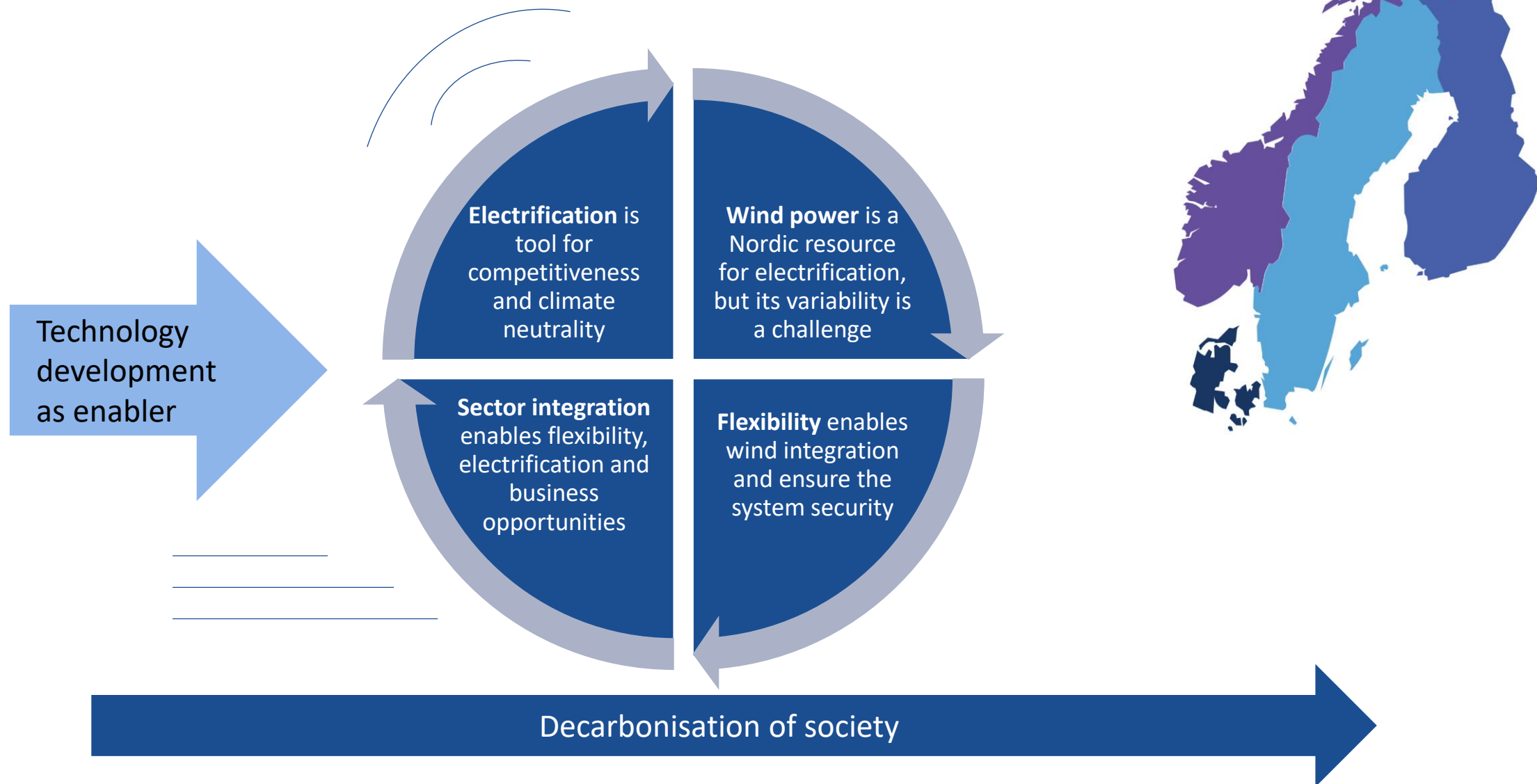




Daniel Gustafsson, Nordic Planning Group
Jussi Matilainen, Nordic R&D

Joint strategy for the Nordic wind power and sector integration development



Nordic vision 2030

Clean and affordable electricity enabling a climate neutral, secure and integrated energy system in the Nordics

"Optimized energy system"

Optimized Nordic energy ecosystem where infrastructure is based on the potential of climate neutral electricity, incorporating the needs of stakeholders.

