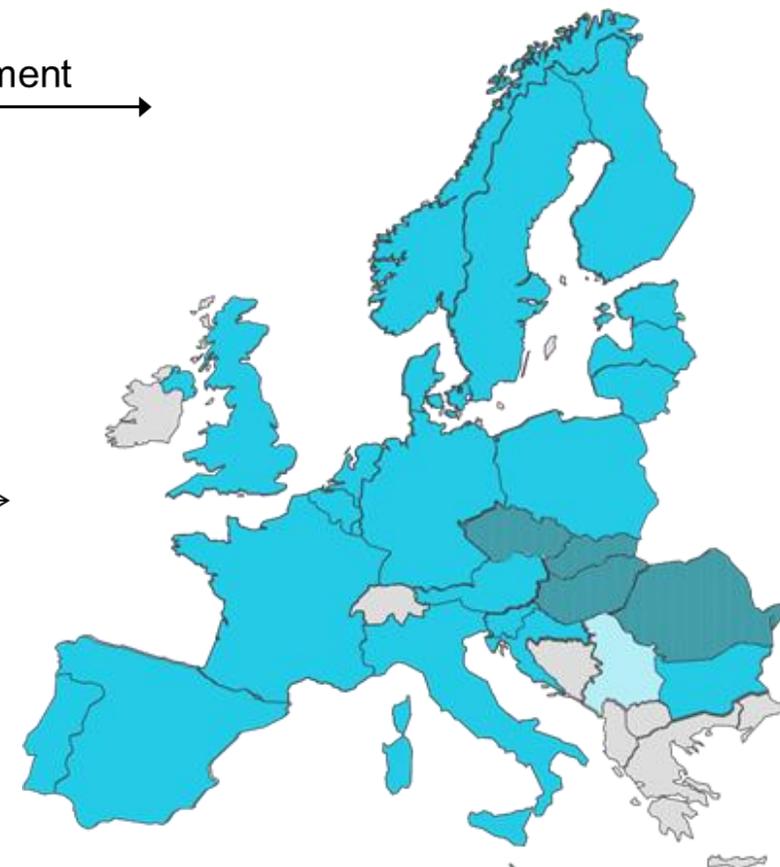
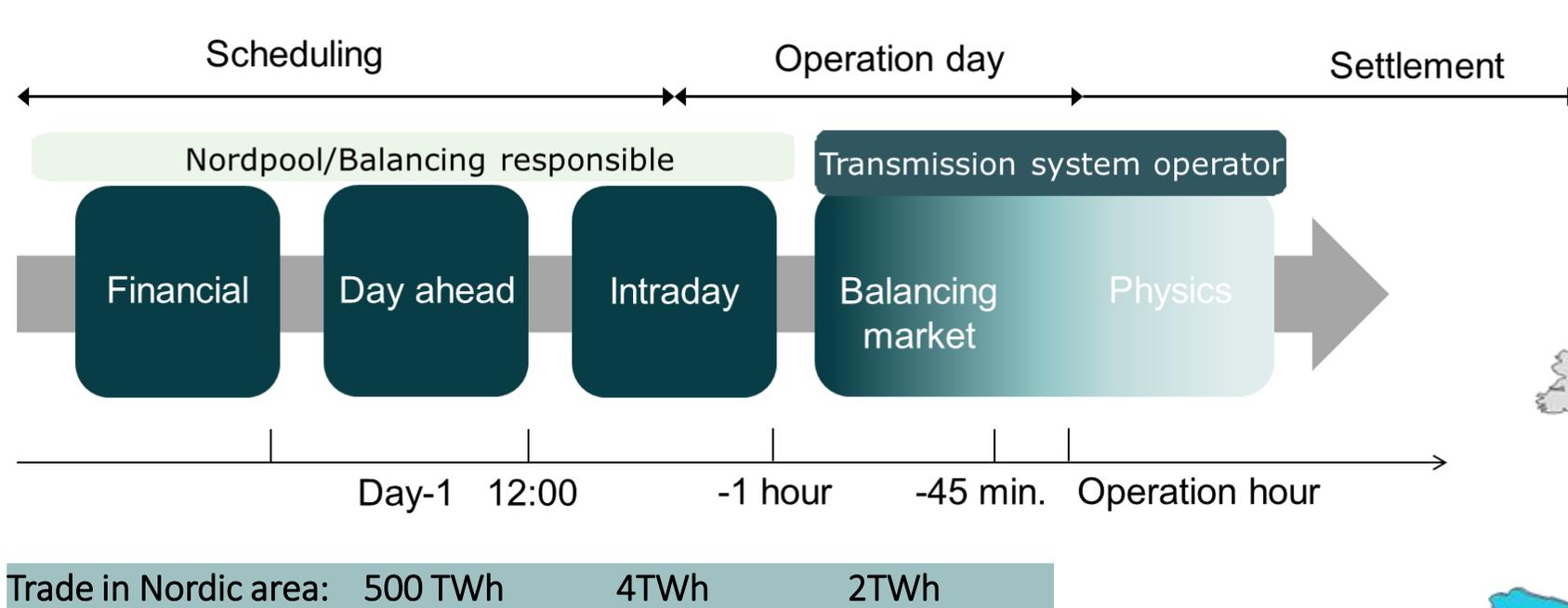


