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Integrating New Technologies While Maintaining Ressource Adequacy

Session 4 – Electricfication of heat

DANISH ENERGY ASSOCIATION

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European Commission Communication on a Roadmap for moving to a low carbon economy in 2050 (2011)

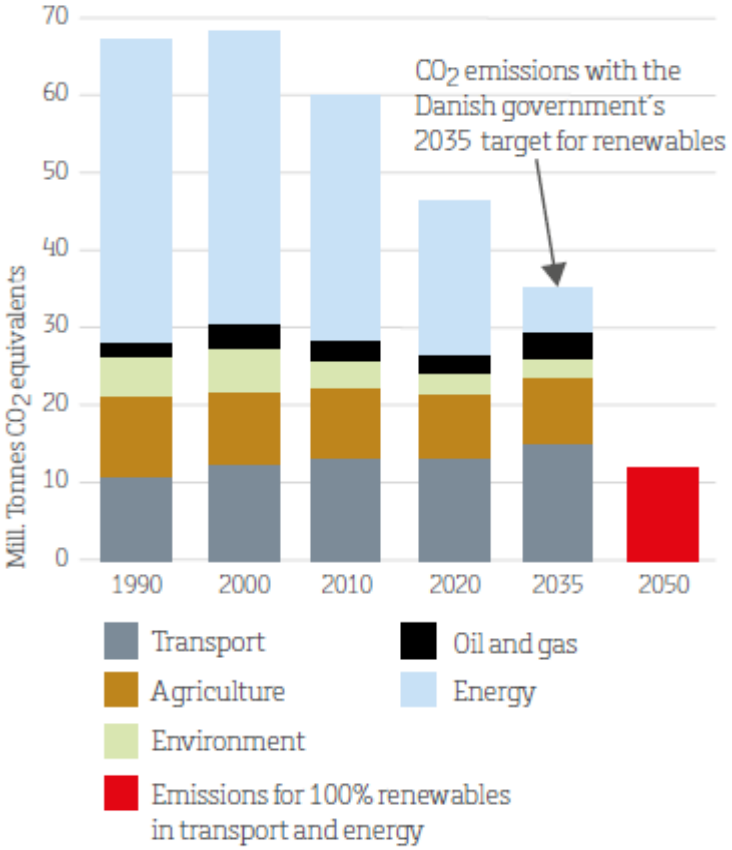
- *Electricity will play a central role in the low carbon economy. It can almost totally eliminate CO2 emissions by 2050, and offers the prospect of partially replacing fossil fuels in transport and heating.*

- *Although electricity will increasingly be used in these 2 sectors, electricity consumption overall would only have to continue to increase at historic growth rates, thanks to continuous improvements in efficiency.*

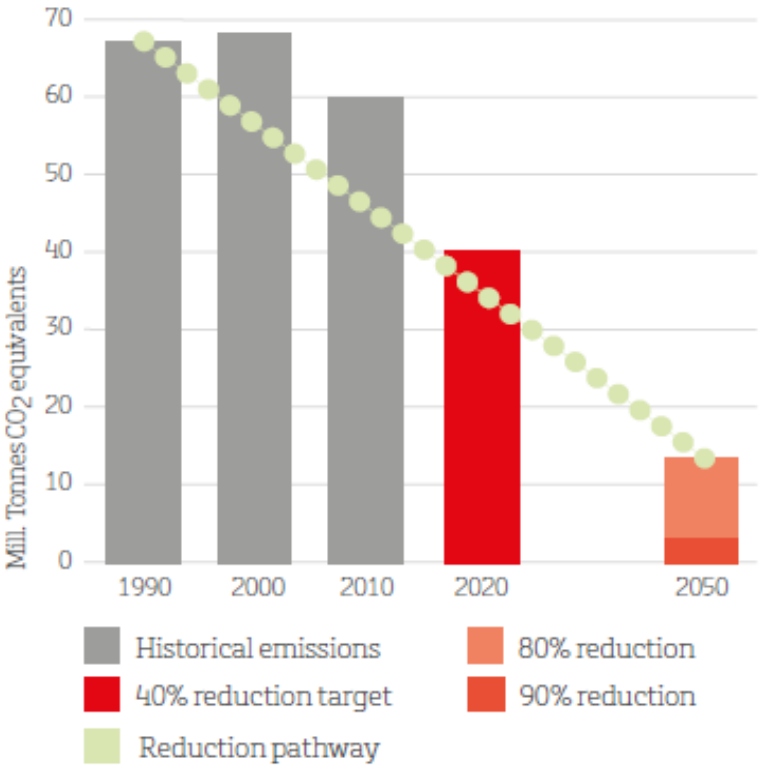
Energy Agreement 2012 – low carbon economy 2050 DK

