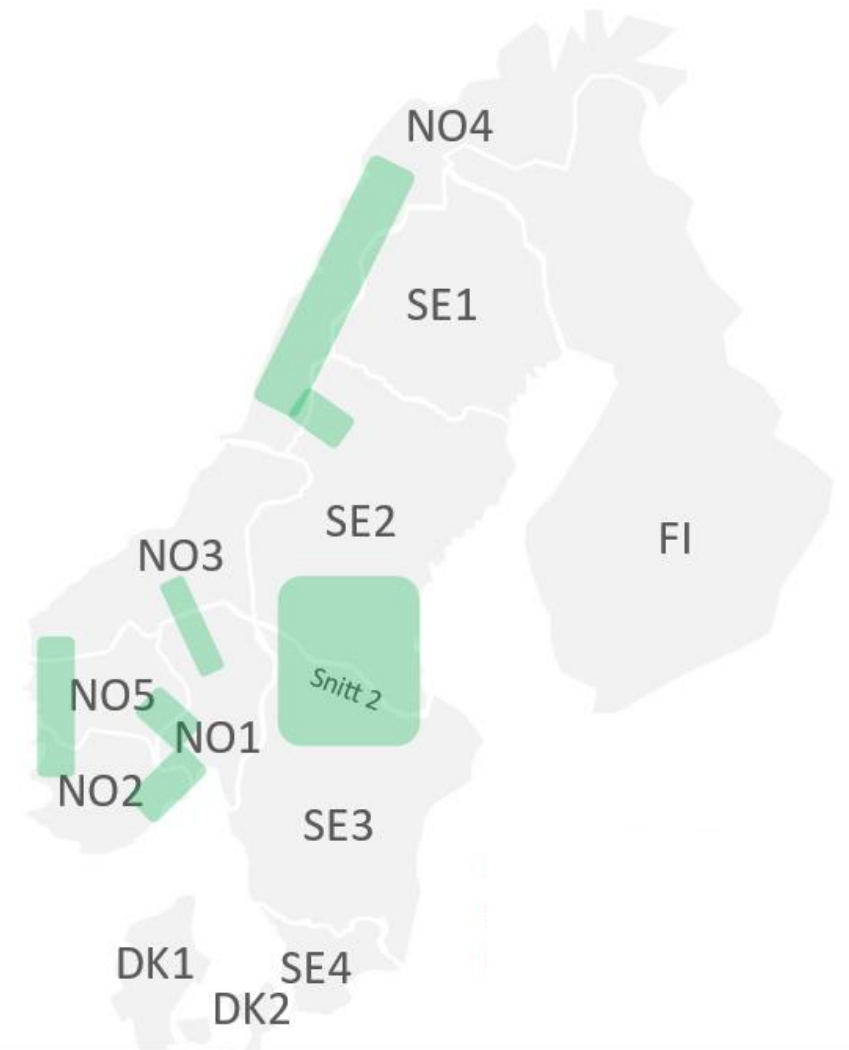


- We're building more grid, faster and more efficient



Massive investments in the Nordic grid

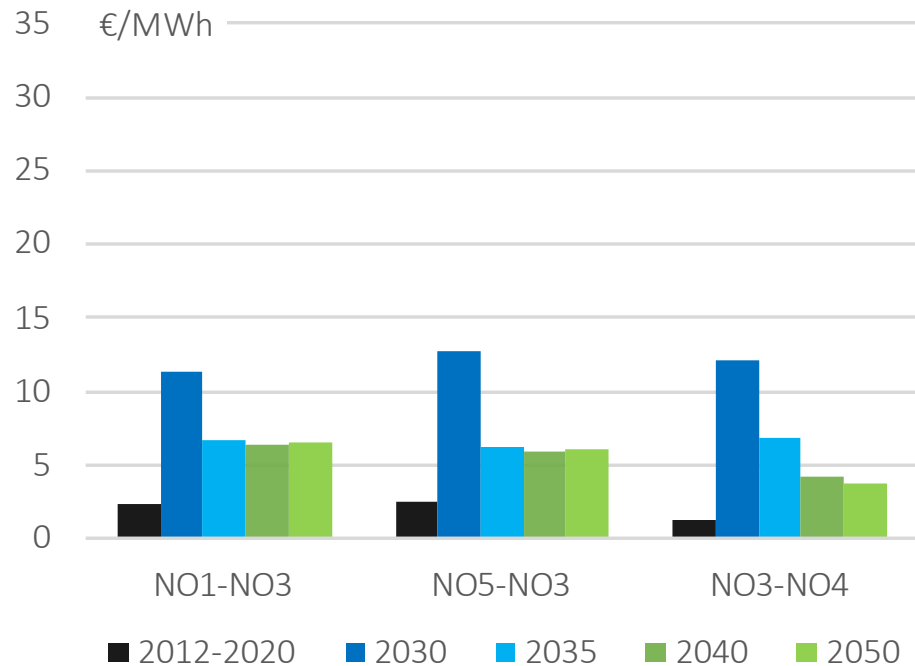
- Many projects will increase the capacity between bidding zones and countries
- Especially north – south capacity



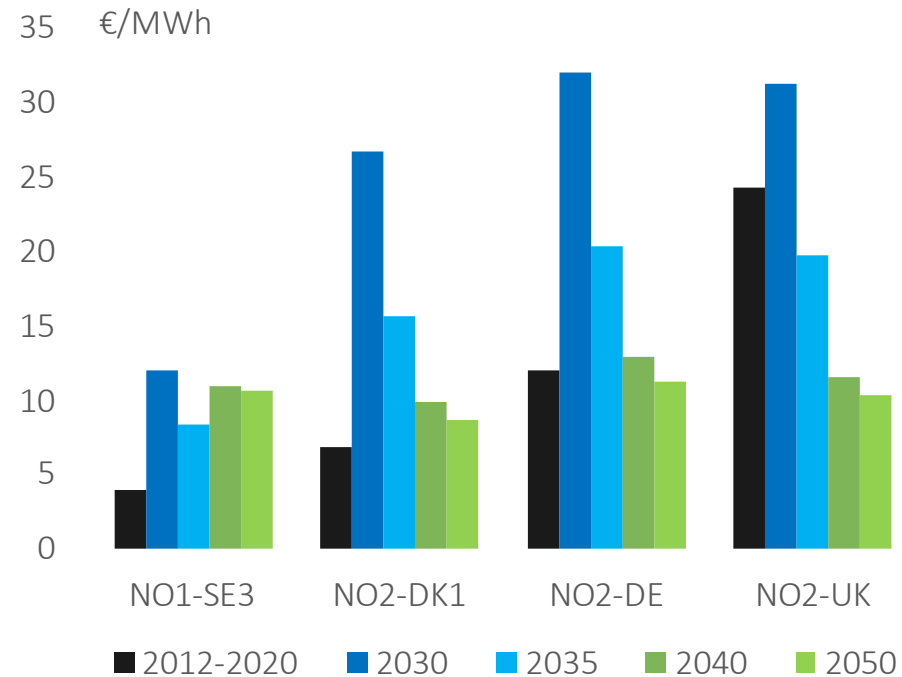
Higher hourly price differences

- But decreasing average price differences

Hourly price difference in Norway



Hourly price difference Norway – other countries



LEAK: Brussels plans to inject more stability in EU electricity market

By Kira Taylor | EURACTIV.com © Est. 9min

📅 10. mar. 2023 (updated: 📅 12. apr. 2023)

