

An aerial photograph of an offshore wind turbine in the middle of a vast blue ocean. The turbine has three white blades and a yellow support structure. In the background, a coastline with cliffs and some buildings is visible under a clear sky.

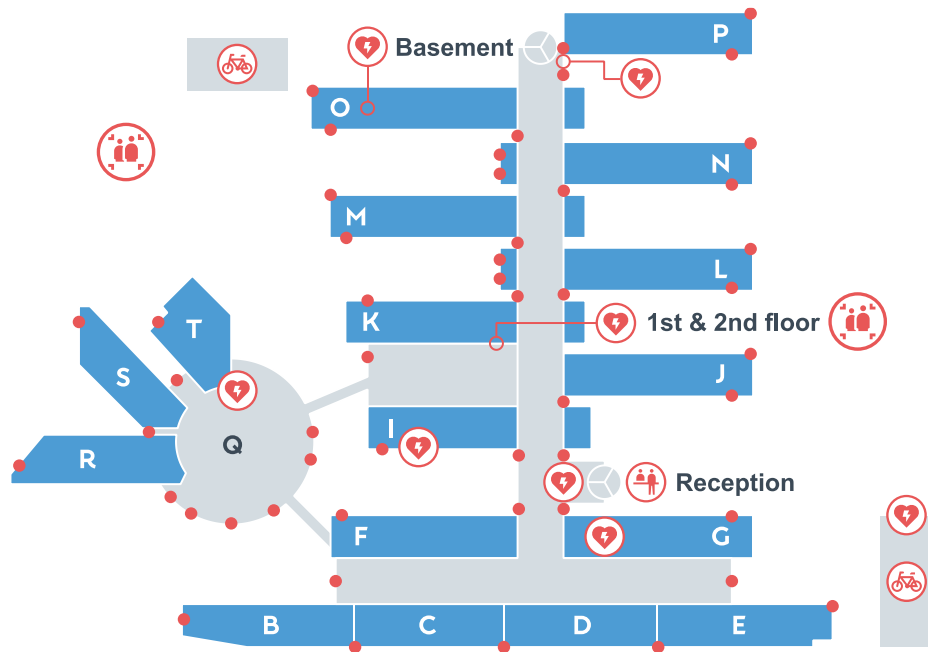
# i-SUSTAIN Delegation visit to Ørsted

May 10, 2022

# GTF

## Building 1 - 17

- Heart defibrillators
- Assembly point
- Reception
- Bicycle parking
- Emergency exits





# iSustain Delegation visit to Ørsted

9.30a to 9.45a

## **Introduction to Ørsted**

Magnus Hornø Gottlieb, Senior Advisor, Group Policy Engagement

9.45a to 10.10a

## **Ørsted's PtX strategy and vision for the US**

Tommy Gerrity, Head of Business & Project Development PtX, North America

10.10a to 10.30a

## **Green Fuels for Denmark**

Lars Hansen, Program Director

10.30a to 11.00a





## **Maersk's green fuels strategy**

Jacob Sterling, Senior Director, Head of Decarbonization Innovation & Business Development






# Our global footprint

## United States of America

-  In operation: 30MW  
Under construction: 130MW  
Under development: 4,842MW
-  In operation: 2,635MW  
Under construction: 428MW  
Under development: 252MW
-  In operation: 647MW  
Under construction: 680MW  
Under development: 1,185MW
-  In operation: 40MW  
Under development: 520MW






## Denmark

-  In operation: 940MW
-  In operation: our CHP plants, 2,865MW power and 3,560MW heat
-  Sales of energy


## Ireland

-  In operation: 327MW  
Under construction: 45MW  
Under development: 466/298MW

## United Kingdom

-  In operation: 4,912MW  
Under construction: 1,386MW  
Under development: 4,000-5,000MW
-  Under construction: 62MW  
Under development: 195MW
-  In operation: Renescence Northwich
-  In operation: 20MW
-  Sales of energy

