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A data space approach to a green, coherent and energy efficient utility sector

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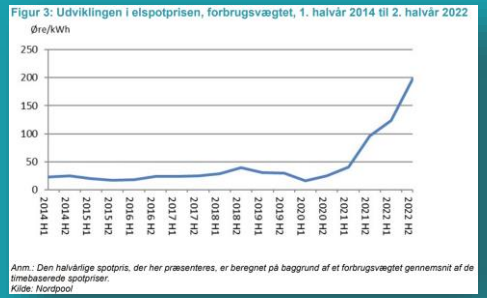
Why

are utility data of significant value?

The utility and energy system at the heart of complex challenges



Security of supply

Invasion in Ukraine
Energy prices
Brownouts

Climate crisis / speedy transition

Climate neutrality by 2045 and
110 pct. CO_2 reductions by 20250
Electrification and sector integration

Ressource considerations

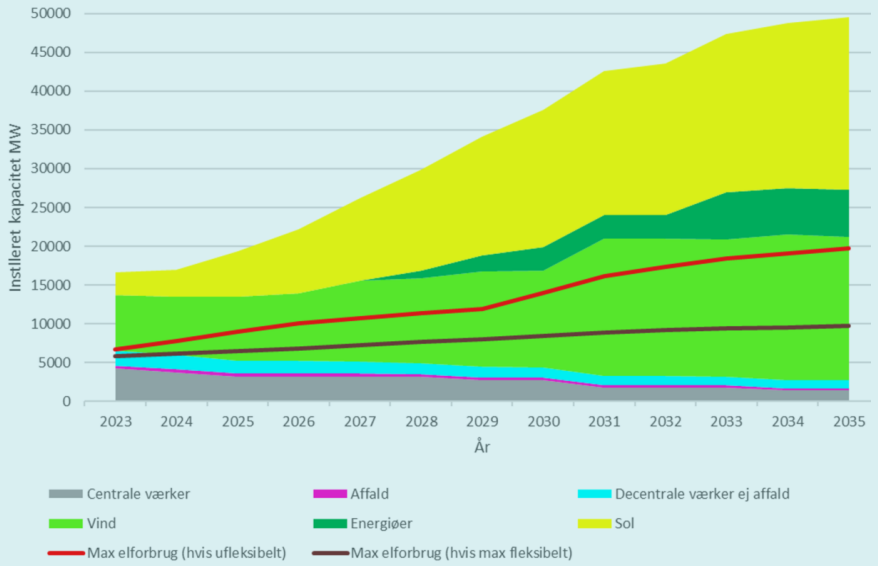
Distribution and transmissions net
Energy efficiency
Cost effectiveness

Less flexible electricity production, halving of thermal capacity, as well as challenges to grid and power adequacy and system security