Supporters

Content-Type: Underwritten / Supported

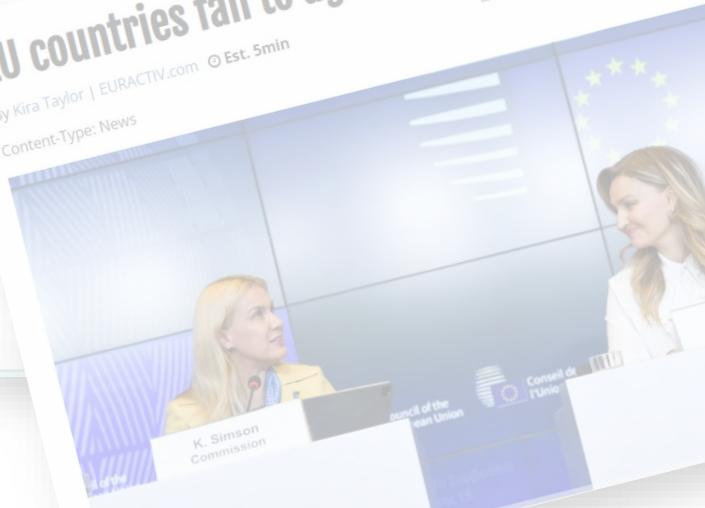
Spania vil reformere strømmarkedet

Spanske myndigheter vil reformere strømmarkedet i EU. Vi har snakket med professor Natalia Fabra, som har vært sentral i arbeidet med forslaget.

EU countries fail to agree position on electricity market reform

📅 20. jun. 2023 (updated: 📅 23. jun. 2023)

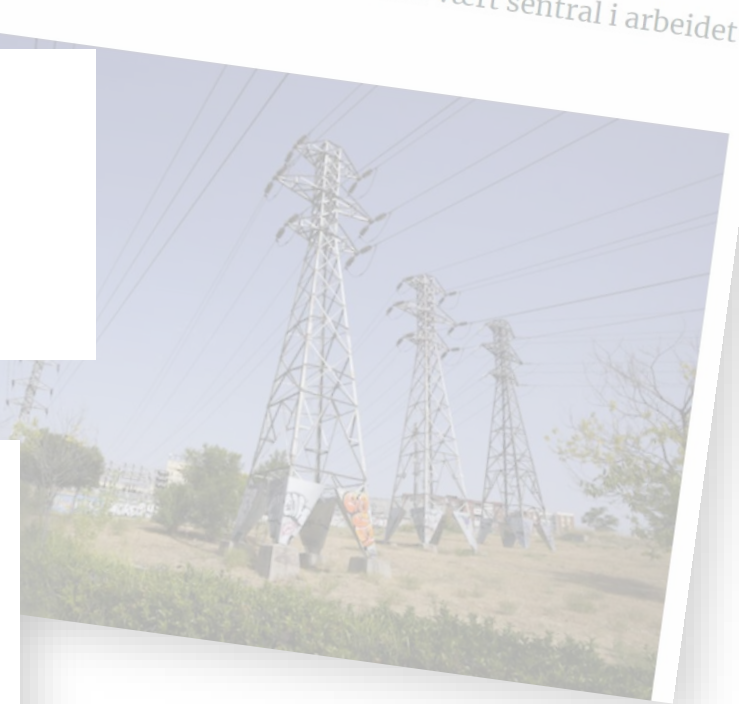
By Kira Taylor | EURACTIV.com © Est. 5min
Content-Type: News