IMPROVING THE ELECTRICITY MARKET – A MARKET DESIGN FIT FOR RENEWABLES

Wind Energy Denmark 2019

*Søren Dupont Kristensen,
CEO Energinet Electricity System Operator*

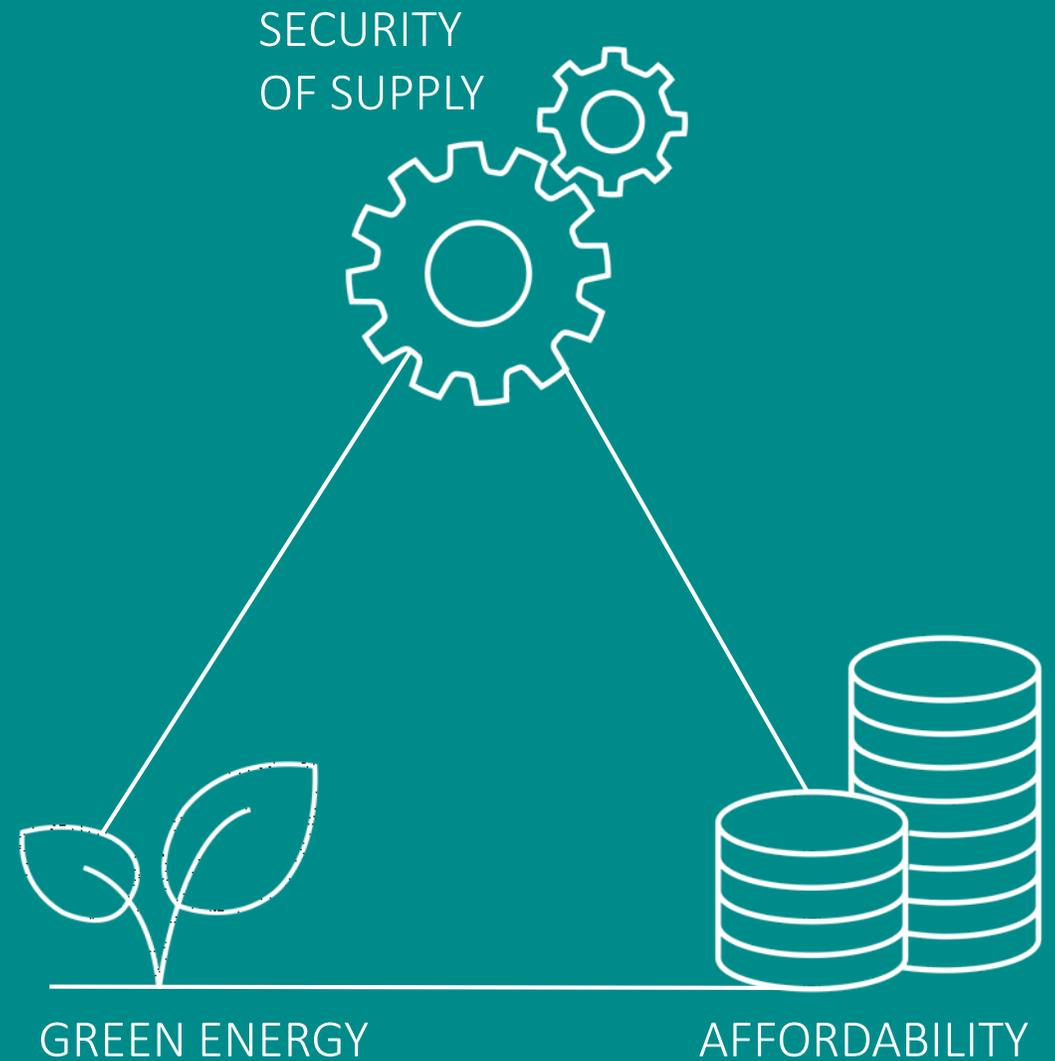
THE ELECTRICITY MARKETS

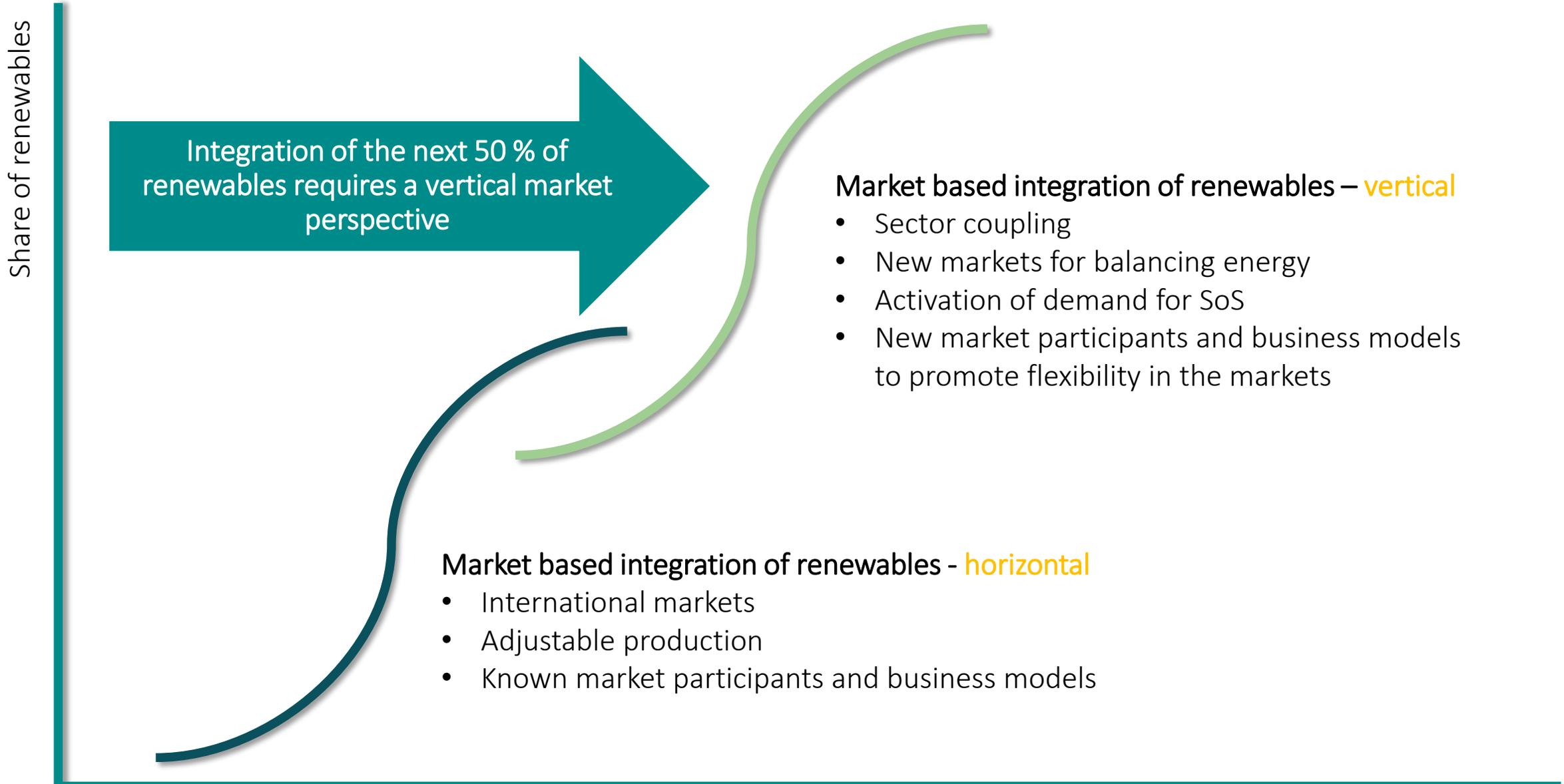


European market coupling

