



Developing Local Market Places

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Use cases

High Voltage

Medium Voltage

Low Voltage

Generation
(congestion)

Flexibility as alternative to traditional redispatch (Einsman)

aggregation small scale generation units

PV

Load
(congestion)

Disproportionately high costs if annual peak load is exceeded

Defer grid investment

E-Mobility

Balancing
(TSO/DSO coordination)

Activation of assets in congested DSO areas

Aggregation of assets for balancing purpose

Aggregated storage

Use cases

High Voltage

Medium Voltage

Low Voltage

Generation
(congestion)

Schwarzheide (Germany)






*aggregation
small scale
generation units*

PV

Load
(congestion)

*Disproportionately
high costs if annual
peak load is
exceeded*

Engene (Norway)

E-Mobility

Balancing
(TSO/DSO coordination)

*Activation of assets
in congested DSO
areas*

*Aggregation of
assets for balancing
purpose*

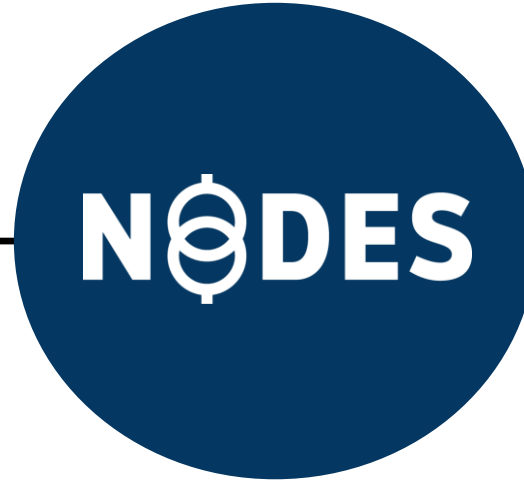
Aggregated storage

Business model options

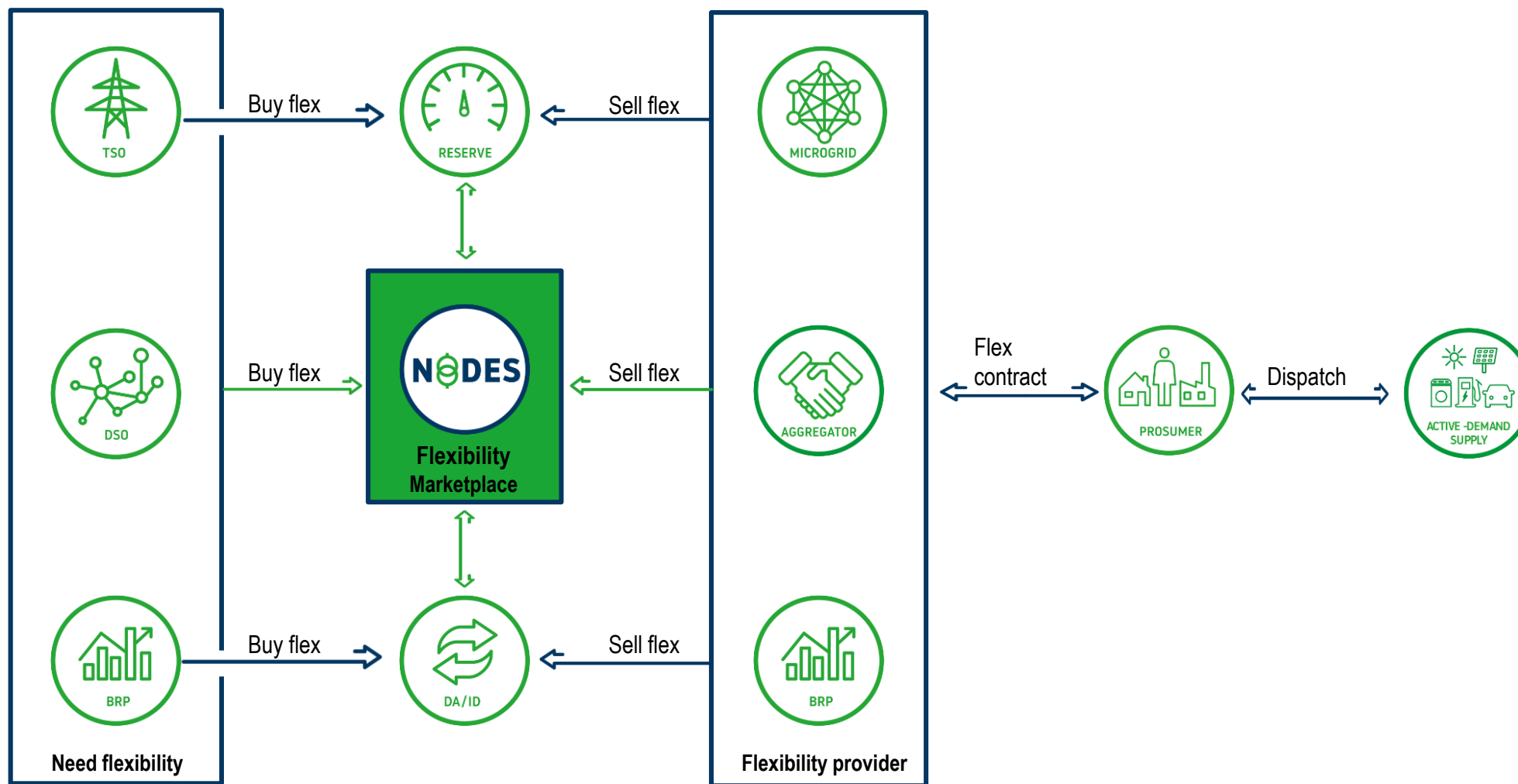
Central control (e.g. DERMS)