Dependency on weather and foreign connectivity
Uncertainty

Electrification
PtX, eletricity consumption, transportation

Flexible demand
Maximum consumption vs. managed capacity



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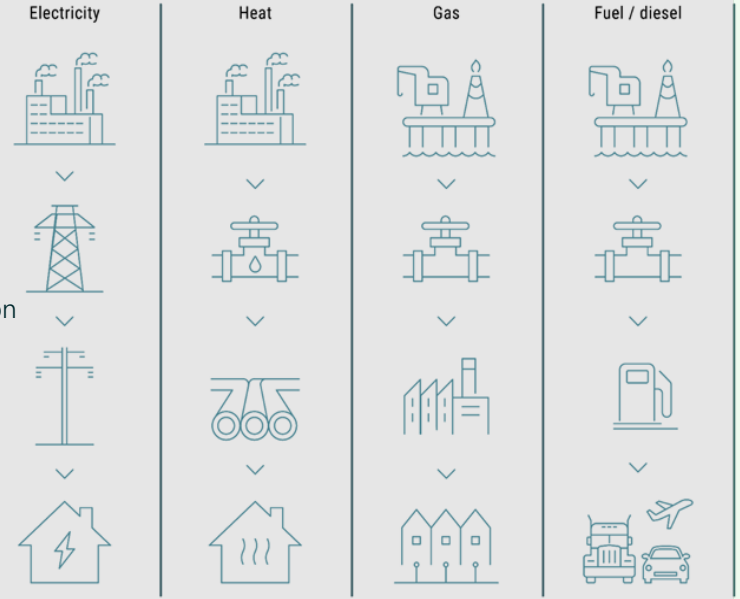
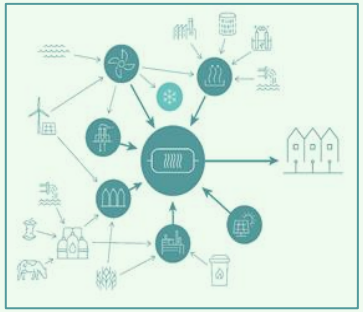
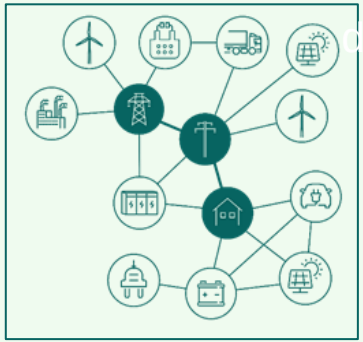
Data is the glue in a green, coherent/flexible and energy efficient utility sector

Fossil fuels
CO_2
Centralised production
Silo
Flexible production







Renewables
Climate neutral
Decentralised production
sectors integrated
Fleksibelt demand/consumption

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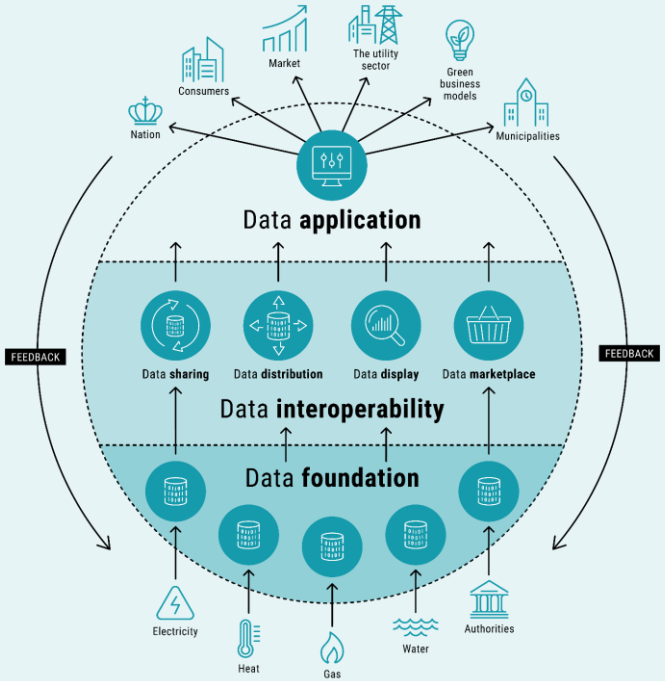
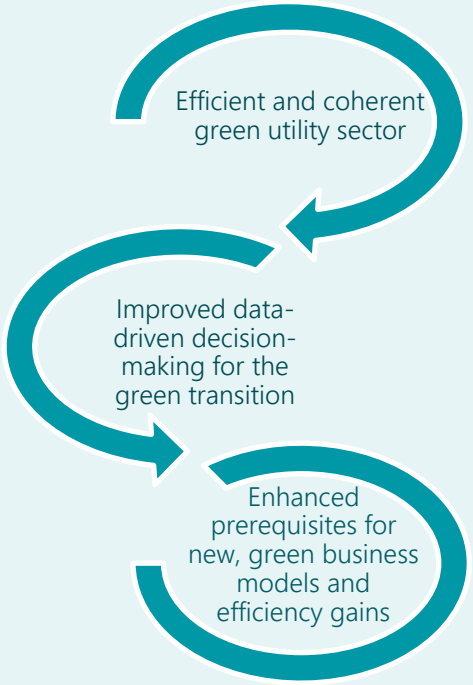
How

can we unlock the value of utility data?

