



Visions of C4 and a roadmap for carbon capture in Denmark

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C4 - Carbon Capture Cluster Copenhagen

C4 has a unique position with great potential for carbon capture and for the reuse of surplus heat in a large and dense district heating network.

C4 will

- enable carbon capture from the largest emitters in the capital area
- ensure the use of surplus heat in the district heating network
- cooperation on physical infrastructure and regulation
- enable storage and use of CO₂, e.g. through external partners and suppliers
- attract funding

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CMP
COPENHAGEN MALMØ PORT

VEKS
Grøn fjernvarme til dig

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VESTFORBRÆNDING

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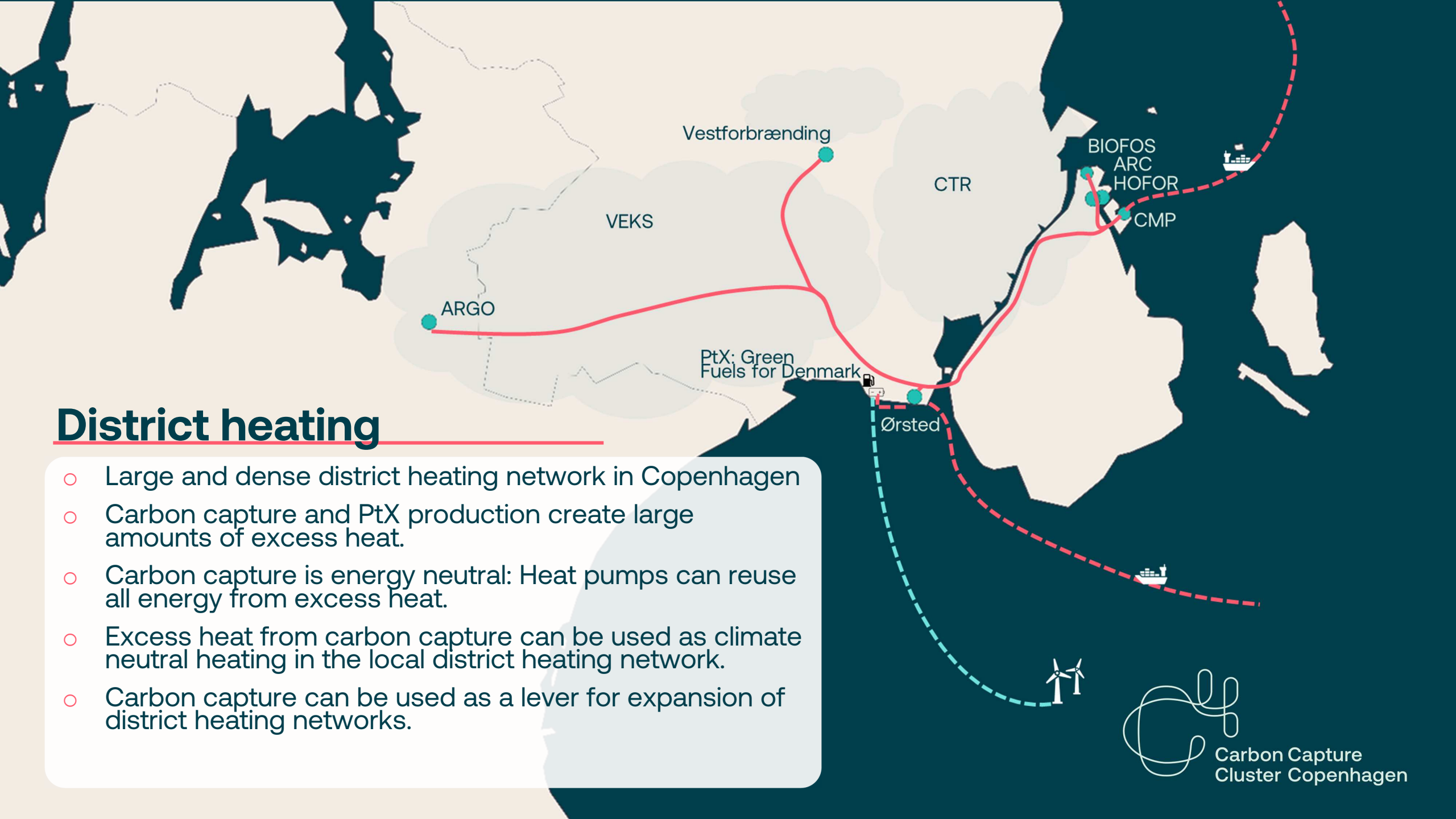
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Vision and potential