Independent market operator

Peer to peer (e.g. blockchain)

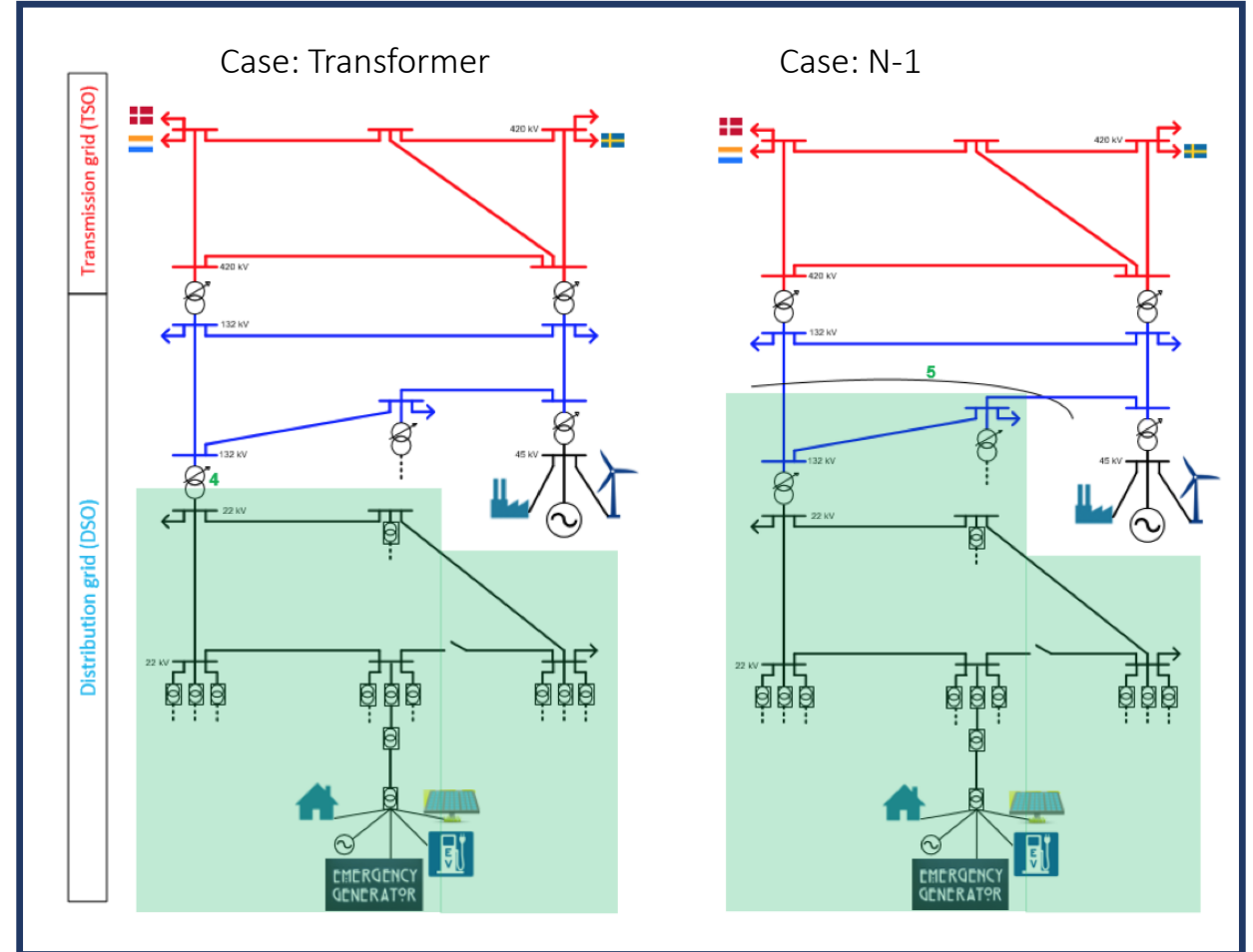


NODES – Roles in new market design

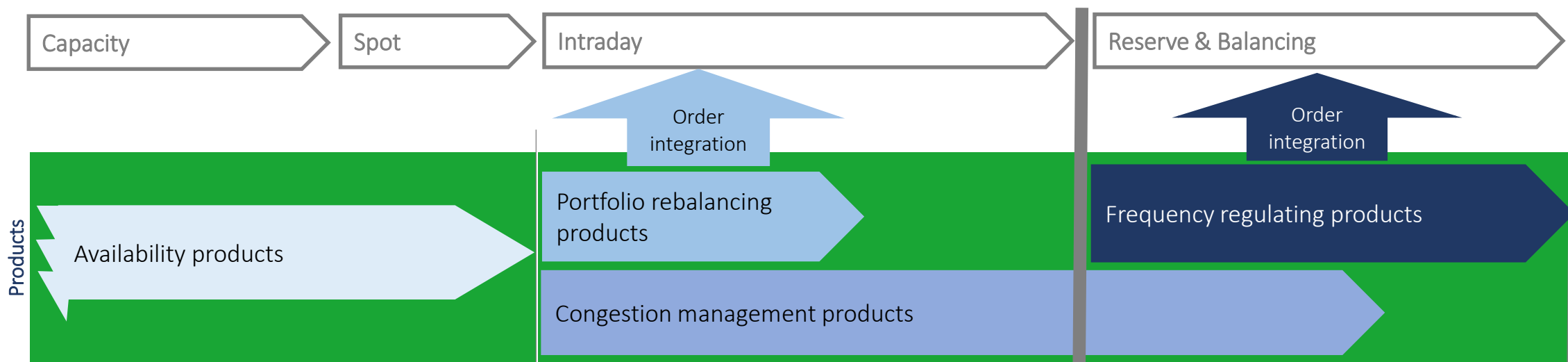


Grid Location – a collection of meter point IDs

- Connect Location
 - Price Area
 - Transmission area
 - DSO Grid Location
 - Total Grid topology per DSO
 - Sub Grid Location
 - Congestion zone that require local focus:
 - Transformer(s)
 - Line(s)
 - Feeder(s)
 - Cable(s)
 - N-1
-
- Physical topology is not stored in NODES



Trading Timeline – Physical Products



NODES – Independent Market Operator in Europe



Buyers



- Open, transparent and independent
- Provide visibility and matching
- Be cost effective and automatic
- Connect to other markets
- Not own by a dominant market participant
- Open to all participant tools(grid or flex)

Sellers



Strategic challenges

Regulatory

- DSO able to purchase flexibility (i.e. a participant in NODES marketplace)
- Opex to be treated equally to Capex
- Grid tariffs must allow up regulation without penalising consumer

Technology

- New roles for DSO
- The right tools to be able to forecast
- The right horizon (availability vs flexibility contracts) in market design

NØDES

CONNECTING MARKETS