DISTRICT HEATING
AN IMPORTANT KEY TOWARDS A GREEN FUTURE AND A NEW EXPORT ADVENTURE

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THE STORY OF DISTRICT HEATING IN DENMARK

Energy crises 1973 and 1978

Need for security of supply
Wish of being self sufficient

Action steps

- Energy efficiency and conservation
- Natural gas project
- Renewable energy
- New industries
- District heating
- Combined heat and power

International Conference on Smart Energy Systems and 4th Generation District Heating, Copenhagen, 25-26 August 2015
DISTRICT HEATING IN DENMARK – A BIG SUCCESS LIKE WIND

2015
64 % of households receives district heating

2020
~ 70 % of households receives district heating

2015
40 % of electricity consumption from wind power

2020
~ 50 % of electricity consumption from wind power
THERE ARE STILL SOME MAJOR CHALLENGES

DK is no longer self-sufficient + major need for import in the EU

Incoherence between power production and heat consumption

Little export of district heating solutions

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THE EU ENERGY UNION – A MOVE AWAY FROM FOSSIL FUELS

Today

EU Energy Union

Tomorrow

Less dependency on imported energy
More focus on renewable energy, energy efficiency, energy savings, efficient markets...

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DISTRICT HEATING CAN PROVIDE THE SOLUTIONS

- Storages
- Combined heat and power
- Electric boilers
- Heat pumps
DENMARK AS A MODEL FOR A COHEREND ENERGY SYSTEM

Denmark is first mover

High share of renewable energy

High share of district heating

Energy efficient buildings

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STORAGE CAPACITY IN DANISH DISTRICT HEATING - 65 GWH

Wind power

Installed capacity: 4.800 MW

~ 13 hours of full load operation to fill storage

~ storage capacity of 1.000.000 electric vehicles

Electric boilers/heat pumps

Thermal storages

Total storage capacity: 65 GWh

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EXPORT OF COMPONENTS → EXPORT OF SYSTEMS

**Today**
Sale of components

**Tomorrow**
Sale of district heating systems
GREAT EXPORT OPPORTUNITIES

Export prognoses based on current growth rates

- **7% p.a.**
- **4% p.a.**

![Graph showing export prognoses for energy technology and raw materials](image-url)
# HOW TO GET THERE

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<td>1. Handling of authorities and politicians</td>
<td>District heating needs to be on the political agenda</td>
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<td>2. Project development</td>
<td>Need for risk capital for project development</td>
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<td>3. Planning and system design</td>
<td>Need for companies to finance the planning and design</td>
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<td>4. Hardware and system delivery</td>
<td>Need for companies with experiences in contracting</td>
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<td>5. Operation and maintenance</td>
<td>Need for partners in ESCO-projects</td>
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<td>6. Financing</td>
<td>Need for access to risk capital</td>
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<td>7. Ownership</td>
<td>Need for project owners</td>
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QUESTIONS?