3rd International Conference on Smart Energy Systems and 4th Generation District Heating Copenhagen, 12-13 September 2017

Heat pumps in the UK's district heating: individual, district level, both or neither?

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4th Generation District Heating Technologies and Systems

Outline



- UK's heat demand and market
- Options to decarbonise the UK's heating sector
 - Repurposing the gas grid
 - District heating networks
 - Individual heating technologies
- Heat pumps in district heating





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Today 占古 45% of final energy demand is consumed to supply heat 78% houses are heated by natural gas 4th Generation District Heating Technologies and Systems Heating (non electrict), Natural gas 890 TWh, 78% 38% Transport, Electricity 846 TWh, 7% 36% Oil Heating 8% Electrict (electrict), power, 438 155TWh, TWh, 19% 7% Bioenergy and Solid fuel waste 5% 2% 3rd International Conference on Smart Energy Systems and **AALBORG UNIVERSITY** DENMARK

Decarbonising the heating sector







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Renewable Heat Incentives	ASHP	GSHP	Biomass	Solar thermal
Tariffs (p/kWh)	7.63	19.64	4.28	20.06

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Current costs comparison





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What are the economic and environmental advantages of deploying heat pumps at different scales?



Technologies and Systems



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Individual heat pump vs. heat pumps in DH



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Same amounts of heat pumps and houses, no DH



Individual heat pump vs. heat pumps in DH







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Thank you!

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After Diversity Maximum Demand per heat pump





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