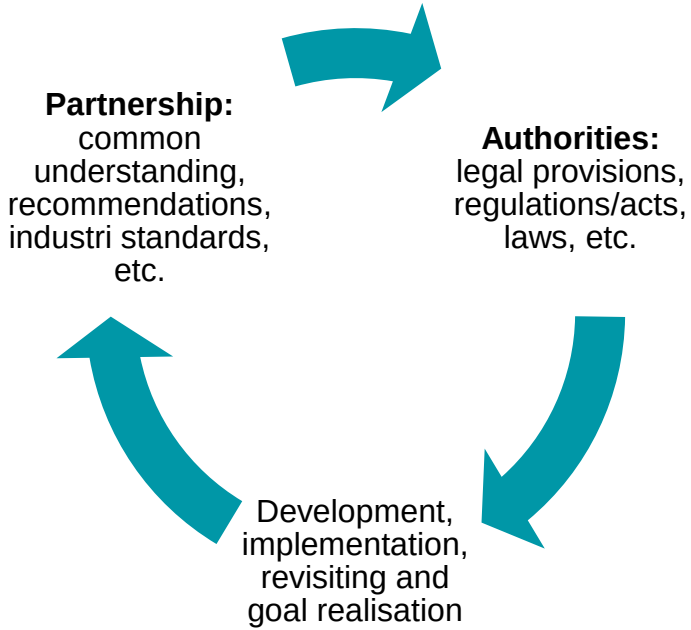
A Utility Digitalisation Program:

Creating uniform and easy access to data from the utility sector
– for better utilization of resources and infrastructure across value chains and types of utilities





A private public partnership - key to a demand and user centric approach



The Utility Digitalisation Program aims to ensure a cohesive and digital utility sector. This involves creating frameworks and regulations for how data, initially within electricity and district heating companies and across the utility sector, is collected, structured, and made accessible.

A partnership should contribute to the development of common standards and rules for utility data, support data release, and identify new data opportunities.

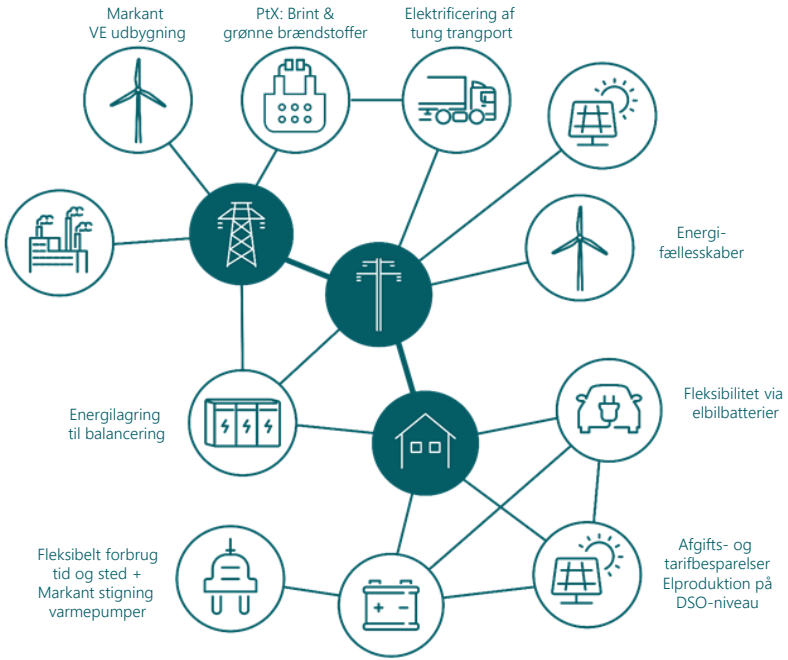
… who will be the main actors?

