Setting the scene from the Polish perspective

Electrification of district heating in Poland

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District heating is already a large heat market — and a power-system asset

Second-largest district heating market in the EU

15.5 M
people served by district heating

52.6 GWt
installed thermal capacity

~400
licensed DH companies

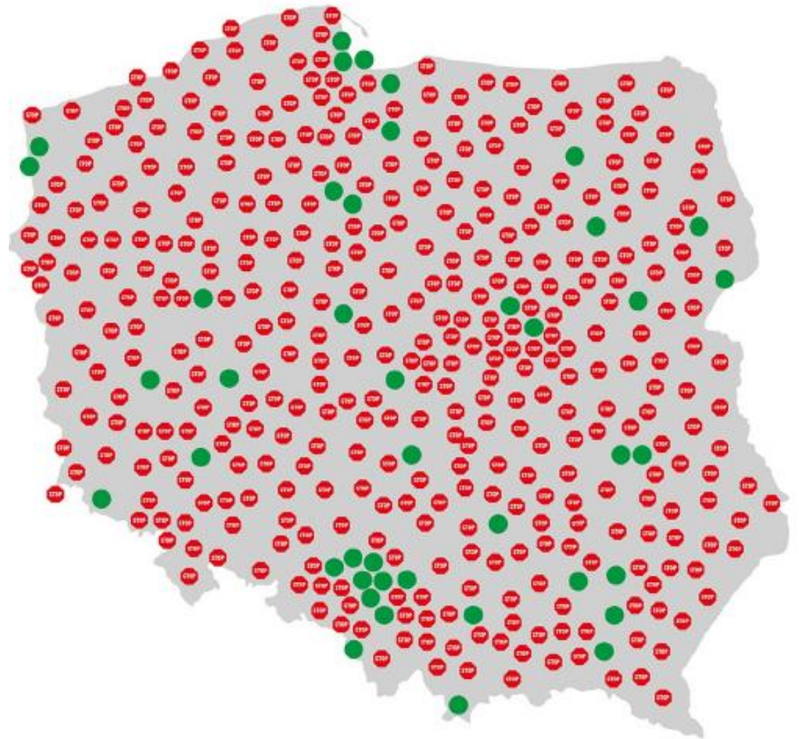
And already deeply linked to Poland's power system