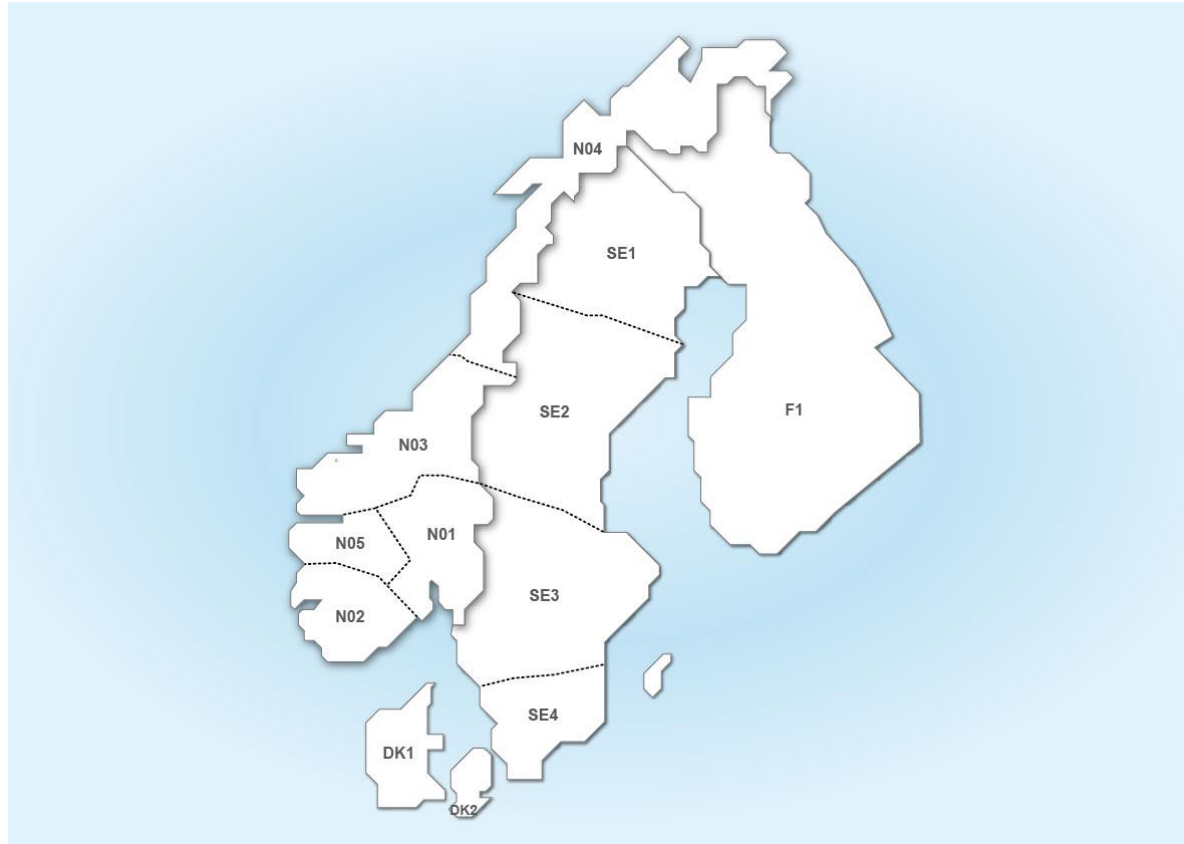
MARKETS ARE IMPORTANT TOOLS

EU Commission ready with proposal to lower sky-high power prices

With Friday's announced full plug of gas pipeline Nord Stream 1, pressure on electricity prices mounts further. The EU Commission now responds quickly suggesting fast measures to temper power prices, while Germany already took the lead this weekend.

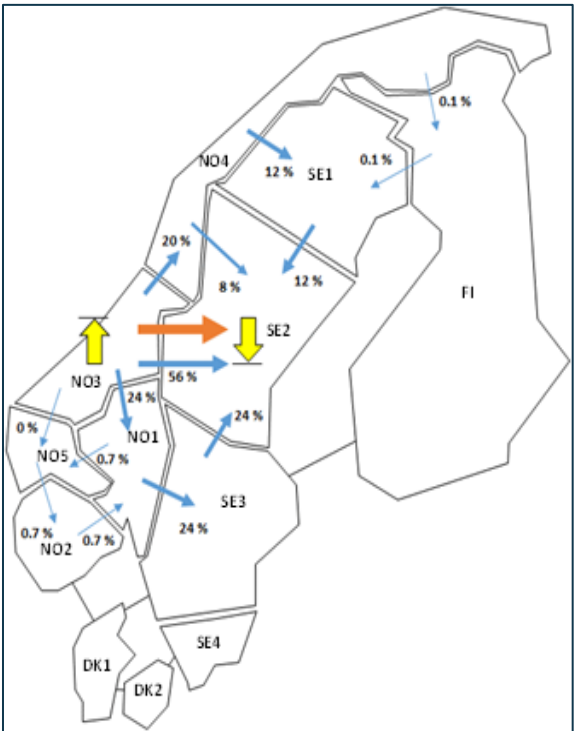
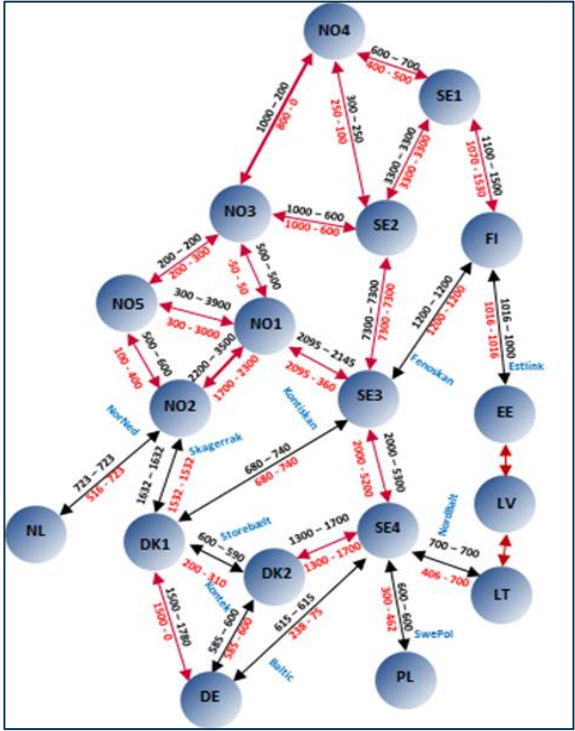