… what are the incentives and how will implementation be financed?

Examples

of value added (including spatial data)

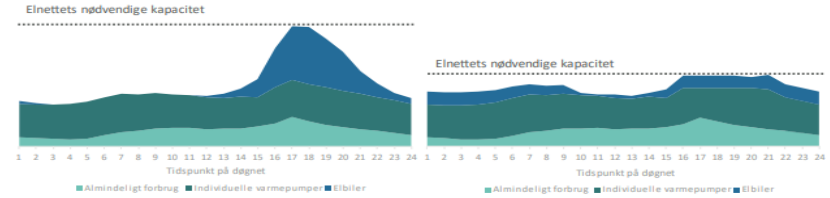
The future electricity sector



Example of estimates (by Green Power Denmark):

Increased flexibility in the grids could result in reduced investment requirements in the electricity distribution networks (excluding increased operating costs) of approximately DKK 17-23 billion (2024-2040)

Figure: Illustrative example of how the timing of electricity consumption impacts the required net capacity (dotted line) during a day



Kilde: Green Power Denmark.

And the spatial data link: needed in various products like digital twins used for net planning purposes, anonymization of consumption data, specific location of meters, etc.

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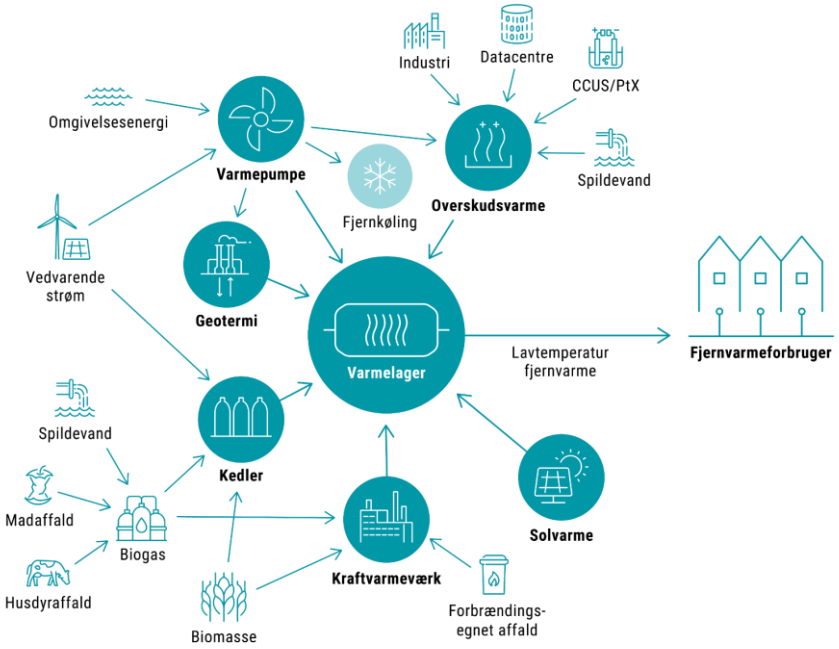
The future district heating sector



Source: Danish District Heating Association

Example of estimates (Danish District Heating Association):

Increased data utilization has a potential value of 1 billion DKK annually, solely for district heating.

Low-temperature district heating has an estimated value of approximately 250 million DKK annually.

Targeted investments.

Lower forward and return temperatures.

Increased efficiency of heat pumps for district heating.

Enhanced flexibility, time-differentiated tariffs, and automated demand management.

Operational optimization ~10% improved utilization of the grid network and facilities.

