



Flexibility and Grid Connectivity

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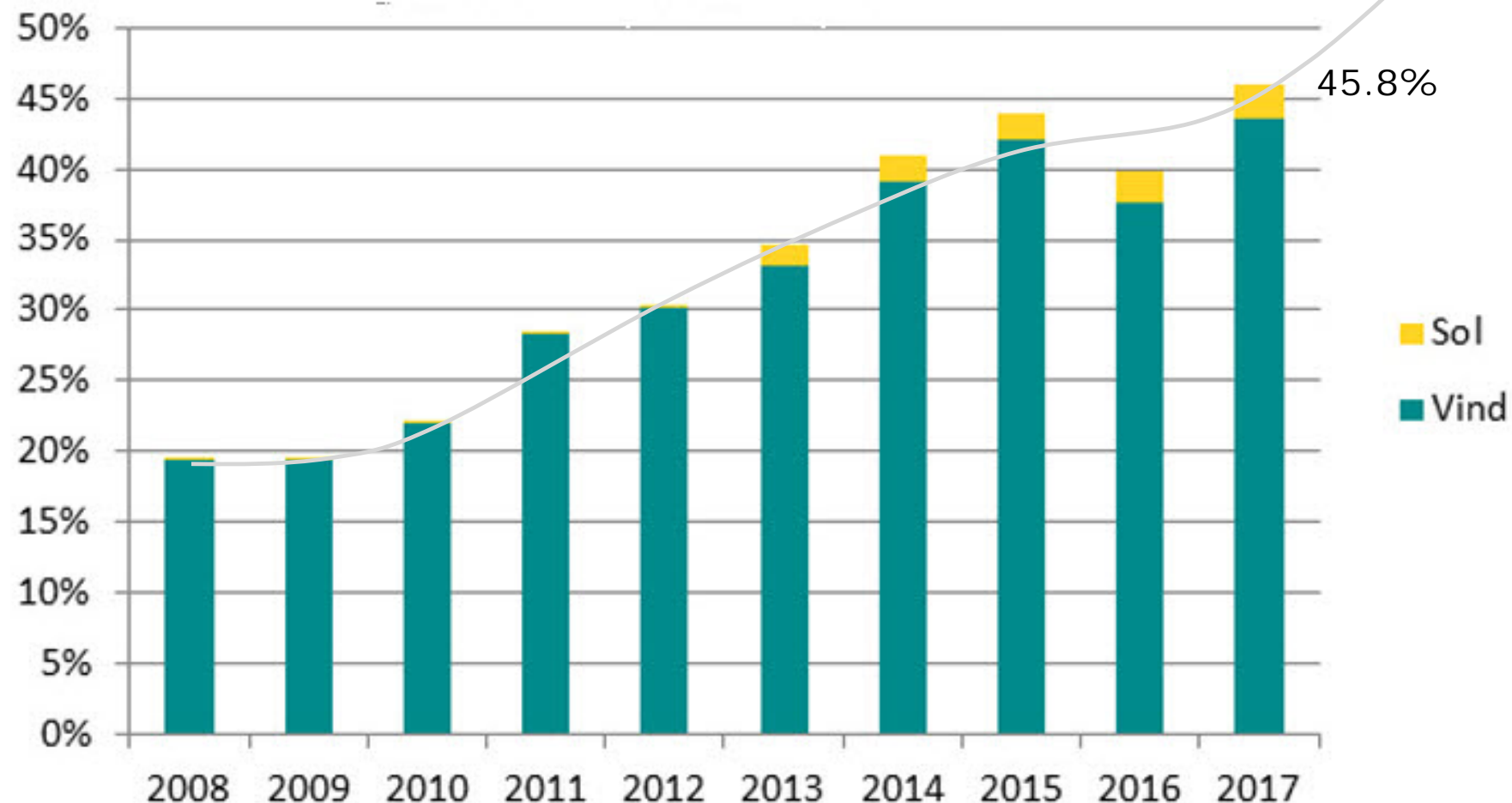
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Energy Transition towards a Greener Future

