Ørsted's carbon capture activities

I-Sustain US delegation
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Ørsted develops energy systems that are green, independent and economically viable

Installed Under construction

Offshore wind

- Global leader in offshore wind
- Develop, construct, operate and own offshore wind farms
- Ambition to reach ~30 GW installed capacity by 2030

Onshore renewables

- Strong presence in the United States and Europe
- Develop, operate and own onshore wind, solar PV and storage projects
- Ambition to reach ~17.5 GW installed capacity by 2030

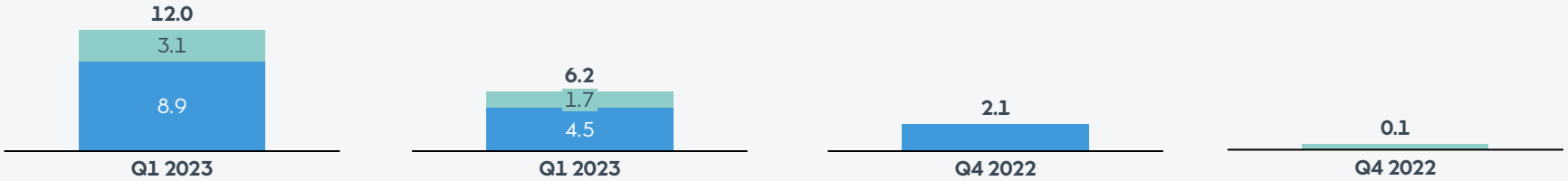
Bioenergy & other

- Presence in Europe, including bioenergy plants, legacy gas activities and patented waste-to-energy technology
- Own and operate bioenergy and waste-to-energy plants, and optimise gas portfolio

Renewable hydrogen and green fuels

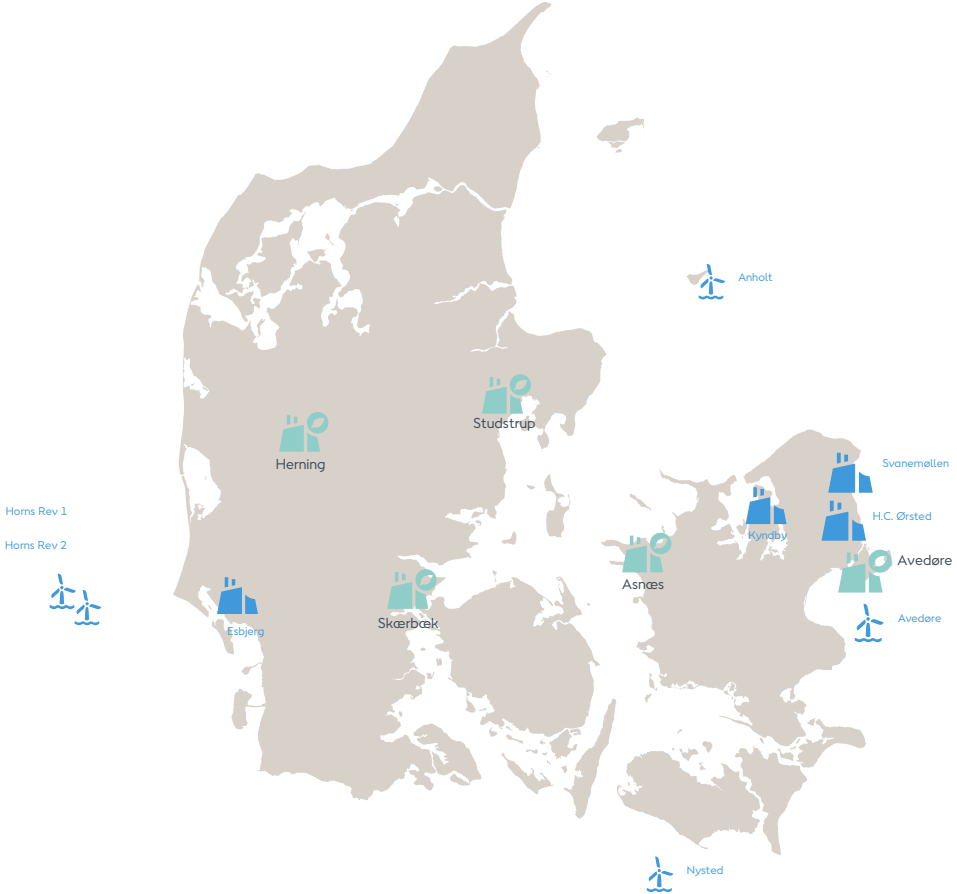
- Emerging platform with 10 pipeline projects (+3 GW) mainly in Europe
- Develop, construct, own and operate hydrogen facilities
- Ambition to become a global leader in renewable hydrogen and green fuels by 2030