A BALANCING ACT

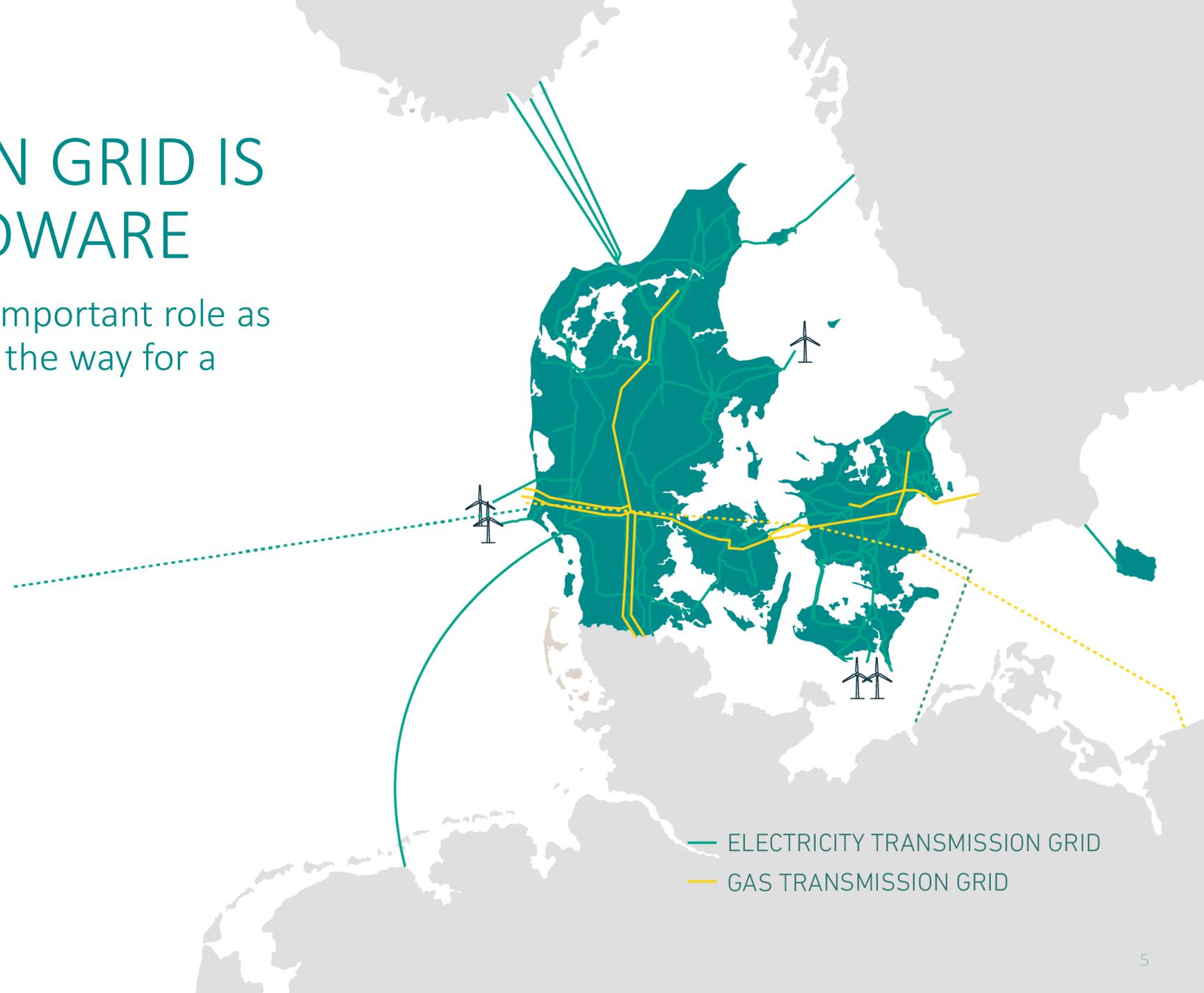
Through international and market based solutions Energinet work to release the energy trilemma.