11.6 GWe
installed CHP capacity (district heating + industry)

17%
share of electricity from CHP in total power generation

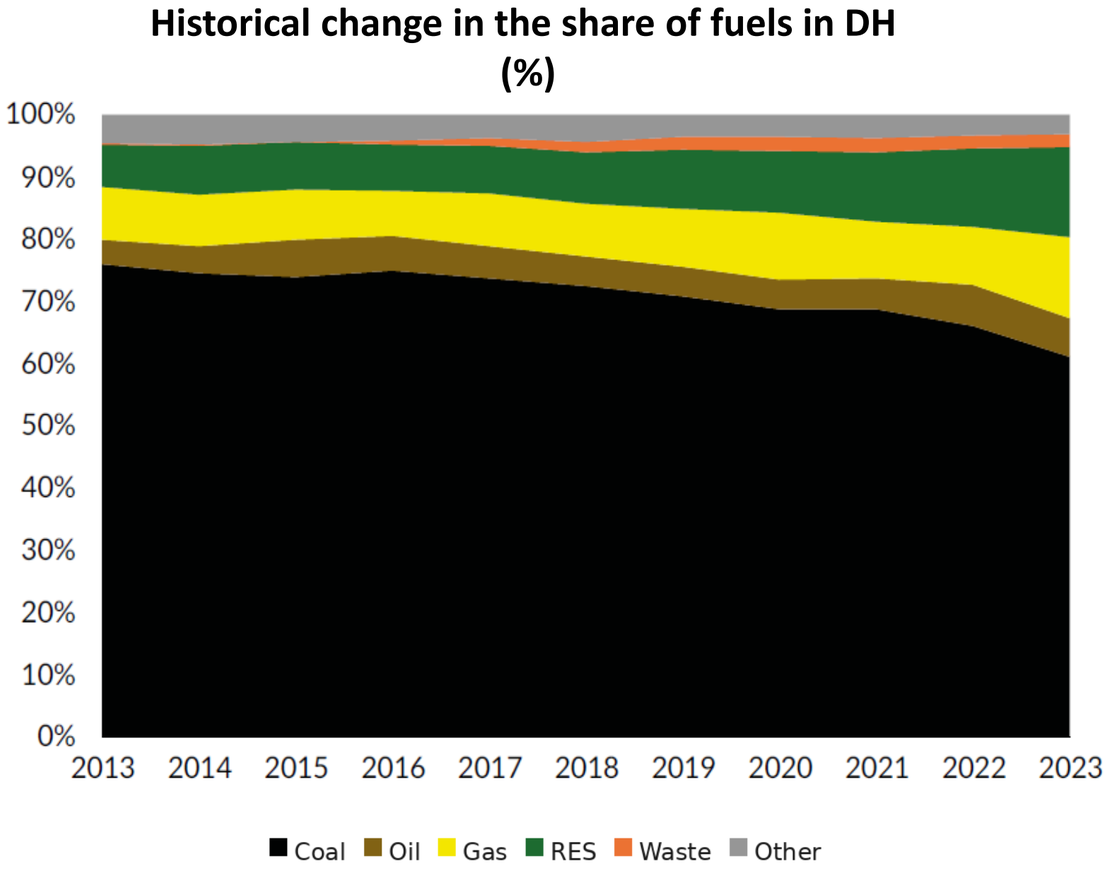
64%
share of district heat produced in CHP

Poland already has a strong foundation in heat–power integration, built on a large a large CHP base. The transition challenge is to turn this into a more flexible and and bankable system.