- ~ 3 million tonnes of CO₂ annually
>80% biogenic CO₂
- 3 Waste-to-Energy plants (heat-and-power)
- 2 Biomass combined heat-and-power plants
- 1 Wastewater treatment plant
- 2 District heating networks
- 1 Commercial port



District heating

- Large and dense district heating network in Copenhagen
- Carbon capture and PtX production create large amounts of excess heat.
- Carbon capture is energy neutral: Heat pumps can reuse all energy from excess heat.
- Excess heat from carbon capture can be used as climate neutral heating in the local district heating network.
- Carbon capture can be used as a lever for expansion of district heating networks.

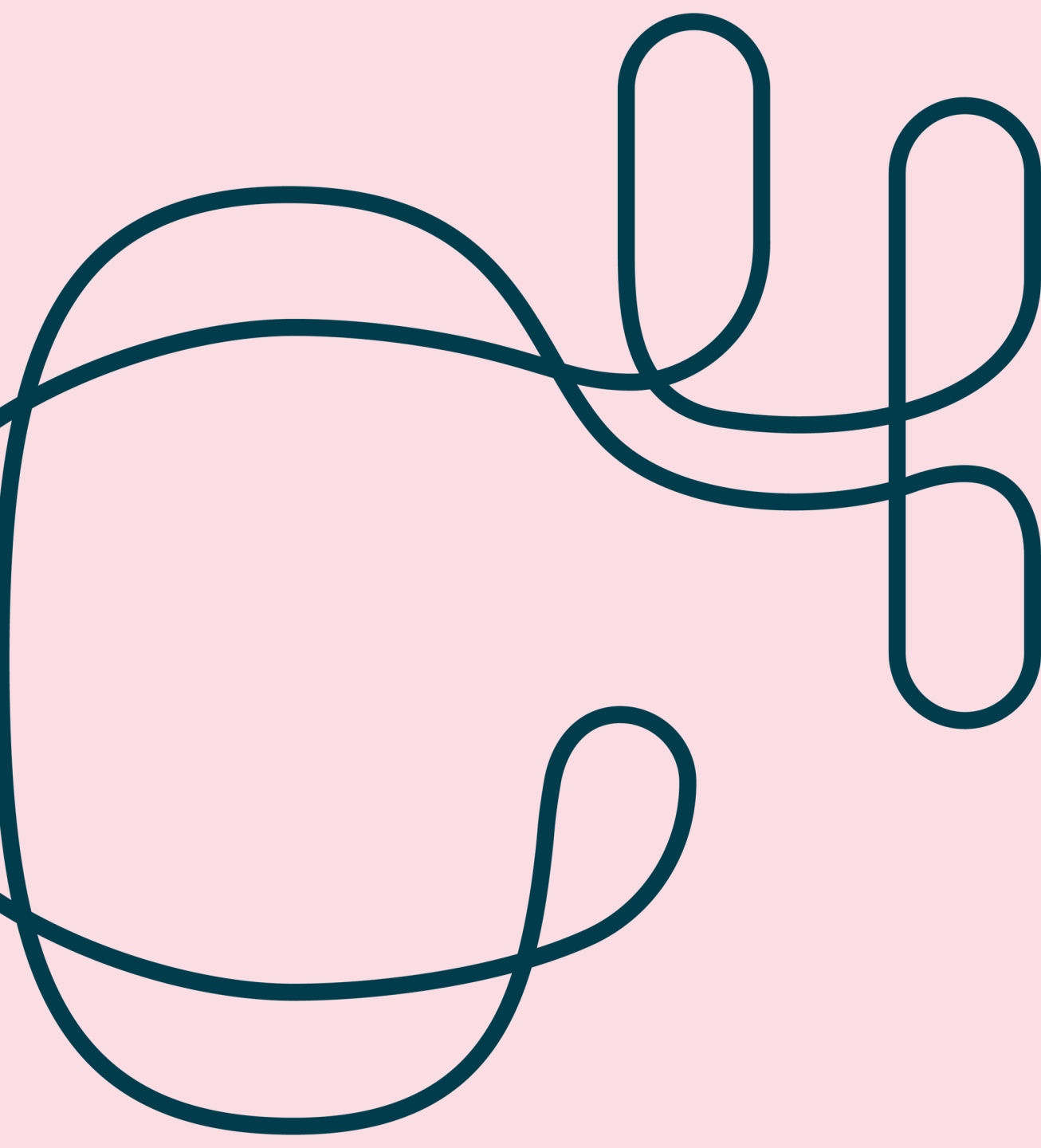
National CCUS strategies

Already decided

- 0,4 million tonnes of CO₂ annually from 2026 through tender.
- 0,5 million tonnes of CO₂ annually from 2030.
- Funding of 0,5 million tonnes of CO₂-capture from for instance biogas production.
- Funding for Power-to-X.
- Six new local cluster collaborations
 - Cost-effective infrastructure for transporting CO₂
 - Analysis of pipeline infrastructure
 - C4 is chairman of the cluster in Copenhagen