## Sweden

-  Sales of energy
-  Under development: 3,000MW

## Poland

-  Under development: 2,500MW

## Germany

-  In operation: 1,346MW  
Under construction: 1,166MW
-  Sales of energy

## The Netherlands

-  In operation: 752MW

## Japan

## South Korea





-  Under development: 1,600MW





## Taiwan

-  In operation: 128MW  
Under construction: 900MW  
Under development: 6,590MW

## Vietnam

### Activities

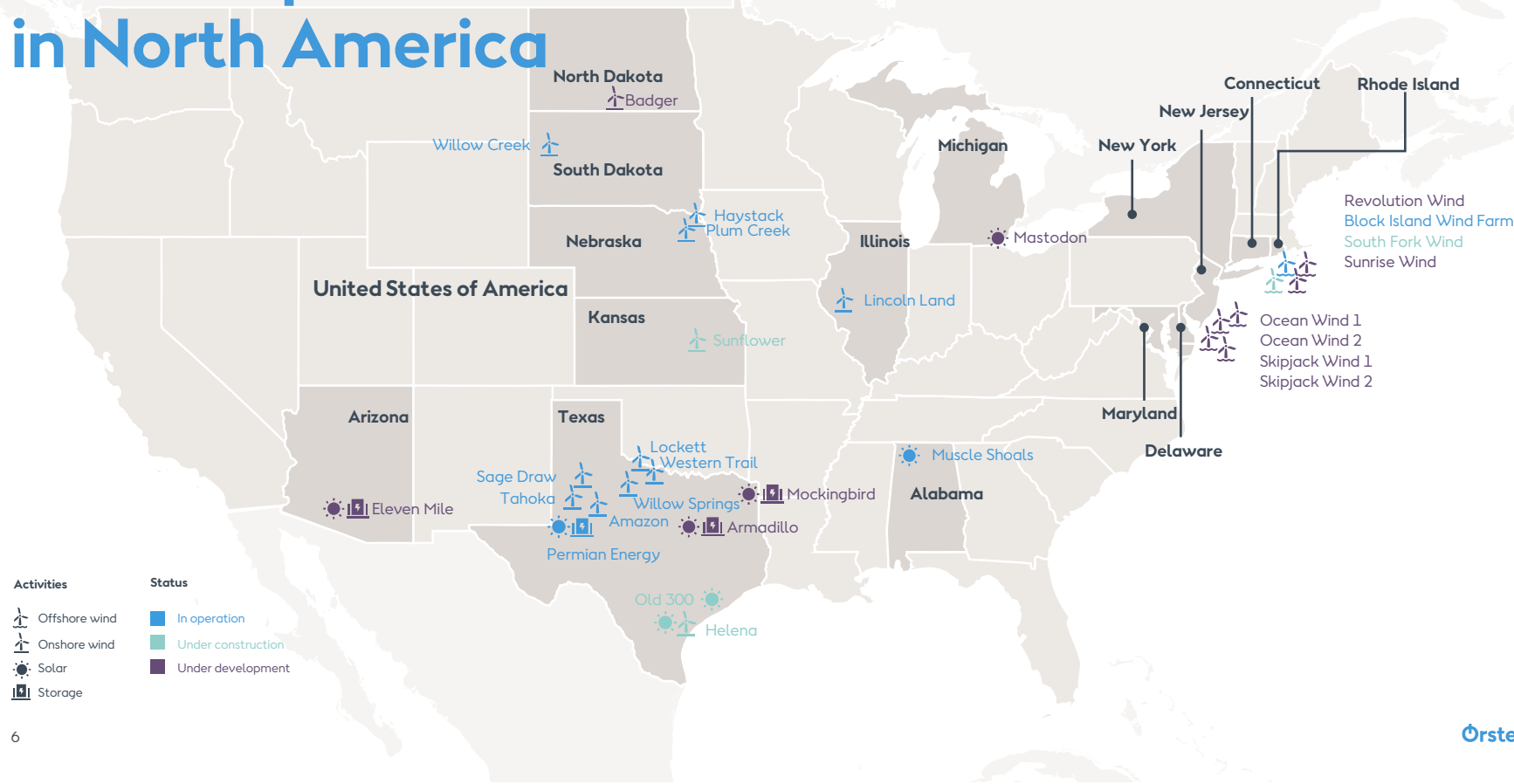
-  Offshore wind
-  Onshore wind
-  Solar
-  Biomass-fired power plant