Concessioned district-heating systems across Poland

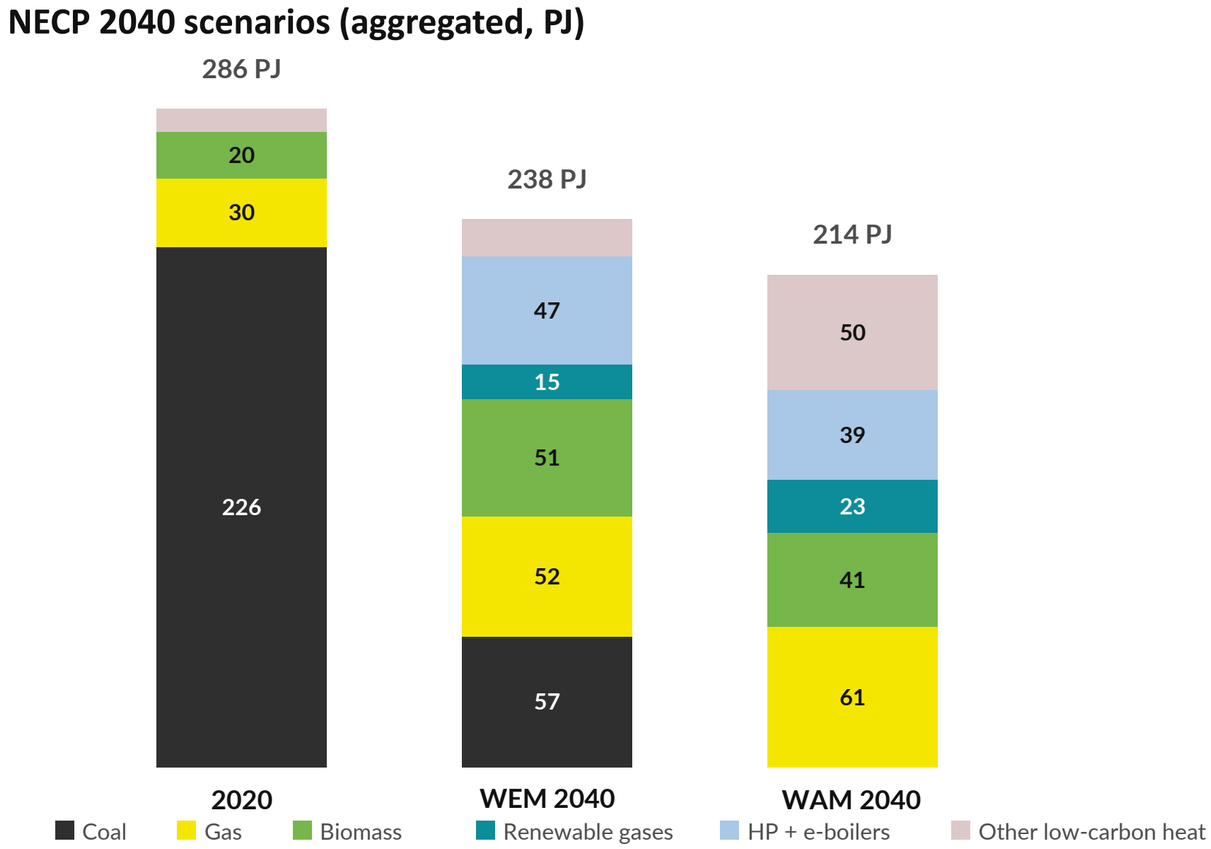
The previous transformation model



- The priority was to meet emission standards for gases and particulates (SOx, NOx, PM)
- CO_2 decreased more slowly than local emissions.

- In the future: diversification of sources and electrification of heat
- The WAM scenario considers heat from nuclear power plants
- In the WEM scenario, 2.5 million tonnes of coal remain in 2040

NECP point to a very different system in 2040



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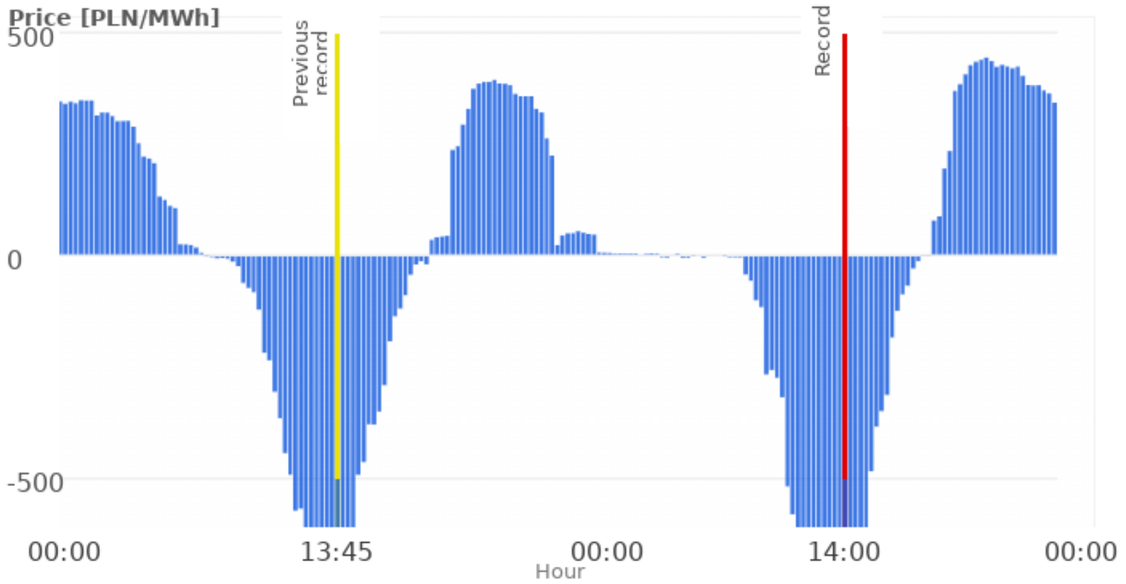
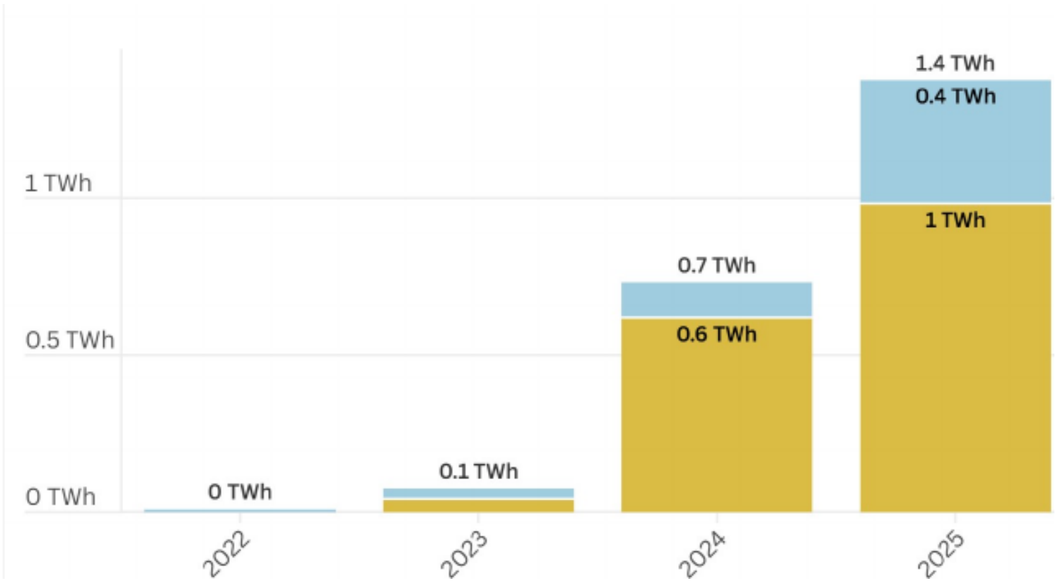
Integration of district heating into the National Power System: the growing value of flexible energy consumption