TRANSMISSION GRID IS MARKET HARDWARE

Transmission grid play an important role as market enabler and paves the way for a green transition.



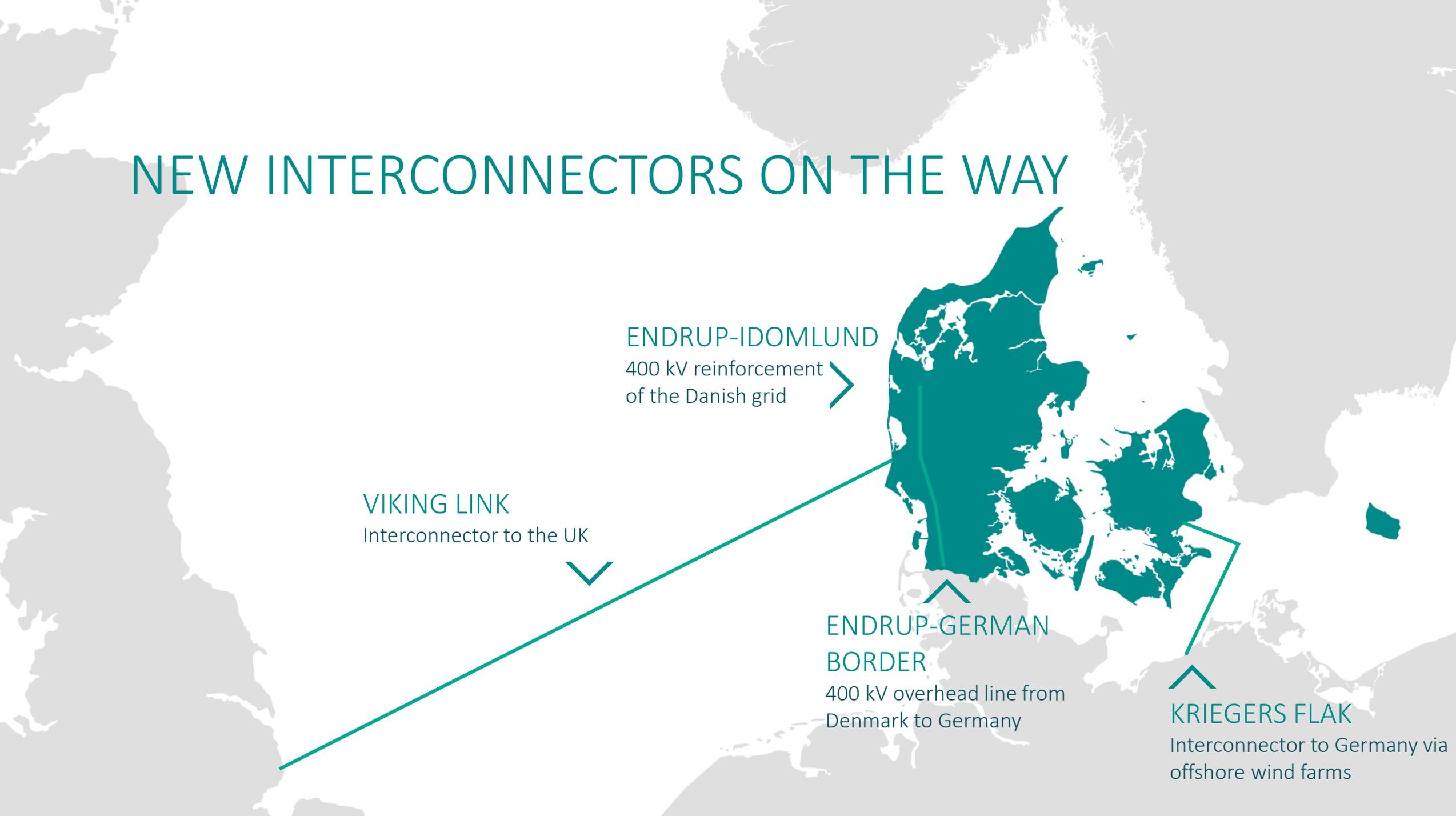
NEW INTERCONNECTORS ON THE WAY

ENDRUP-IDOMLUND
400 kV reinforcement
of the Danish grid