"Harmonized market and secure power system"

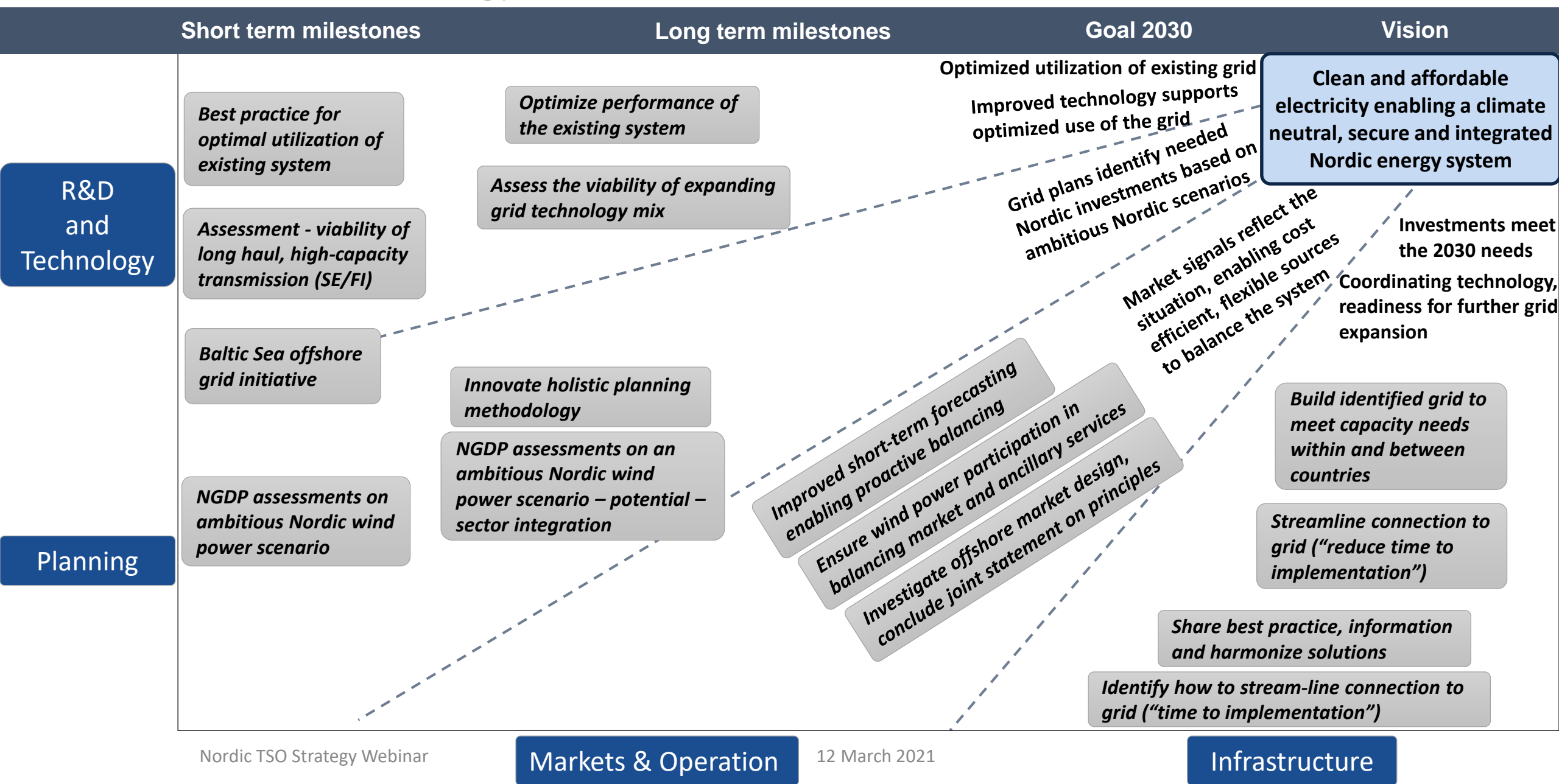
Harmonized Nordic market design supporting a coordinated flexibility in a cross-border level and secure system operation with an equal playing field for all technologies.

"Adequate infrastructure"