Low and negative electricity prices (5–6 April 2026)



The growing scale of renewable energy generation curtailments in Poland



- More RES means more frequent price volatility - from very low to very high hours.
- Curtailment is rising, which increases the value of flexible electricity demand.
- This increases the system value of e-boilers, large heat pumps and thermal storage.

Electrification is a pathway to more resilient, multi-source heating systems

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- Wastewater
- Industrial waste heat
- Data-centre heat
- Ambient heat (rivers, shallow geo.)
- Geothermal / solar
- Sustainable biomass
- Green gases

→ **Flexible portfolio**

Large Heat pumps | E-boilers | Thermal storage | Flexible CHP

Peak and reserve boilers where needed

Flexible CHP remains today's largest operational flexibility asset.

Power-system prices / curtailment ↓

→ District heating network

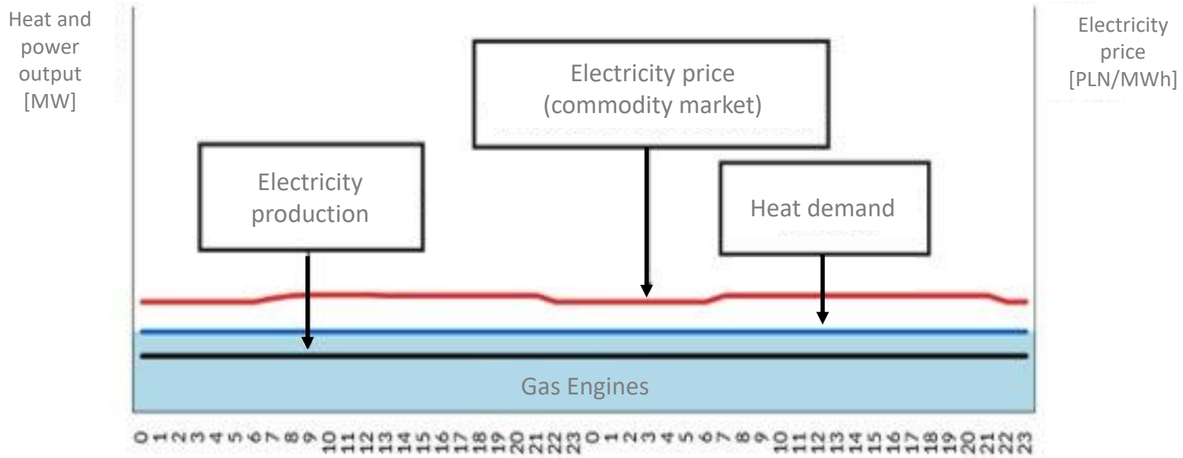
Lower network temperatures unlock low-grade heat and make these resources usable at scale.