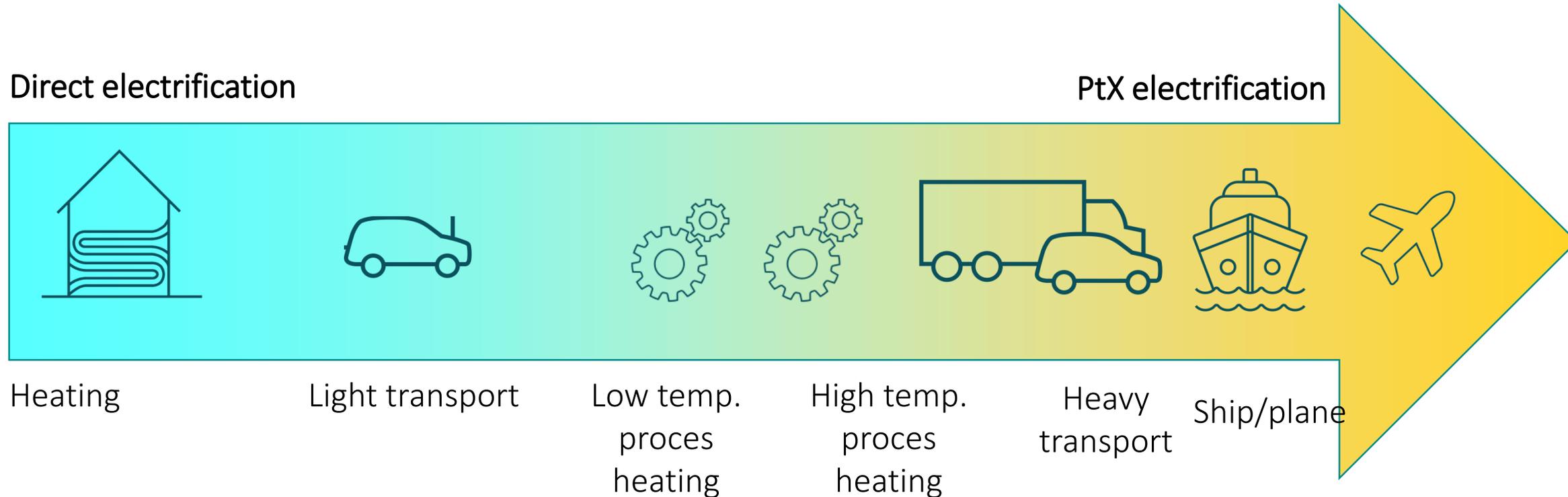
VIKING LINK
Interconnector to the UK

ENDRUP-GERMAN
BORDER
400 kV overhead line from
Denmark to Germany

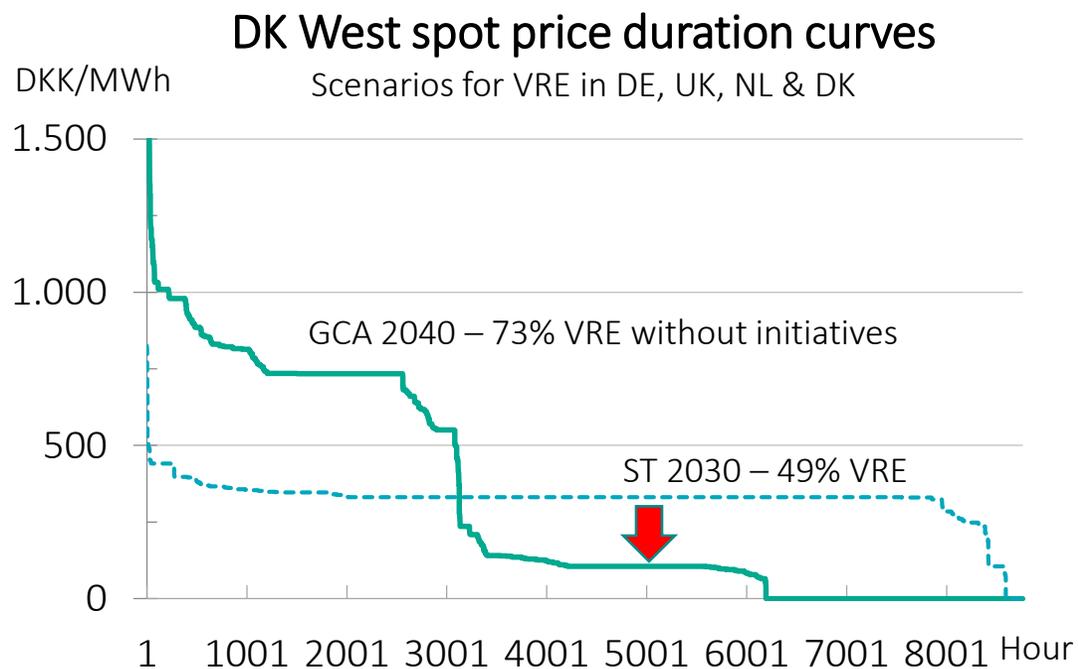
KRIEGERS FLAK
Interconnector to Germany via
offshore wind farms