Bidding zones - important for balancing the system



- Reflect the structural bottlenecks
- Send investment signals

Flow-based market coupling - higher system utilization



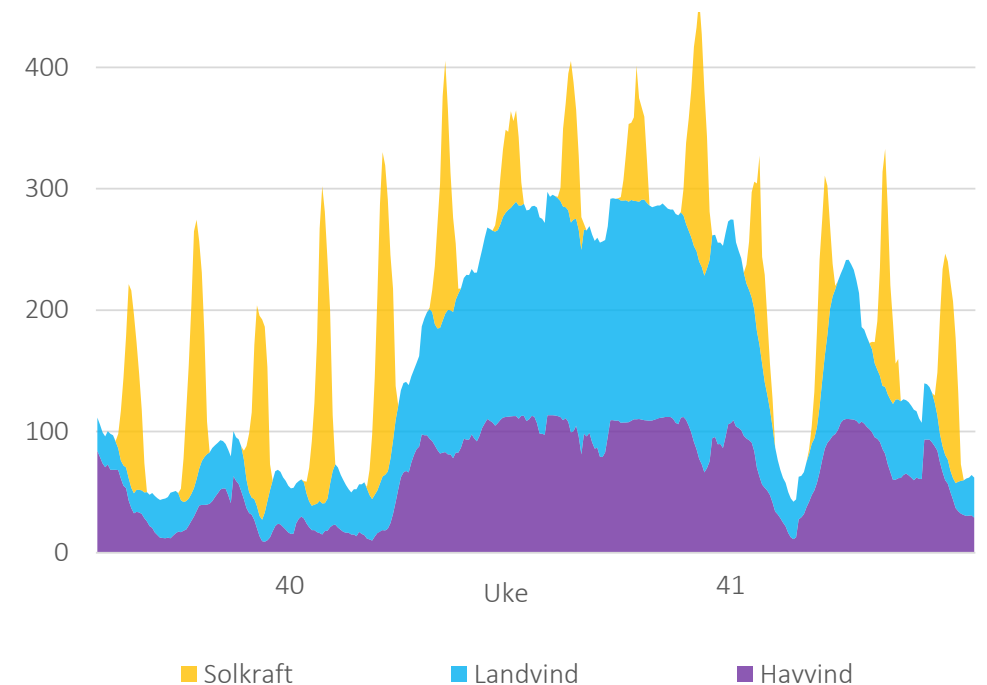
Higher time resolution will reduce imbalances

- Increasing need for flexibility due to more **frequent, faster and larger** imbalances
- 15- minute MTU imbalance settlement and in intra-day and day-ahead markets