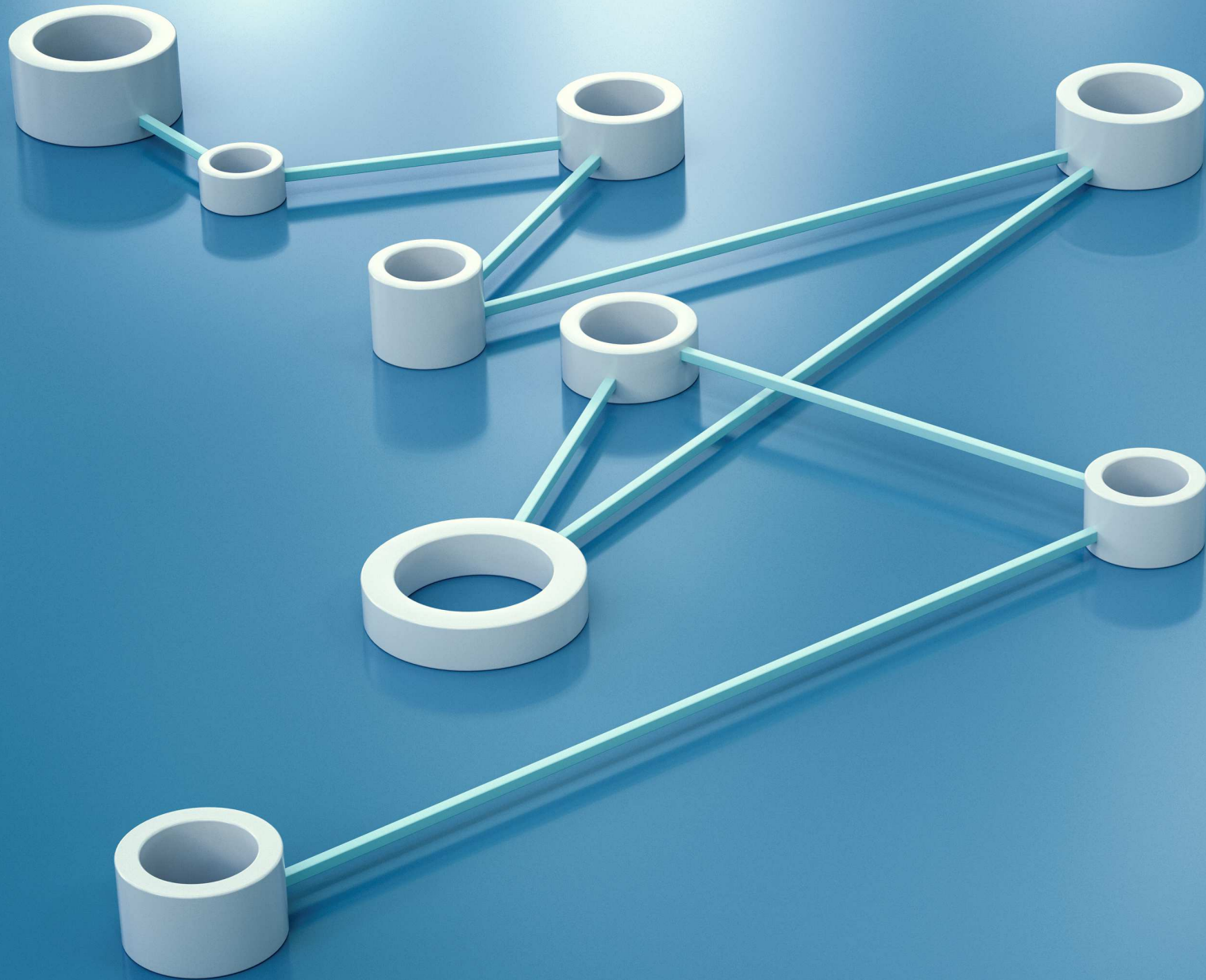
Strategy from Danish government

- More CCUS and electrification through potential upcoming sustainable tax reform
 - Phased-in from 2025 to 2030
 - Negative biogenic emissions: >100€/ton in 2030
 - Danish taxation of fossil CO₂-emissions: 50€/ton + EU ETS)
- Regulation for CC, U and S in Denmark



Simultaneous development of the entire CCUS value chain *is needed*

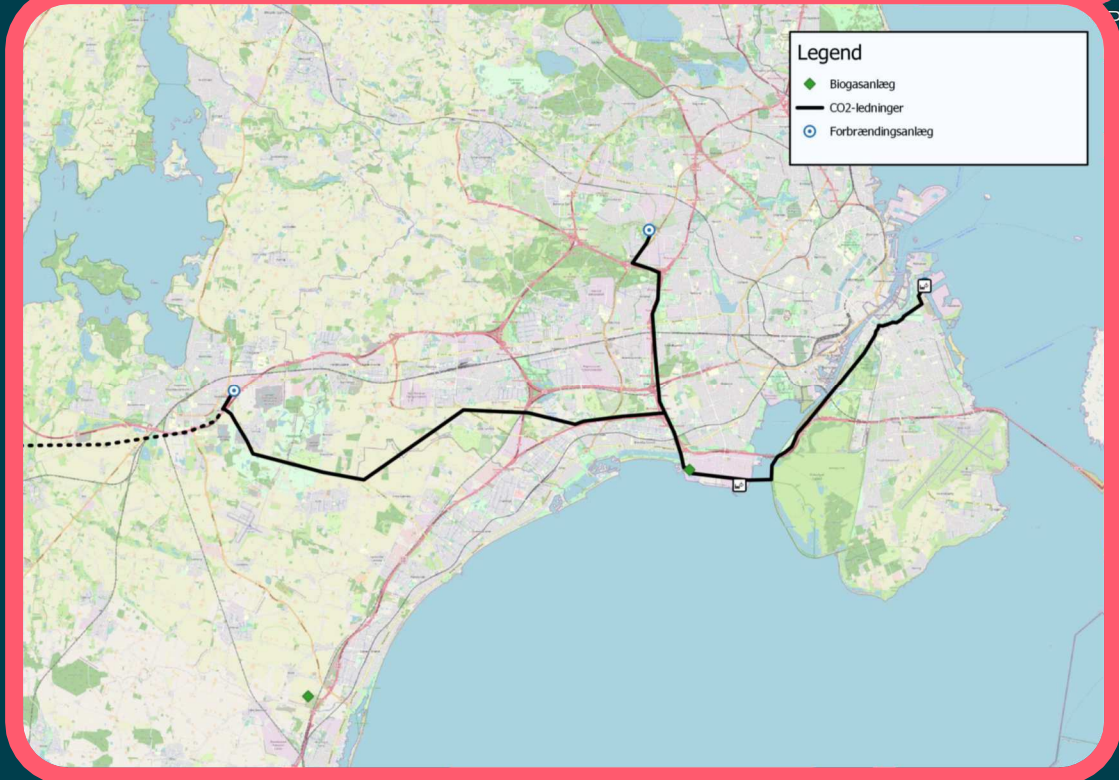
- Capture
- Purification
- Pressurizing
- Use of excess heat in district heating
- Local transport
- Short term storage
- Long distance transport
- Long term storage



Knowledge sharing and cooperation are key elements

Cooperation on shared local pipeline infrastructure for the transport of CO₂

- Close cooperation on CO₂ transport and infrastructure with all relevant stakeholders during 2022
- Organization and ownership of infrastructure
- Business case for:
 - Local CO₂ transport and short-term storage
 - Possible connections to Sweden and near-shore storage
- Specification of CO₂ needs to fit for transport, storage and utilization



Questions?



**Carbon Capture
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