The Eighth Korea-Denmark Green Growth Alliance Meeting - 1 November 2018 Seoul

Wind share in Danish annual electricity consumption



23 December 2017:
1 hour with 139%

25 December 2017:
1 day with average of 109%

Political target 2050:

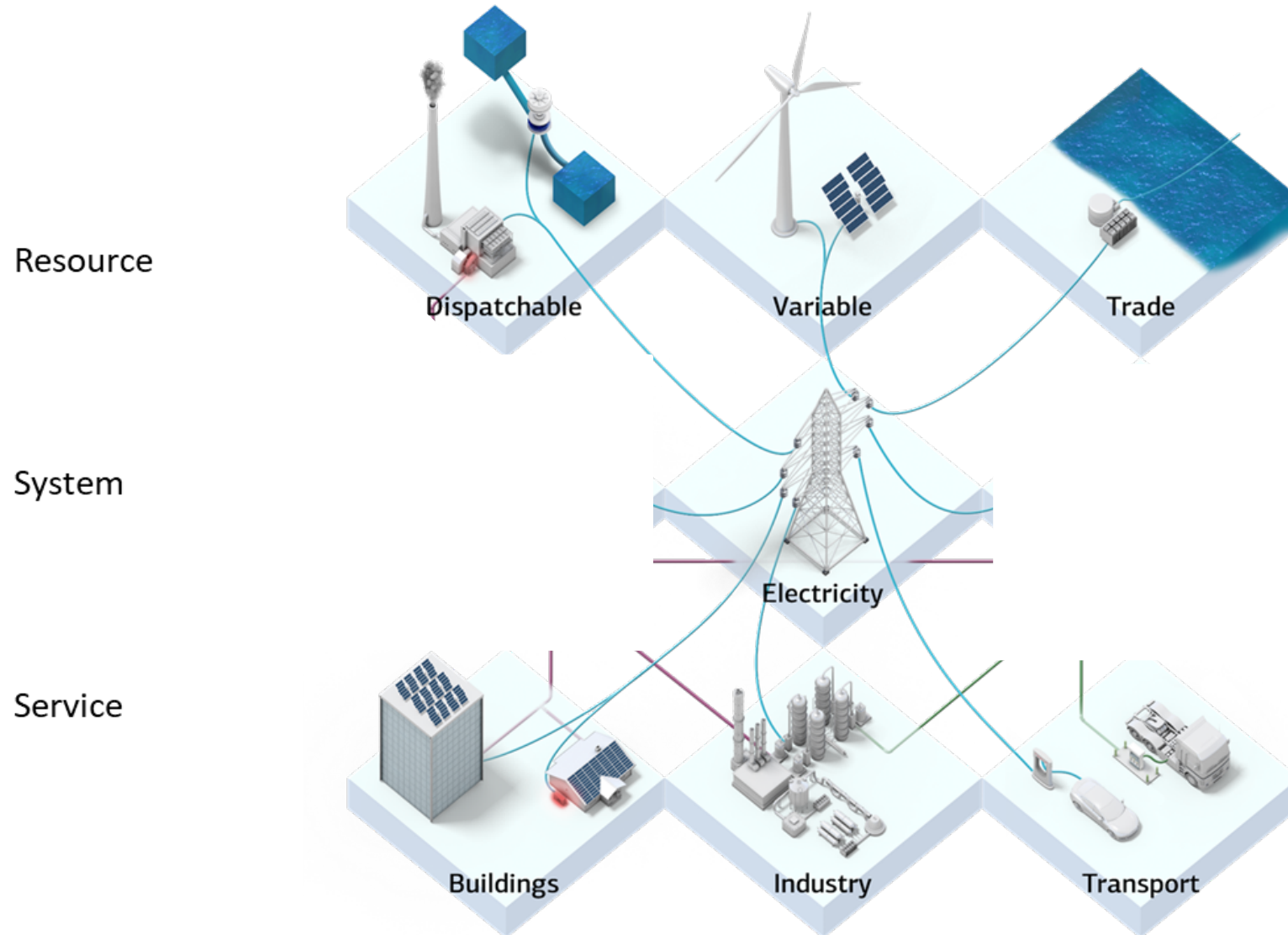
The total energy supply based on renewable energy incl. heat, gas, transport, industry, etc.