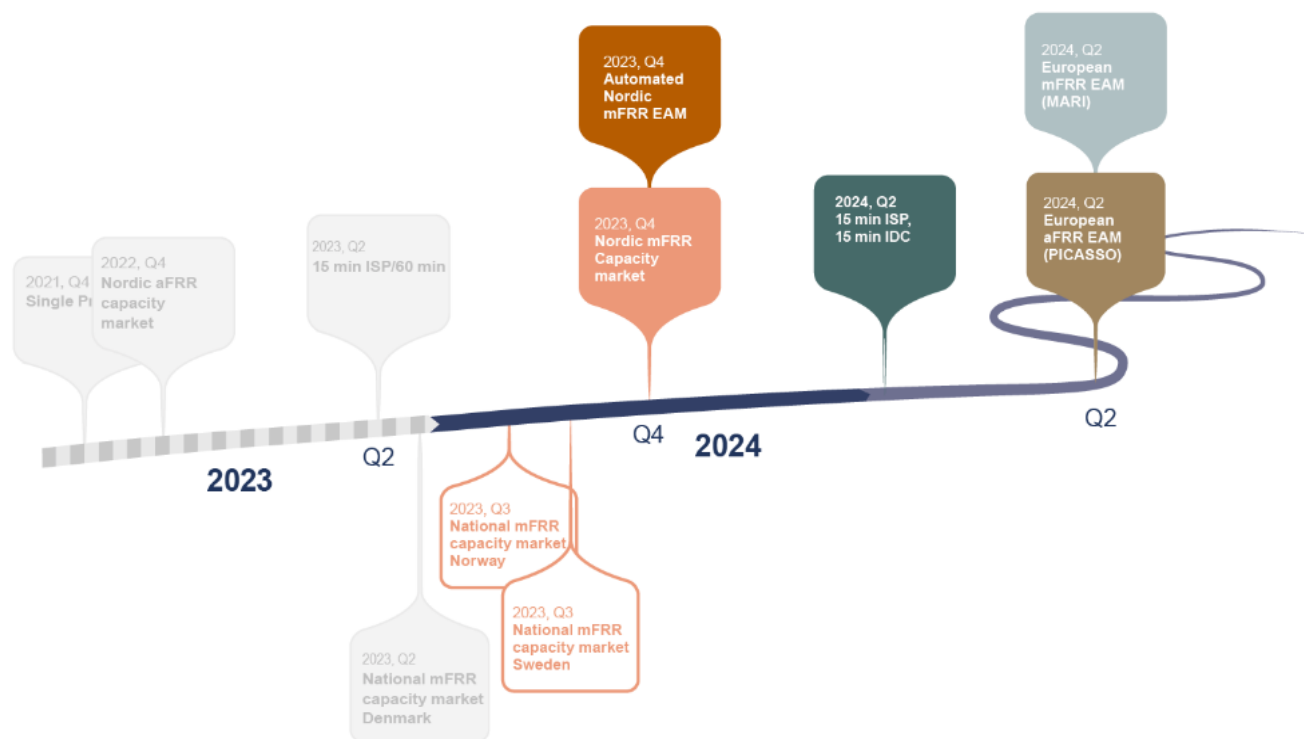
How to ensure sufficient capacity margin?

- We need more flexibility, storage and participation in our reserve markets
- Generation capacity
 - SvK considers to implement a marked-wide capacity market
 - Statnett's current view is that we do not see a need for a capacity market in Norway



NBM - Digital and automated system operation

The NBM roadmap will be updated in September



NBM

Nordic Balancing Model

Nordic Balancing Model

- Automated system operation
- Capacity markets for balancing reserves
- Integration with European platforms