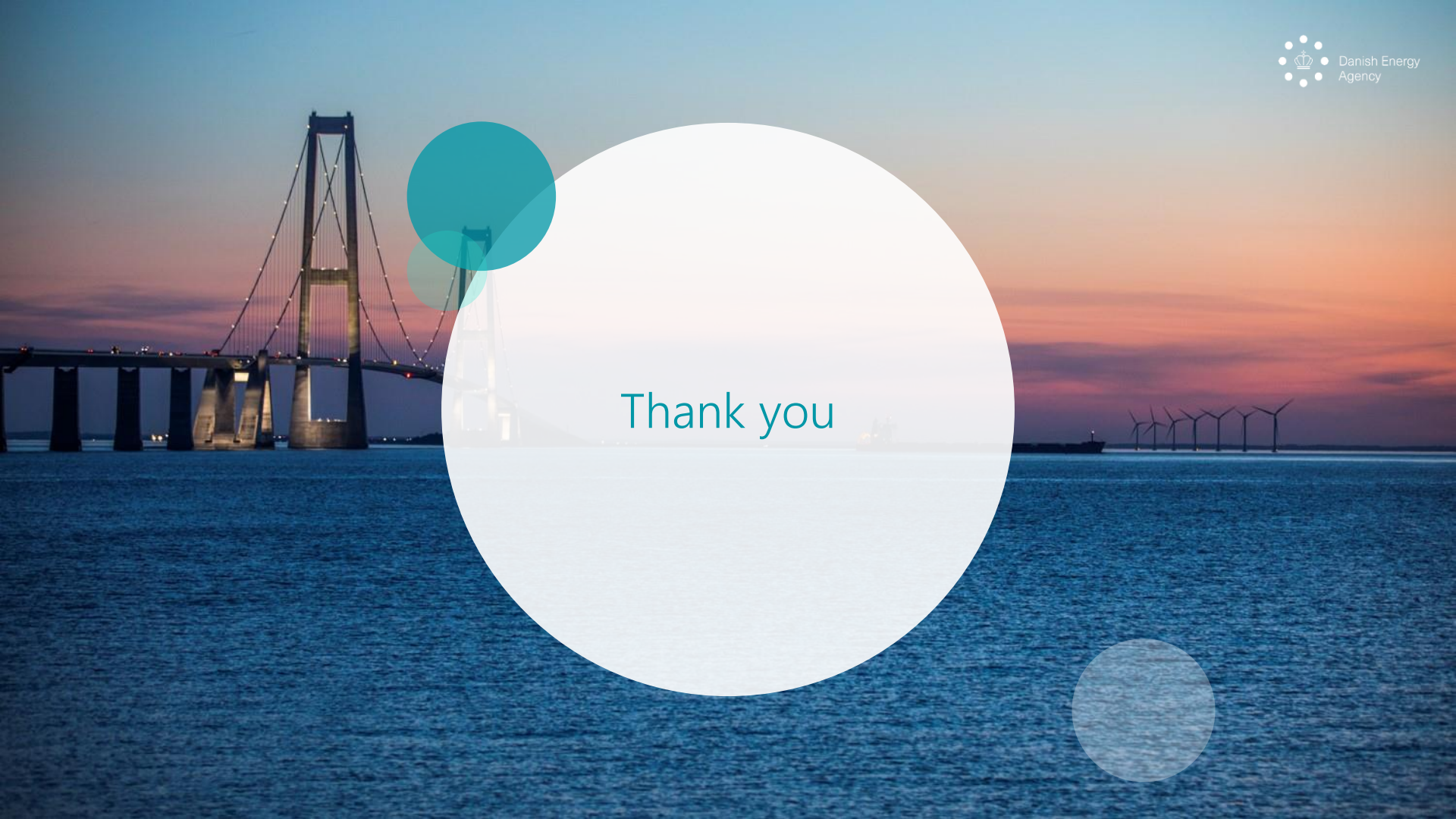
And the spatial data link: needed in various products like digital twins used for planning purposes, anonymization of consumption data, specific location of meters, etc.

… and the less tangibles of increased utilisation of utility data

New business models
Job creation
Export opportunities
Previously unknown solutions

Example: Estimated economic gains from making the Danish Meteorological Institute's data public (million DKK per year). (Deloitte, 2017)

Electricity sector	5,8-11,6
District heating sector	18
Agricultural sector	26-105
Total	49,8-134,6


Danish Energy
Agency
Thank you