Examples of local heat potential

335	wastewater treatment plants
107	industrial sites with waste heat >95 C
16-32 PJ	large-scale solar thermal potential

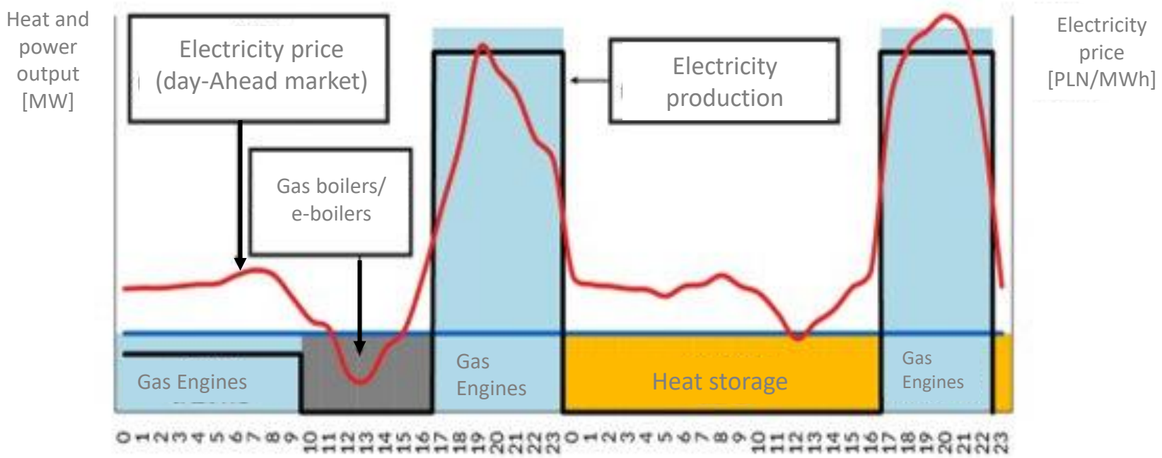
The operating logic has to change

Traditional CHP logic



Heat-led generation; electricity is mainly a by-product.
The plant responds weakly to power-market signals.

Coupled, flexible system



CHP, boilers, storage and power-to-heat are dispatched as a portfolio.
The objective shifts toward system optimisation.

The shift is from heat-led dispatch to multi-source portfolio optimisation against market signals.

Key barriers to the modernisation of district heating

The modernisation of the sector is currently being slowed down by several overlapping constraints:

- Current tariff and regulatory conditions do not always provide companies with sufficient capacity to finance modernisation.
- The high share of fossil fuels increases exposure to price and regulatory risks.
- A significant number of systems that do not meet the criteria for an efficient district heating system limits access to some support instruments.
- The traditional operating model limits integration with the electricity sector and the development of flexibility.
- The scale of deployment of flexibility technologies — such as thermal storage, electric boilers, heat pumps and flexible cogeneration — remains insufficient.

What should follow from the Polish perspective

01 Keep CHP in the transition - but make it flexible

CHP is already Poland's largest existing flexibility resource. The goal is not to ignore it, but to modernise it and dispatch it differently.