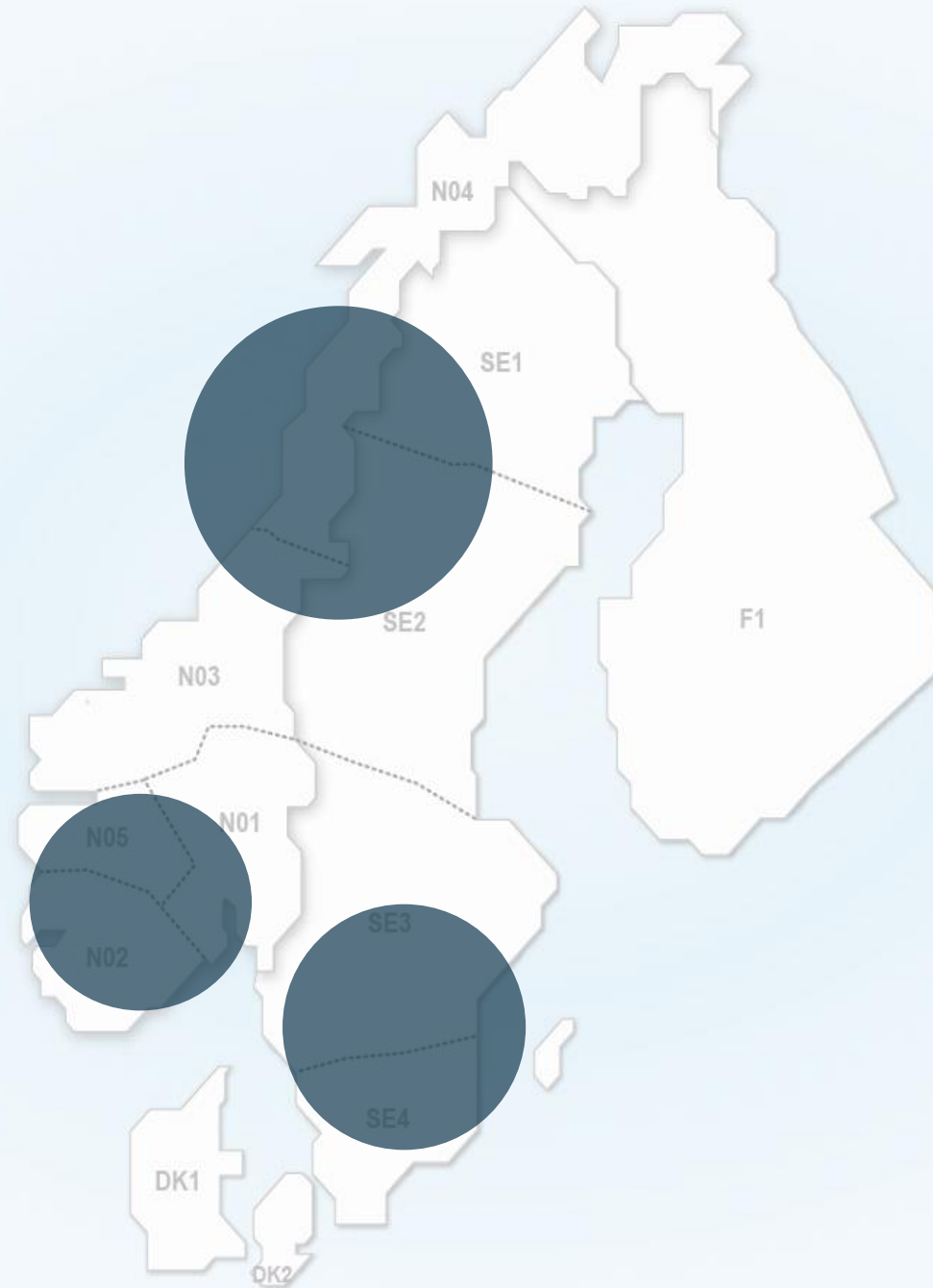
[Source: nordicbalancingmodel](https://nordicbalancingmodel.com)

Ideally TSOs should have no role in financial markets

- The commercial financial markets are changing
- A role for TSOs, supplying LTTRs/EPADs, is foreseen in the market design reform
- At most, TSO support to financial markets should be based on existing commercial products



Is aggregated zonal products an idea?



TSOs will:

- Invest massive in grid development
- Ensure high market capacity and system utilization
- Develop markets and solutions for a system with intermittent power production

A carbon neutral nordic power system is possible

But we also need:

- More investments in capacity
- More flexibility and storage
- Participation in reserve markets
- Market participants responding to incentives