Capacity, GW

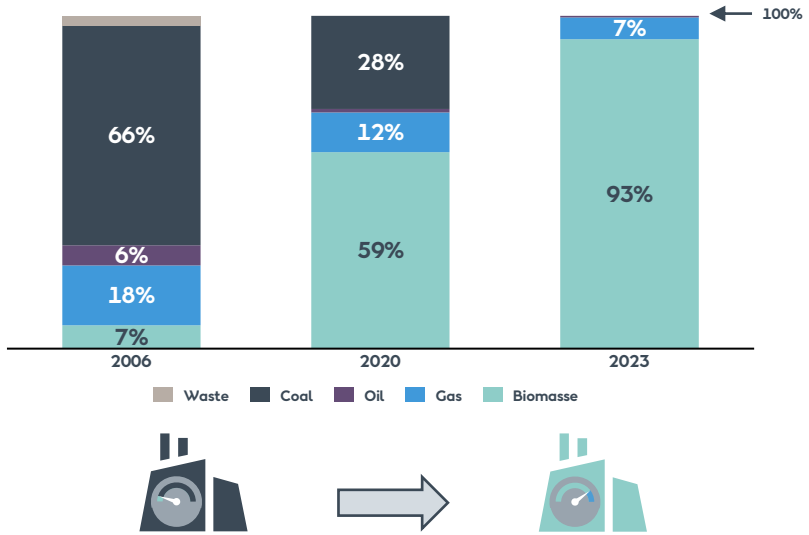


Source: Ørsted Interim report Q1 2023

Introduction to Ørsted Bioenergy and our future CCUS activities



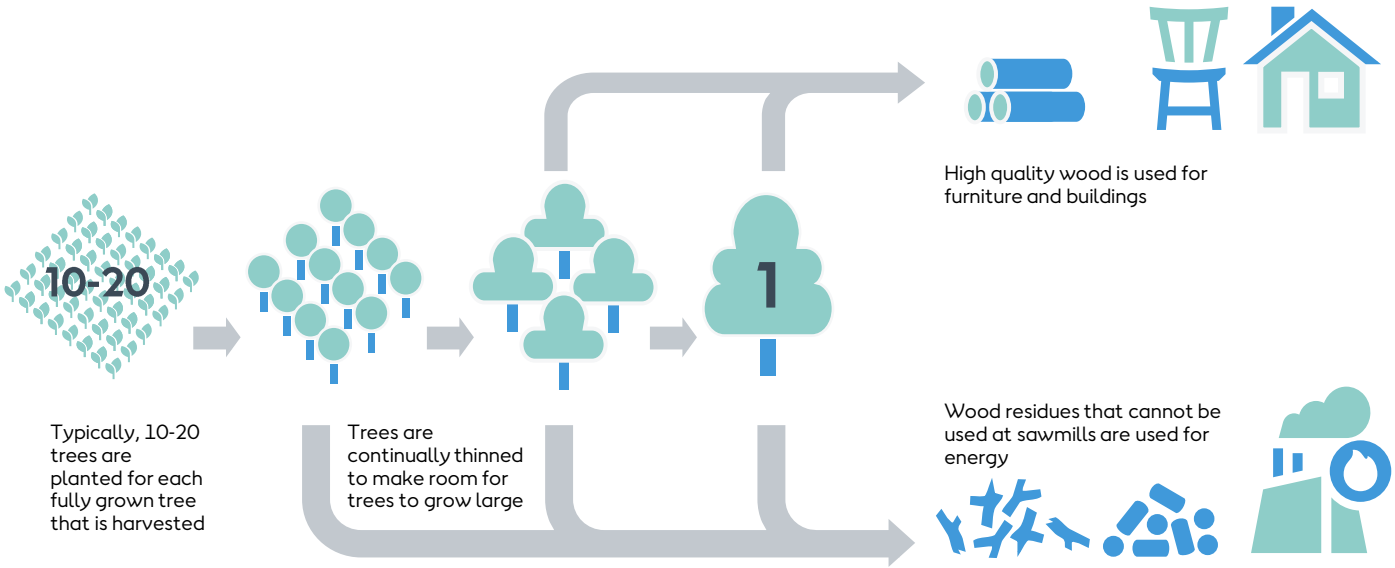
Fossil fuel phase out on Ørsted CHPs



3

How modern forestry works

Trees are thinned continually to create space for high quality wood



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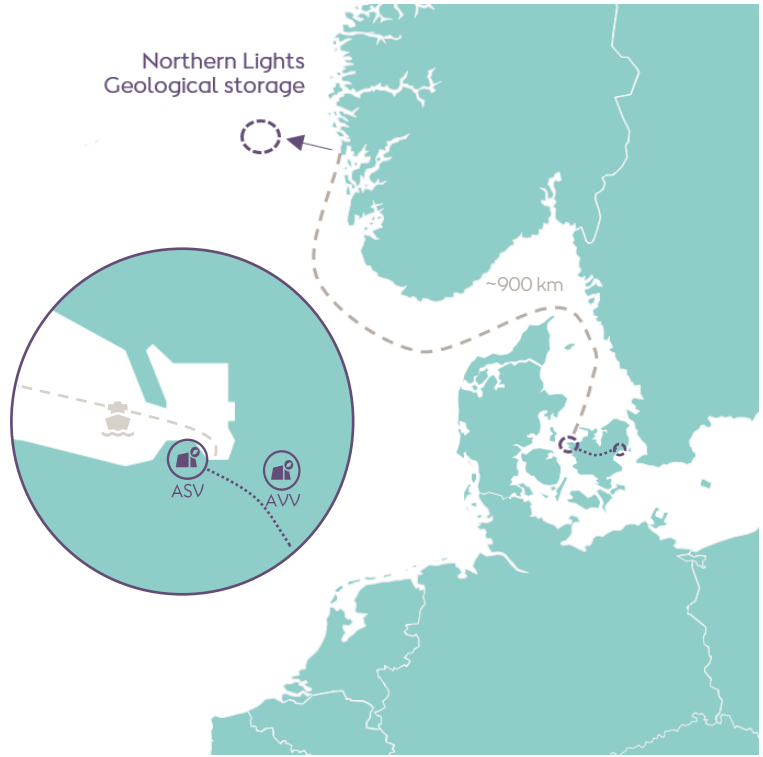
The Ørsted Kalundborg Hub

The Ørsted Kalundborg Hub establishes a key starting point for CO_2 infrastructure centrally in Denmark, capturing & storing 430.000 tons CO_2 / annually

Location of assets



Key facts on Ørsted Kalundborg Hub

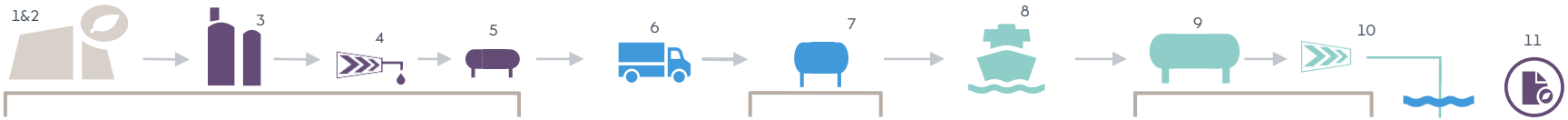
Project Scope

- The **Ørsted Kalundborg Hub** is located in North West Zealand, and will have a central role in the import and export biogenic CO_2
- Project is based on a portfolio of two point sources to deliver the contracted **CO_2 quantity of 430,000 tons/annually**:
  1. Asnæs Power Plant, Unit 6 (ASV) with ~280,000 tons/annually
  2. Avedøre Power Plant, Unit 55 (AVV) with ~150,000 tons/annually
- Commencement of operations is December 1st, 2025. Construction to commence in June 2023
- The Project establishes **first-of-kind, large scale agreement** with Microsoft for the off take of carbon removal credits
- Subsidy contract with the Danish Energy Agency is for 20-year period