02 Electrify as a portfolio

Heat pumps, e-boilers and storage should be planned together with network upgrades, local heat sources and the remaining thermal fleet.

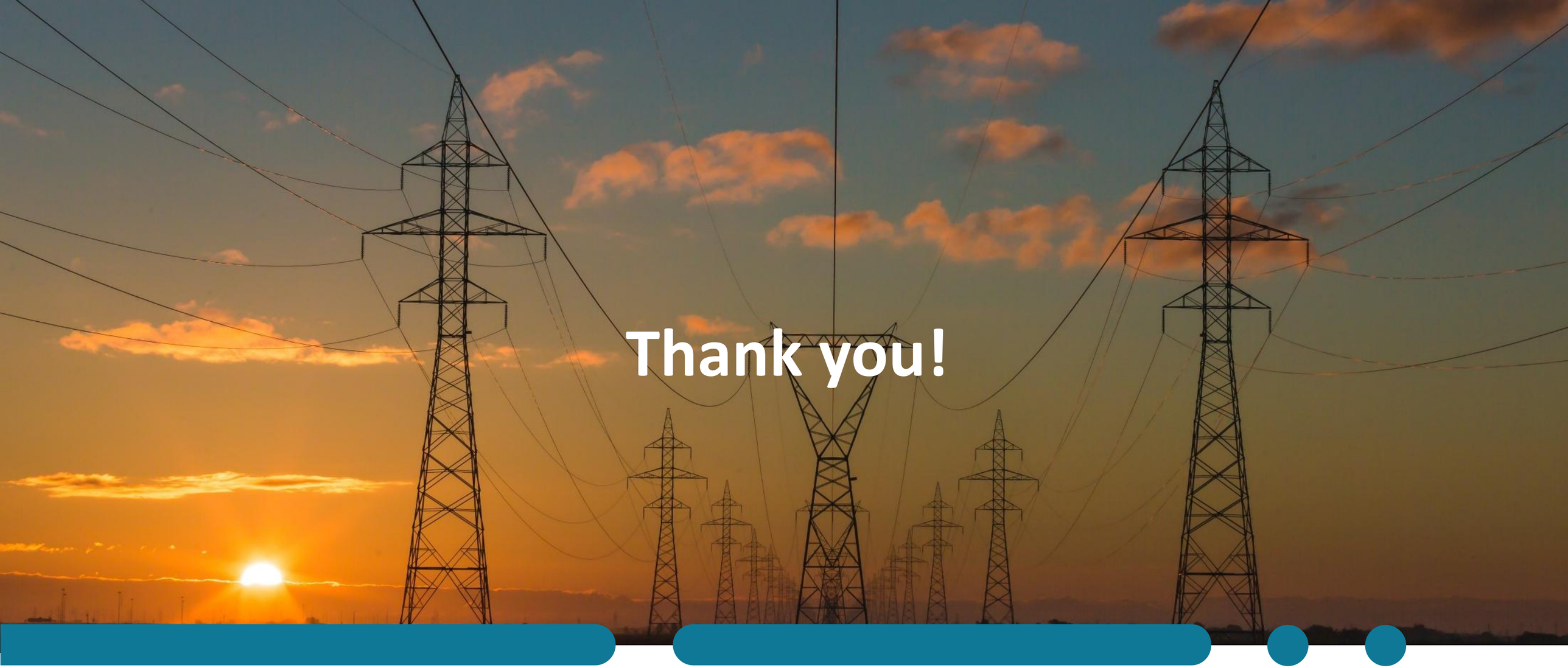
03 Shift regulation from static supply to flexible operation.

Tariffs, support schemes, planning and model-based optimisation tools must reward multi-source operation while protecting heat affordability.

04 Focus on bankable transition plans, not isolated projects.

The next step is a credible investment pipeline for whole systems, with clear sequencing and implementation capacity.

Denmark is valuable here as a reference point for sequencing, operating logic and market design.



Thank you!

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