-  Fossil-fueled power plant
-  Bio plant
-  Storage
-  Sales of energy

### Status

-  In operation
-  Under construction
-  Under development

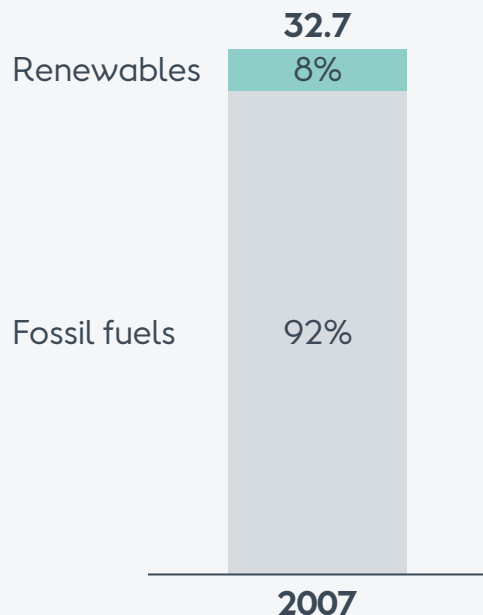
# Our footprint in North America



## A little more than a decade ago, Ørsted was a fossil-fueled Danish utility

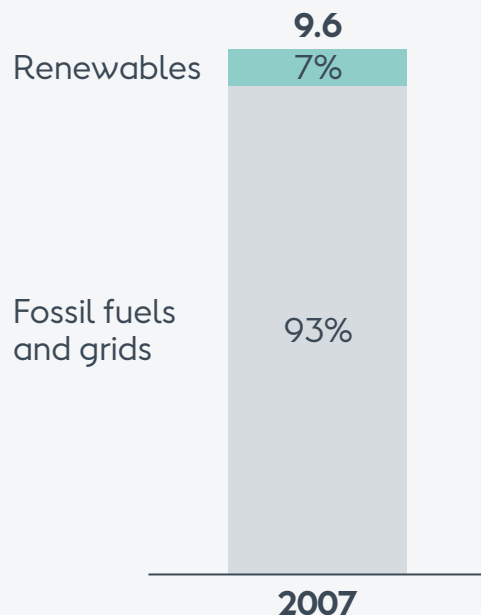
### Power and heat production

TWh, %



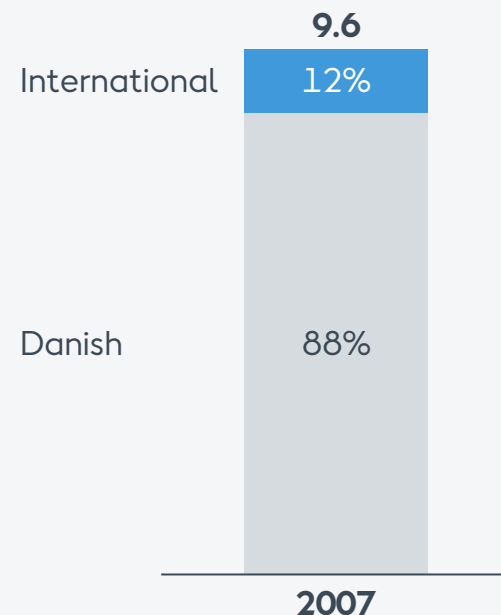
### Operating profit

DKK bn, %



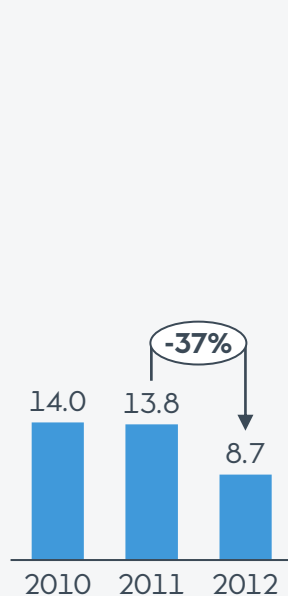
### Geographic footprint

Operating profit, DKK bn, %

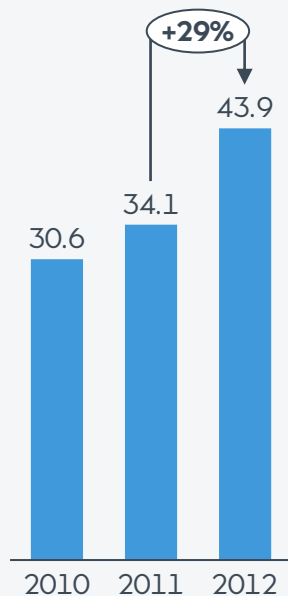


# In 2012, Ørsted came under intense financial pressure

**Operating profit**  
EBITDA, DKK bn



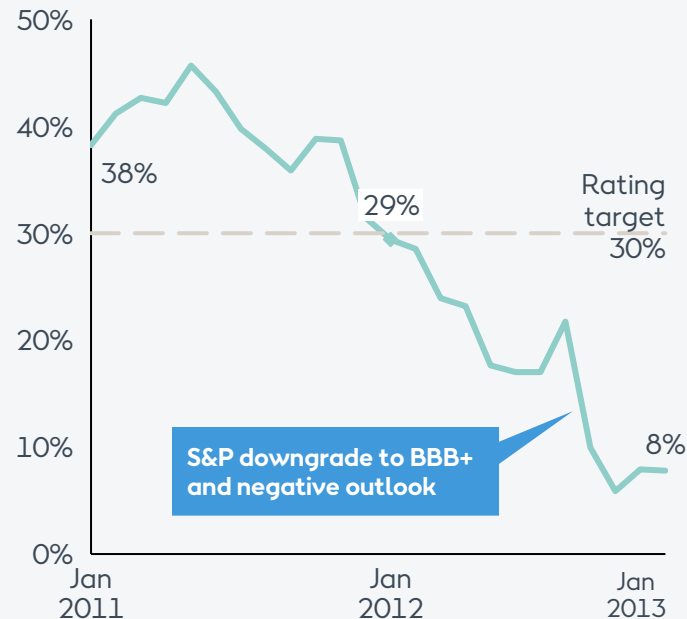
**Net debt**  
DKK bn



## What put Ørsted under pressure?

- Rapid decline in earnings from gas- and coal-fired power plants due to drop in power prices and build-out of renewables
- Losses on long-term gas sourcing contracts, liquified natural gas positions and gas storage