District heating:

50% share of total heat supply, with 69% CHP and <1% P2H



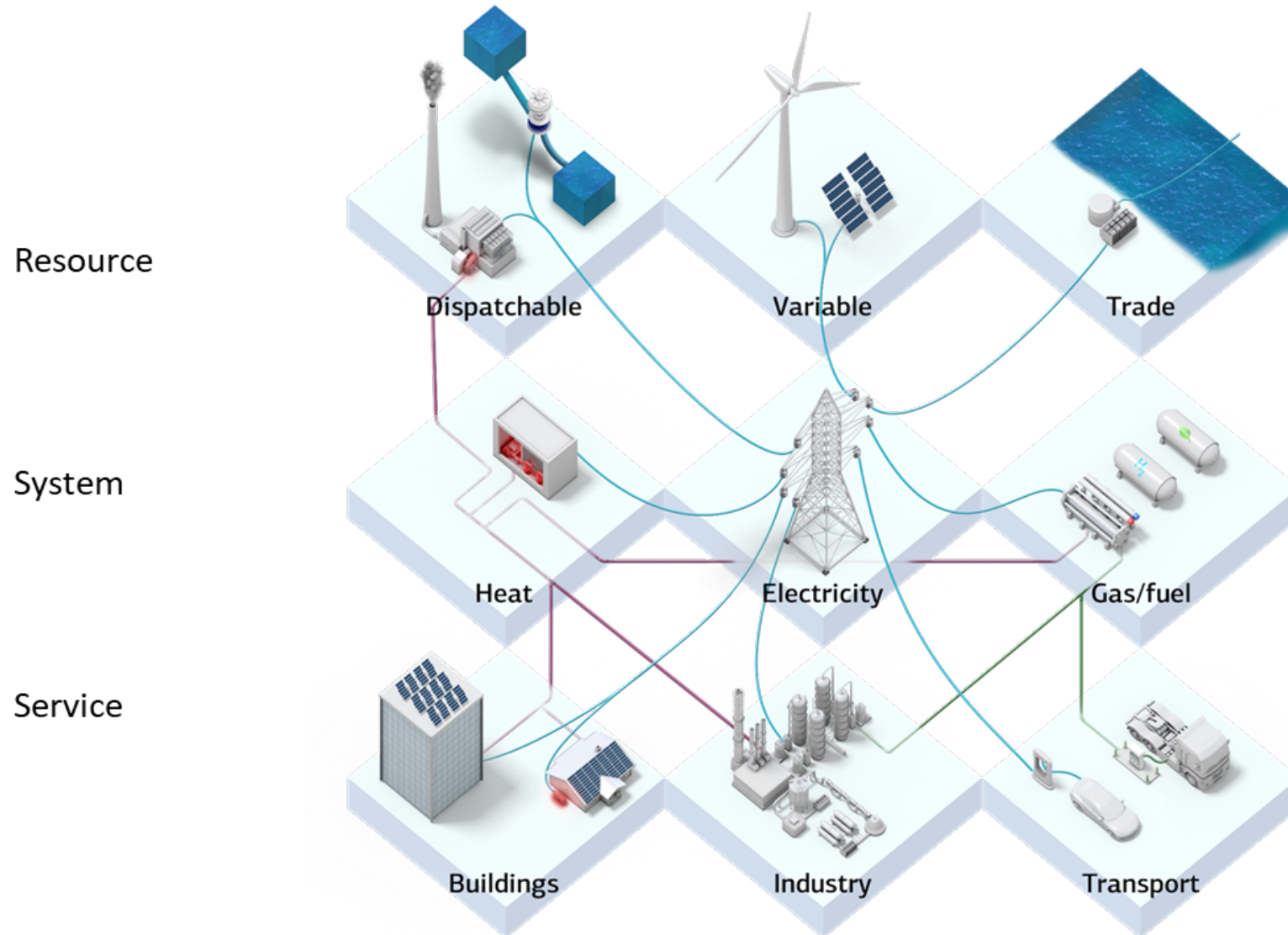
Flexibility in the electricity infrastructure