Technical Scope

- Key technology provider: **Aker Carbon Capture** will deliver five Just Catch™ units to the CHP plants. The Just Catch™ standardised concept is a modular and configurable technical solution
- Reliable and cost-effective **CO_2 streams from substantiable biomass-fired** combined heat and power plants, ASV and AVV (wood chips and straw biomass)
- Transportation of CO_2 from AVV to ASV via truck. Truck solution offers cost and emission **efficient solution**, and **built-in flexibility** to change to pipeline
- Transport and permanent **offshore geological storage** of CO_2 is performed by Northern Lights

Ørsted's key partners in the Ørsted Kalundborg Hub project



Description

The solution is based on a concept with the two point sources:

(1) Asnæsværket unit 6 (ASV6)

(2) Avedøreværket, unit 55 Straw Boiler

CO_2 is captured from five carbon capture modules (3) before it is liquefied by compression and cooling (4). The liquid CO_2 streams are joined in the shared intermediate storage and shipping terminal, awaiting transport (5)

Transportation of captured CO_2 from AVV to ASV via truck (6)

At ASV terminal the CO_2 is loaded to intermediate storage tanks (7)

Transport is performed by ship (8), at a rate consistent to the operation of the two CC units. Liquid CO_2 is delivered to onshore intermediate storage terminal (9) ahead of transfer and injection into offshore permanent geological reservoir (10) 2,600 m

Negative emission credits (11) from BECCS at ASV and AVV can be sold through bilateral offtake agreements and commodity trading platforms

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AKER CARBON CAPTURE

Northern Lights

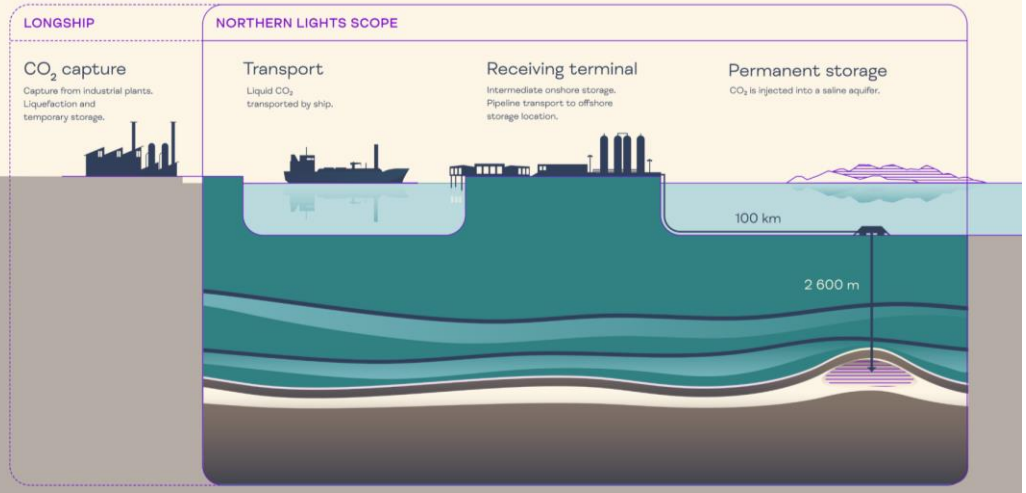
Microsoft

The CO_2 will be safely and permanently stored 2,600 metres under the seabed in the North Sea, where it will be continuously monitored to ensure it remains secure

KEY FACTS

- **Operator:** Northern Lights JV
- **Location onshore terminal**: Øygarden, west cost of Norway
- **Location geological storage:** 100 km offshore, 2.6 km below seabed
- **Start of operations:** 2024 (Ørsted volumes in 2025)
- **The storage complex:** "Aurora" is part of the Exploitation License, EL001, which was awarded in January 2019

The world's first cross-border, open access CO_2 transport and storage network



Source: Northern Lights, Reports - Northern Lights (norlights.com)

Northern Lights has an ambition to expand capacity to a total of 5 million tonnes per year

- Northern Lights is the transport and storage component of the Norwegian Government's full-scale carbon capture and storage project, *Longship project*
- Norway has safely stored CO_2 deep in the North Sea for over two decades
- CO_2 is injected as a liquid into a sandstone reservoir. Here the CO_2 is trapped in rock pores and will dissolve and mineralize over time
- Extensive facility and subsurface monitoring of the CO_2 during injection period and post-injection period will ensure the CO_2 is conformed and contained

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Let's create a world that runs entirely on green energy

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Love your home

11 September 2023