- 2020: 50% wind power in electricity consumption
- 2020: 40% reduction of GHG emissions vs. 1990
- 2030: Coal out of power plants
- 2035: 100% renewable energy in electricity and heating sector
- 2050: 100% renewable energy

What will the future bring?: a low carbon economy

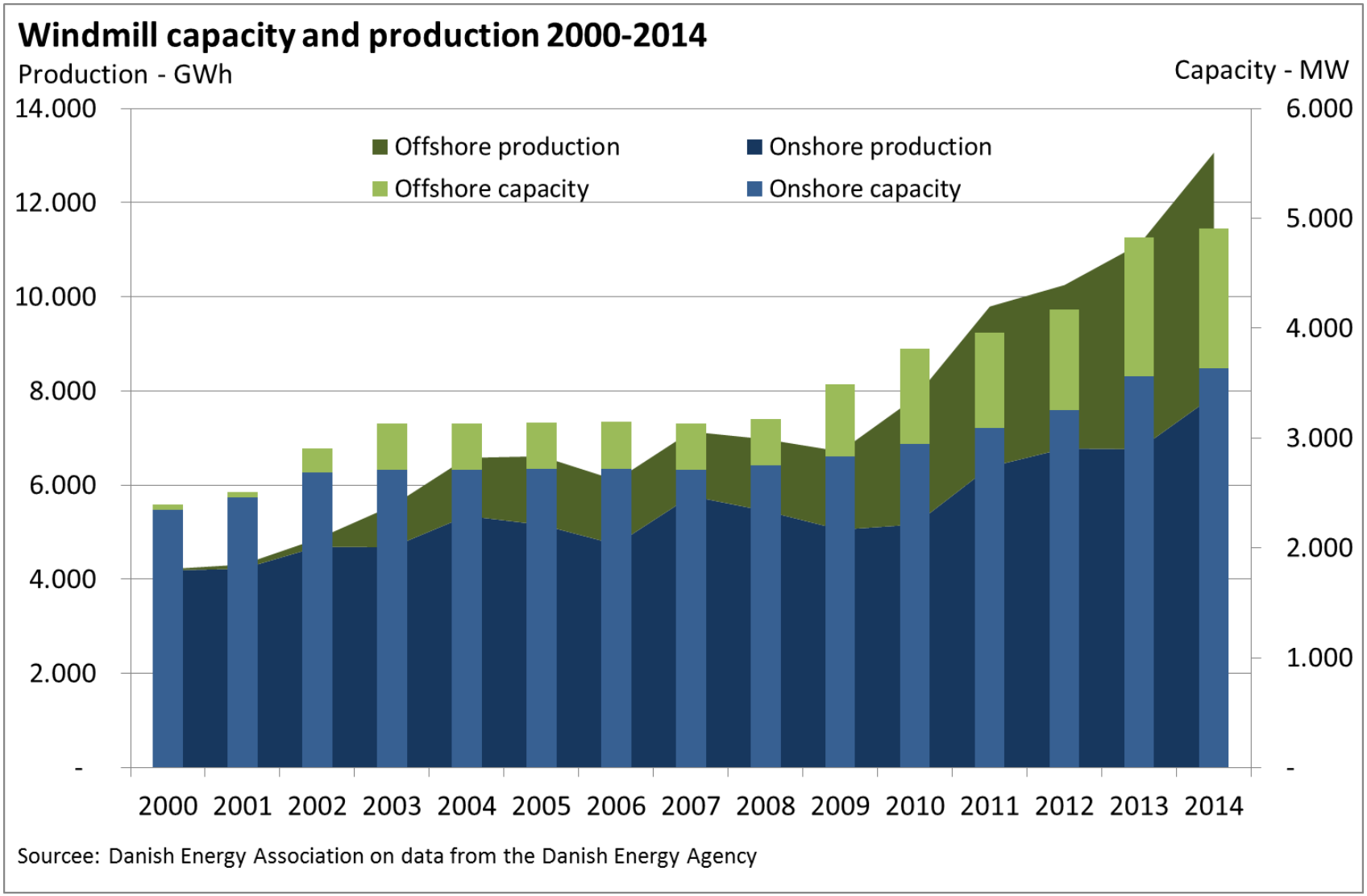


Historical and projected GHG emission without policy change up to 2020

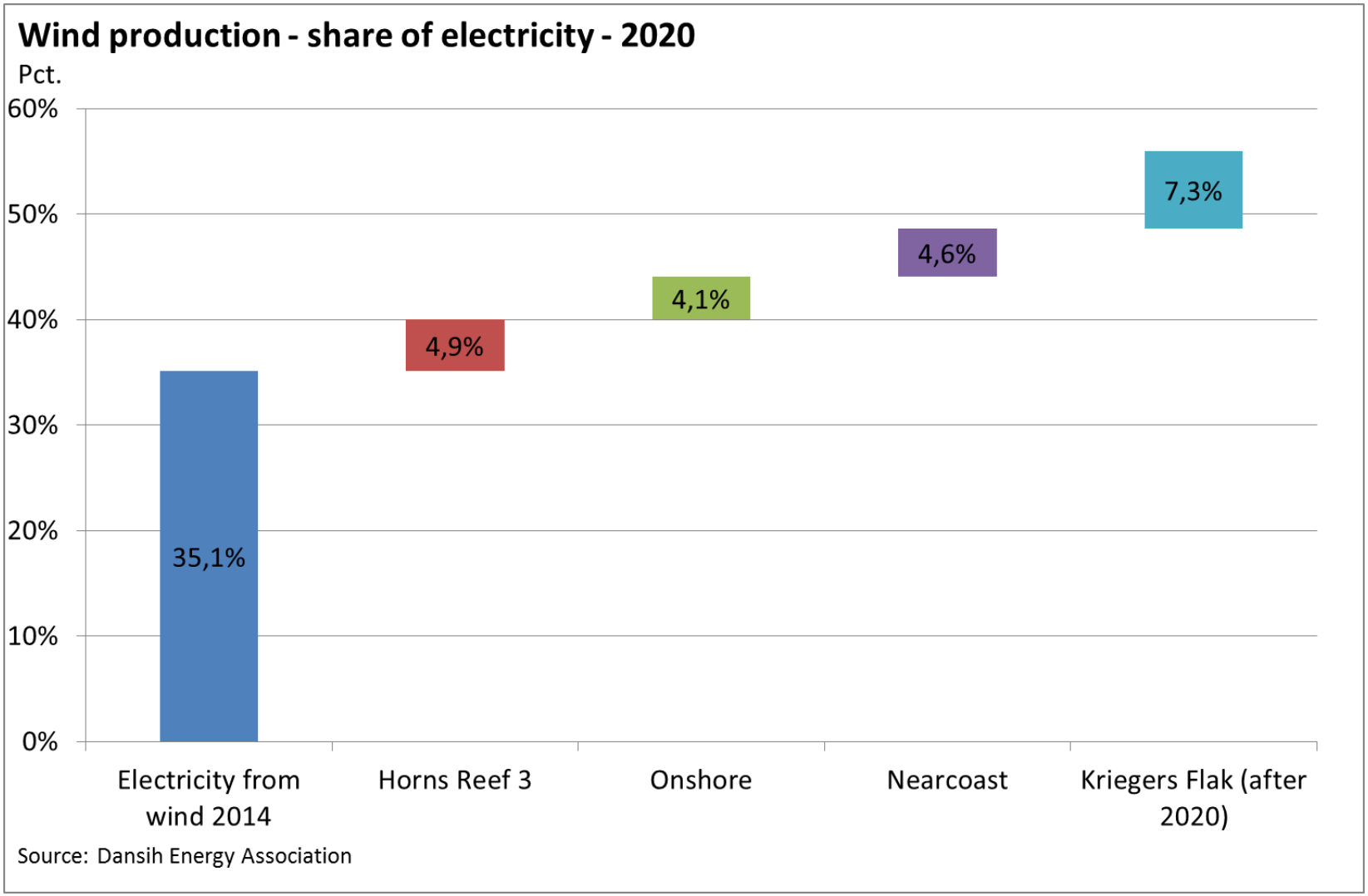


Historical and projected GHG emission with new targets