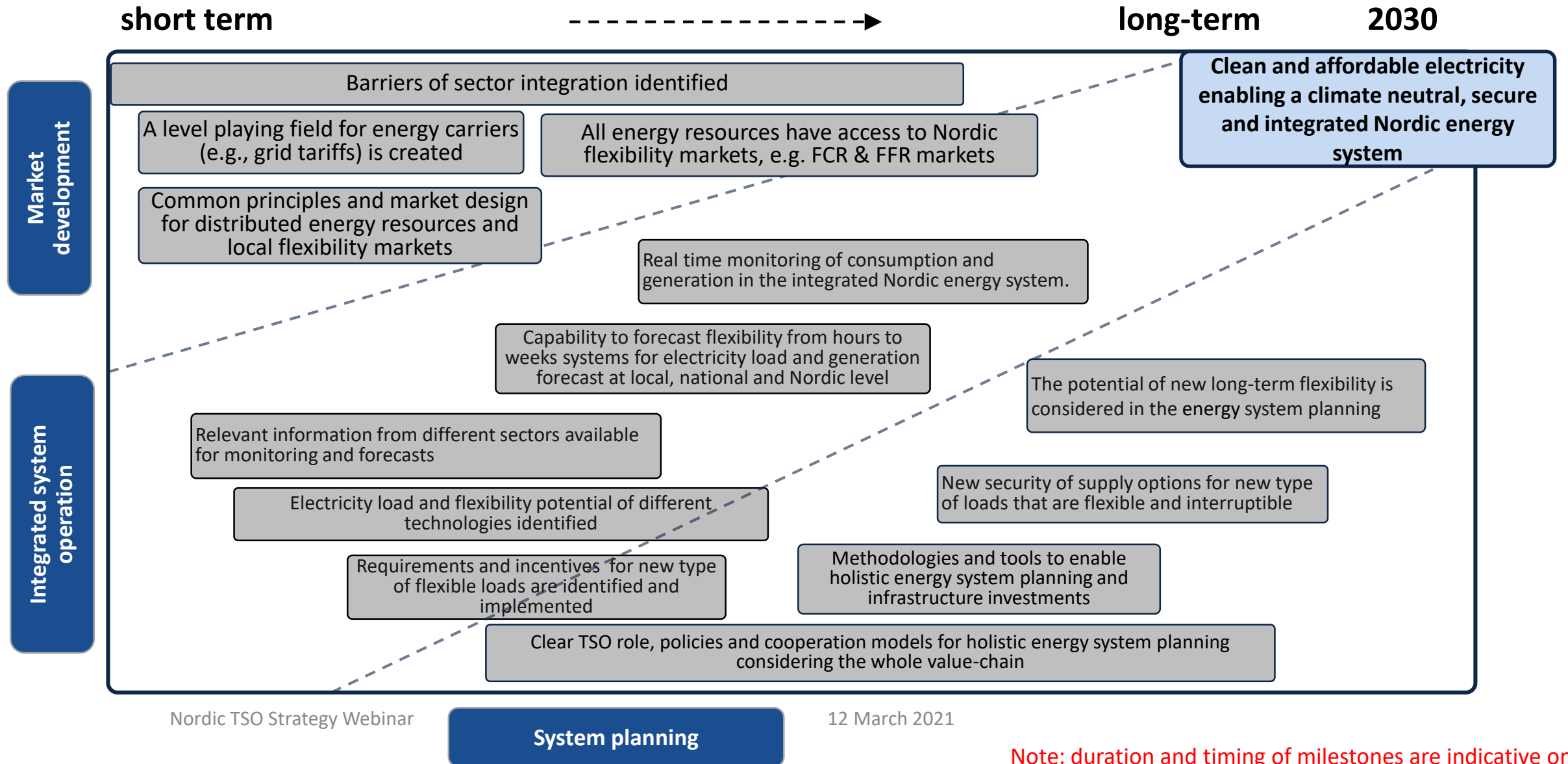
Adequate transmission capacity within and between countries where an integrated Nordic market for renewable resources as well as direct and indirect electrification are enabled.

Cross-border cooperation with stakeholders and shared best practices among TSOs. Excellent conditions for on- and offshore wind power in the Nordics. Easy access to advanced electricity markets and reserve power markets. Demonstrated use cases integrating energy sectors. Nordics viewed as trustworthy location for green investments. A strong joint Nordic vision and strategy.

Nordic TSO - Wind Strategy (roadmap)



Nordic TSO – sector integration strategy (roadmap)



Key messages

Clean, flexible and integrated energy system electrified by wind power

TSOs: Ensure participation of wind power and other resources in balancing markets and ancillary services ("flexible")

Stakeholders: Provide flexibility resources

TSOs & stakeholders: Holistic planning methods required to optimize the entire energy system ("integrated energy system")

TSOs & DSOs: Enables new flexibility

Stakeholders: Better cost-efficiency and clean energy system

TSOs: Need for new technologies to maximize the use of existing grid ("electrified")

TSOs: Streamlined processes to make grid and connections available in time

Stakeholders: Enables carbon-free solutions for industry, buildings and transportation

Stakeholders: Cost competitive and clean electricity ("wind power")

Nordics as a forerunner

Advanced electricity markets
Affordable electricity prices
Strong experience in cooperation and P2X pilots

Strong Nordic voice towards EU regulation

Business opportunities

- green investments
- new services
- value of flexibility



Key messages

Nordic experience in sector integration, advanced electricity markets, competitive electricity price and tradition of cooperation makes Nordic energy system as a potential forerunner and attractive area for investors

Sector integration enables new flexibility for TSOs and DSOs, better cost-efficiency for customers and clean energy system

Nordic wind power with competitive cost enables strong Nordic electrification and sector integration

Technologies need to be present that maximizes the use of existing grid

Planning methods need to be holistic to consider all energy sectors and to optimize the entire energy system

Ensure wind power participation in balancing markets and ancillary services

Internal (TSOs) and external processes need to be fast and streamlined in order to make grid and connections available in time

Strong Nordic voice towards EU regulation will have an impact



Thank you!

Fingrid Oyj

Läkkisepäntie 21
FI-00620 Helsinki
Tel. +358 30 395 5000

Energinet.dk

Tonne Kjærvej 65
DK-7000 Fredericia
+45 7010 2244

Statnett SF

Nydalen allé 33
NO-0484 Oslo
+47 2390 3000

Svenska Kraftnät

Sturegatan 1
SE-17224 Sundbyberg
+46 10 475 8000