Supply flexibility

Demand responds

Flexibility in coupled infrastructures



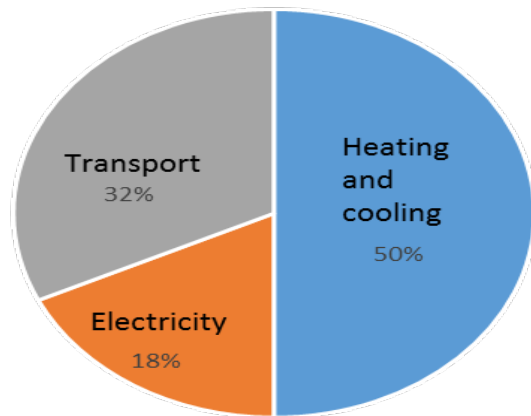
Supply flexibility

Sector coupling/
Electrification

Demand responds

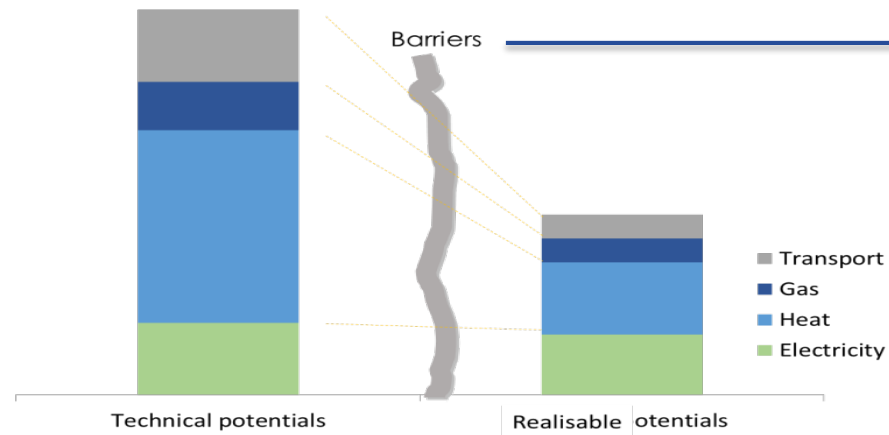
Sector coupling

Electrification as source of flexibility



Distribution of EU energy consumption
(Source: EU Heating and Cooling strategy)

From technical to realisable potentials



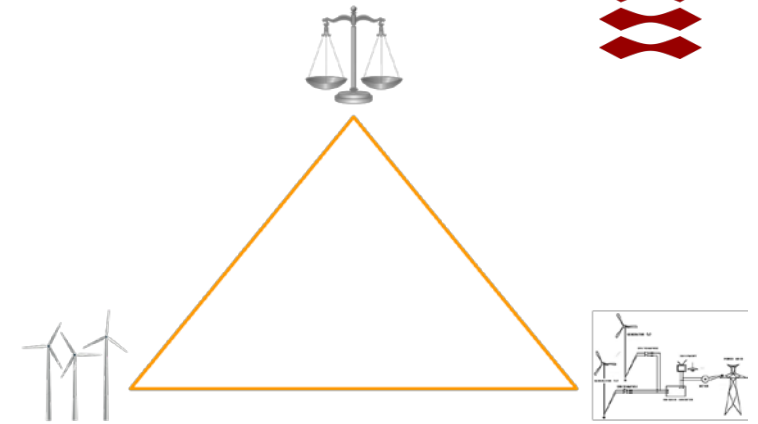
Framework conditions

- Market design
- Direct regulation
- Fiscal policies
- Support schemes
- Grid regulation



Takeaways

- Large shares of wind is possible
- Policy awareness on flexibility
- Sector coupling as flexible as possible (smart)
- Remove barriers
- Improve the business case for flexible P2H/P2G



Market coupling:

- Incentives for wind and other actors to become **active** electricity market actors

Soft infrastructure (Regulation/economics/institutions) as important as hard infrastructure

Coherent changes in market designs, regulatory framework conditions, and coupling of markets/sectors.