Wind turbine and generation Development



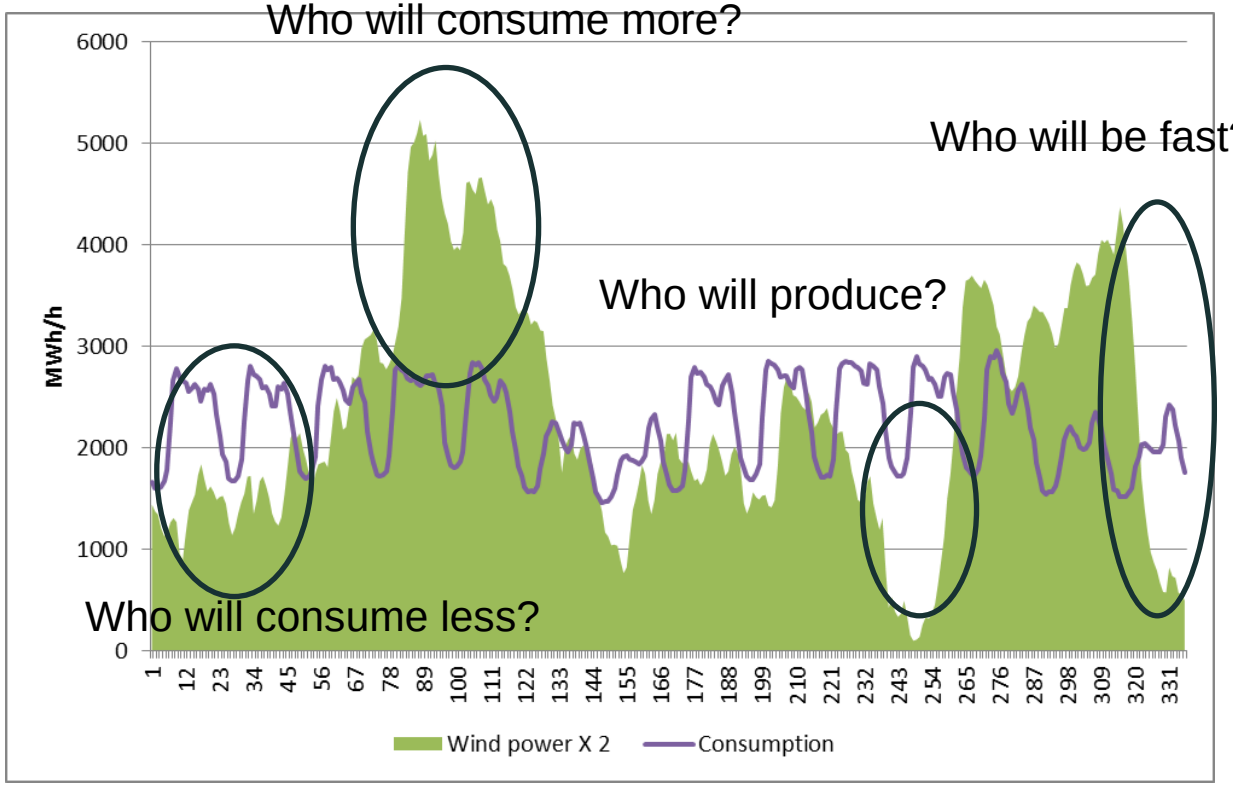
We will reach 50% wind in 2020



Power system with high share wind

- the “abnormal” is the “new normal”

Four questions to ask:



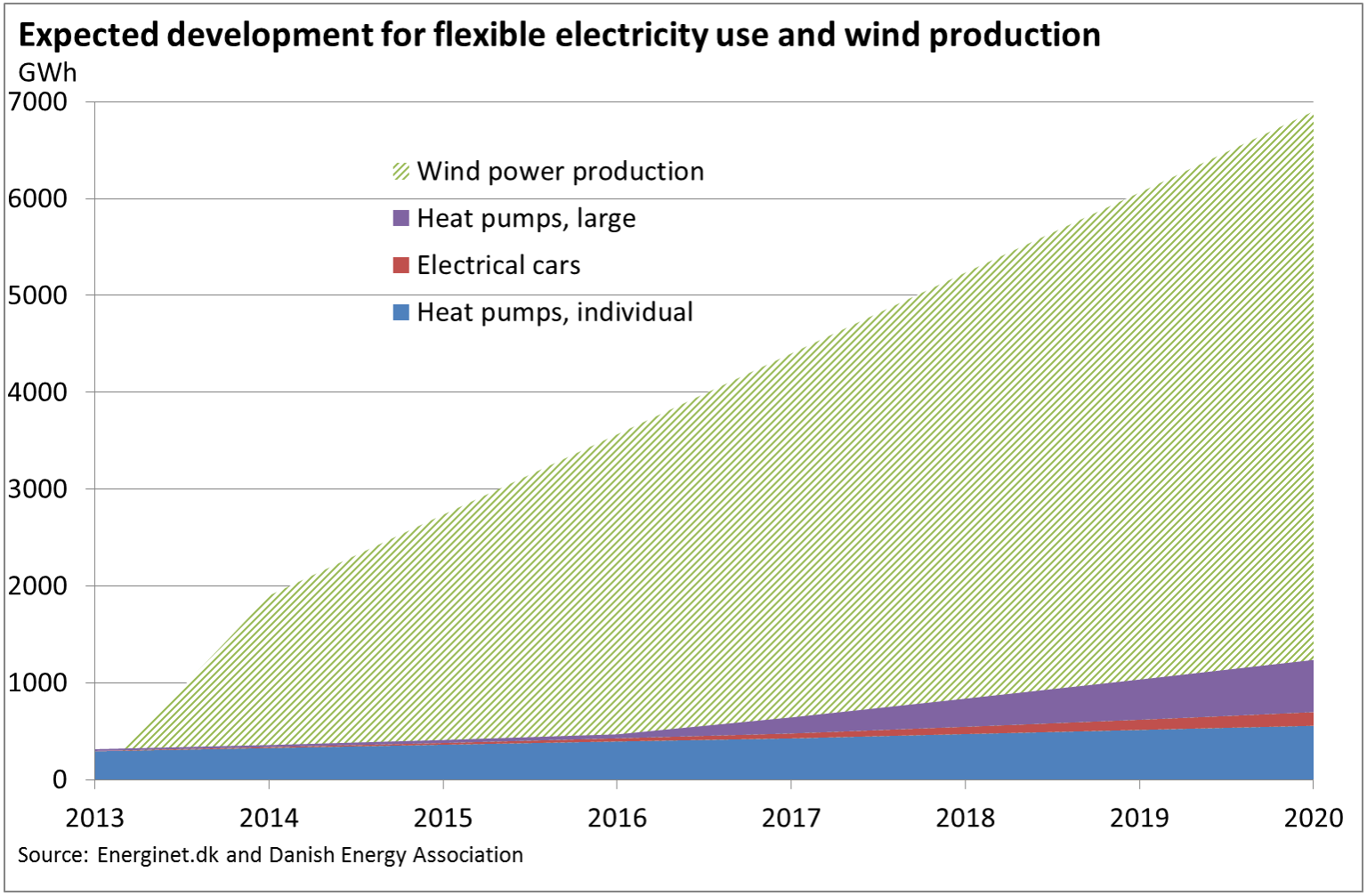
Conclusion:

Need market frame-
work that can and will handle the unusual situations:

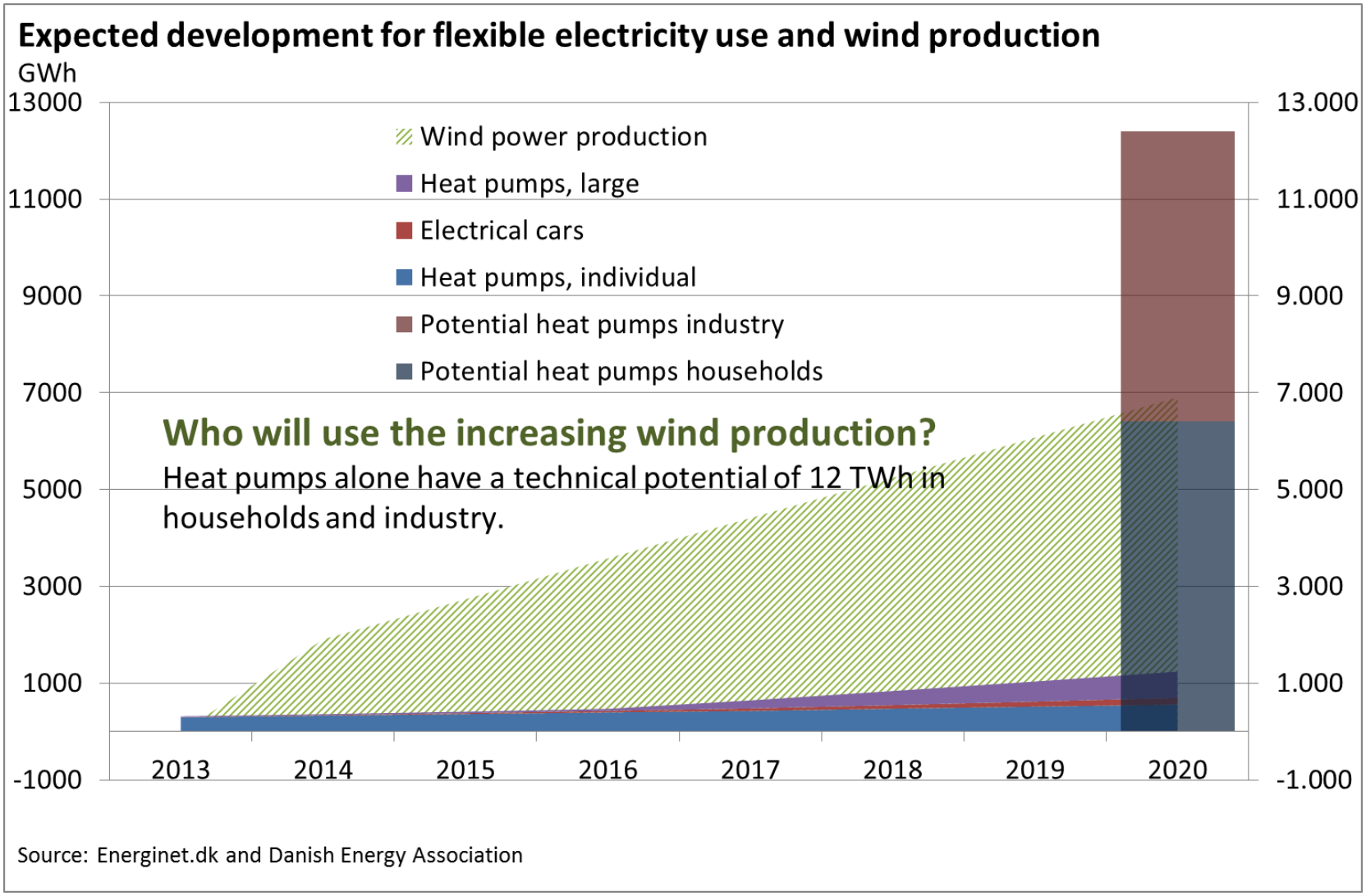
- New or adjusted market design

- More integration

Moderate expectations for flexible demand



High potentials for flexible demand



Benefits of electrification of heat

- Replacing fossil fuels
- On primary energy use
- On final end-use
- Sensitivity on price changes and security (HP)
- Decarbonisation – remove emmissions – non ETS - ETS