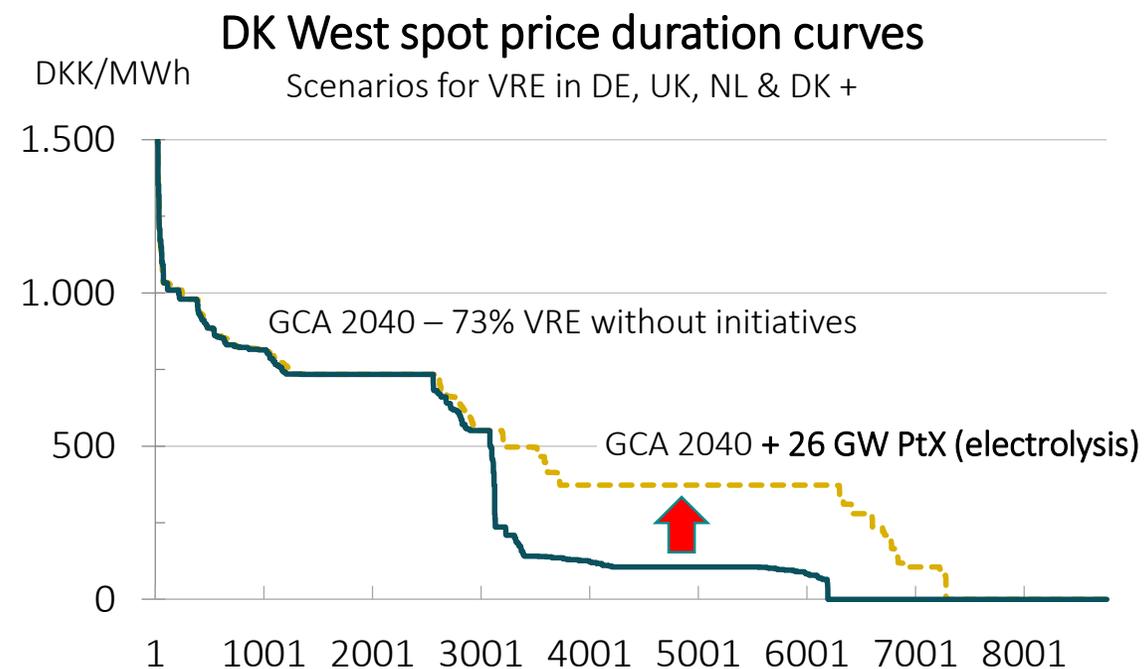
MARKETS TO PROMOTE SECTOR COUPLING



WIND POWER AND PV SUPPRESS ELECTRICITY VALUE – PtX RESTORES VALUE



Average market value for wind power and PV reduced from 0.04 €/kWh to 0.02 €/kWh



Average market value for wind power and PV increased from 0.02 €/kWh to 0.04 €/kWh

RENEWABLES IN THE ANCILLARY SERVICE MARKETS

- Economic potential for Energinet and producers of renewable energy to enhance RES participation in the ancillary service markets.
 - Reserve markets – obligations to support the system if called upon - is the next place to look.
 - But how can we ensure that Energinet has the contracted resources available at all times when it is delivered from renewables?
 - Can digital solutions help ud her?
- => I think yes!