Main barriers

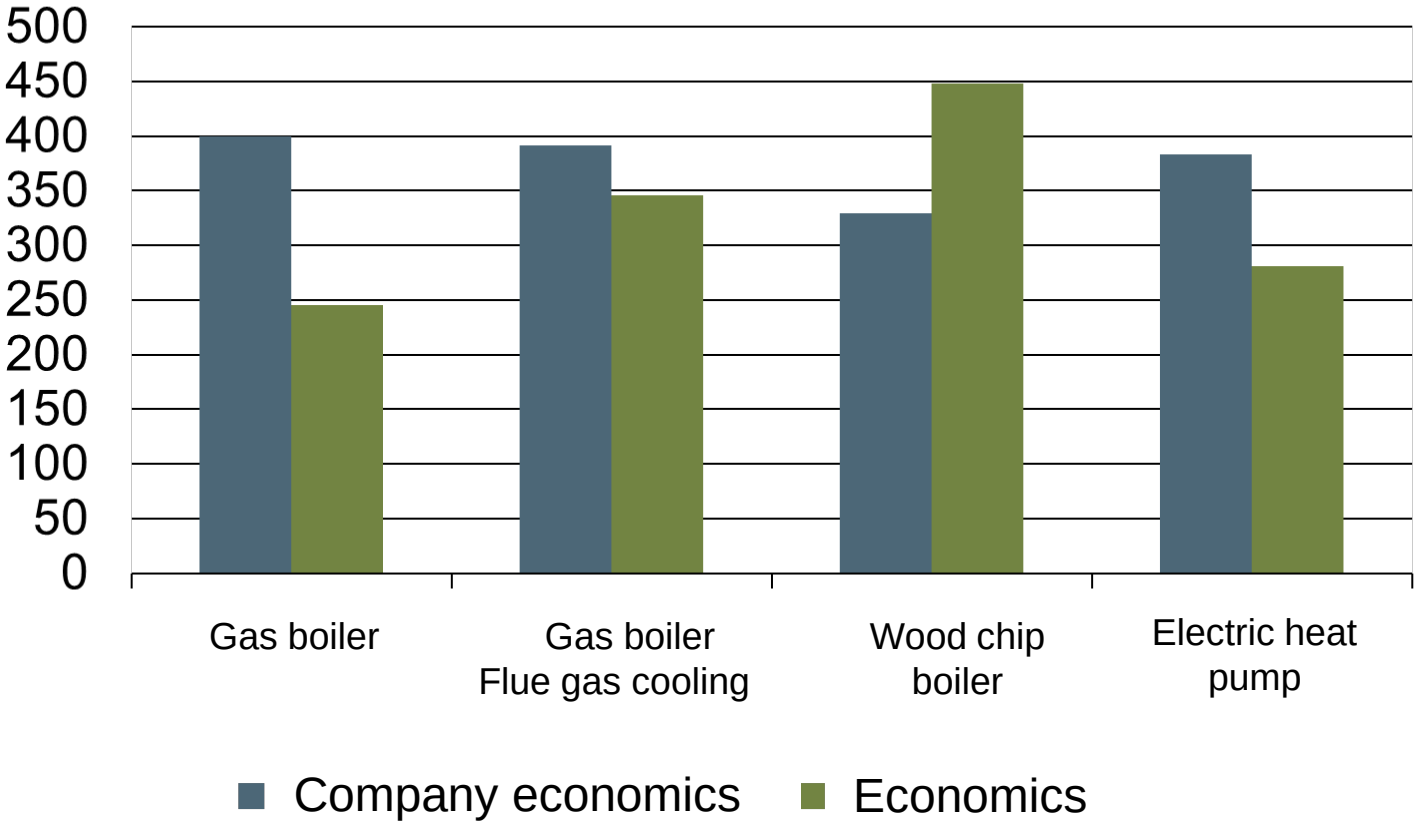
The additional, policy related costs we add to our power bills, making electricity much more expensive to customers than fossil alternatives.

Financial barriers, which slow the progress of new technologies replacing old ones.

The way we compare different energy carriers and (currently) maintain a policy favouring fossil solutions for our energy using appliances, our heating and our transport (Primary Energy Factors).

Opposition between economics and company economics - taxation

Heating Price incl. fixed costs



Conclusions

- Electricfication of heating supports low carbon economy
- There is a large potential for electrification of heat in DK and EU
- Progress in electrification is slow
- Heating technologies must compete on equal conditions
- Regulation must support electrification which is a precondition for low carbon economy