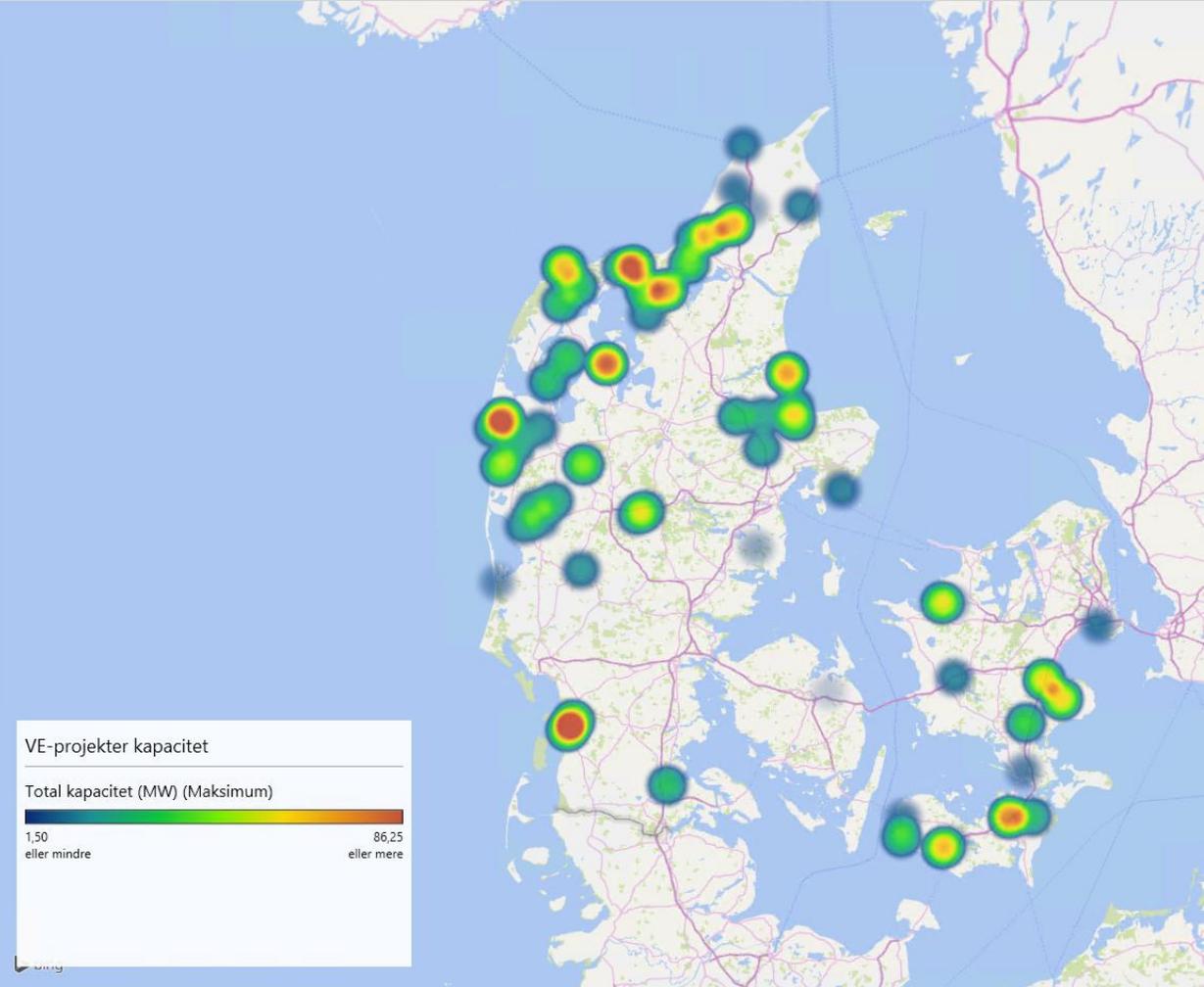


LOCATIONAL SIGNALS ARE PROVING INCREASINGLY NECESSARY...

... in order to ensure that the market reflects the locational value of the renewable energy production

Possible solutions

- Increase the number of bidding zones
- Nodal pricing
- Feed-in zones
- Tariffs



The map shows possible renewables projects smaller than 100 MW including both projects with and without a bank guarantee.

The projects amount to 1,700 MW in total.

THANKS FOR YOUR
ATTENTION!

Søren Dupont Kristensen

CEO Electricity System Operator, Energinet

sdk@energinet.dk