- High investment intensity due to expansion of wind power and upstream oil and gas

**Credit metric**  
FFO/NIBD

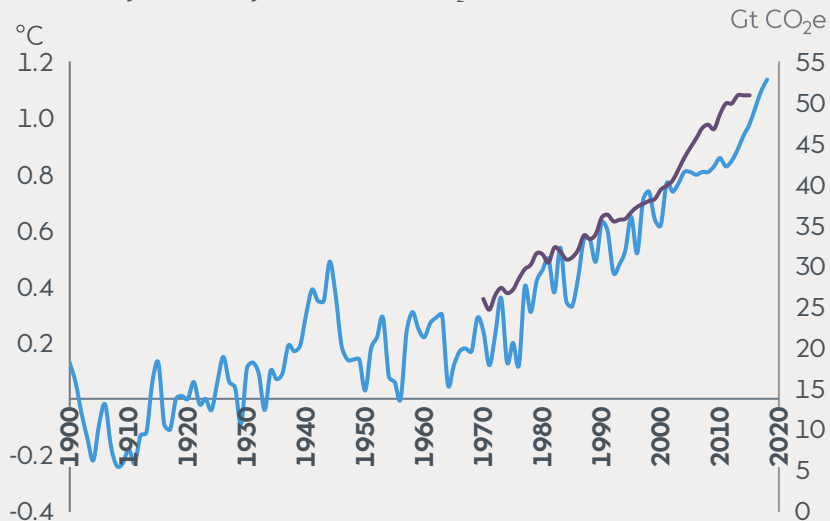


# Climate megatrend

## Rising greenhouse gas emissions drive up average global temperature...

— Average global surface temperature relative to pre-industrial level (°C)<sup>1</sup>

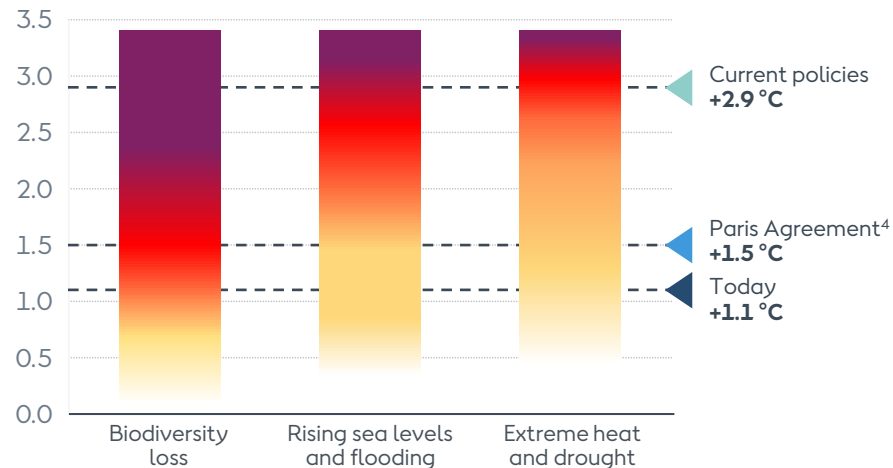
— Global greenhouse gas emissions (GtCO<sub>2</sub>e)<sup>2</sup>



## ... threatening to destabilise the world we live in

Level of additional risk due to climate change<sup>3</sup>

□ Low □ Moderate □ High □ Very high



1. NOAA GlobalTemp; 2. Ørsted analysis, data from World Bank (EDGAR) and Climate Action Tracker; 3. World Resources Institute, data from IPCC. Scenarios from Climate Action Tracker's 2100 Warming Projections; 4. The Paris Agreement's official recommendation is "well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius"



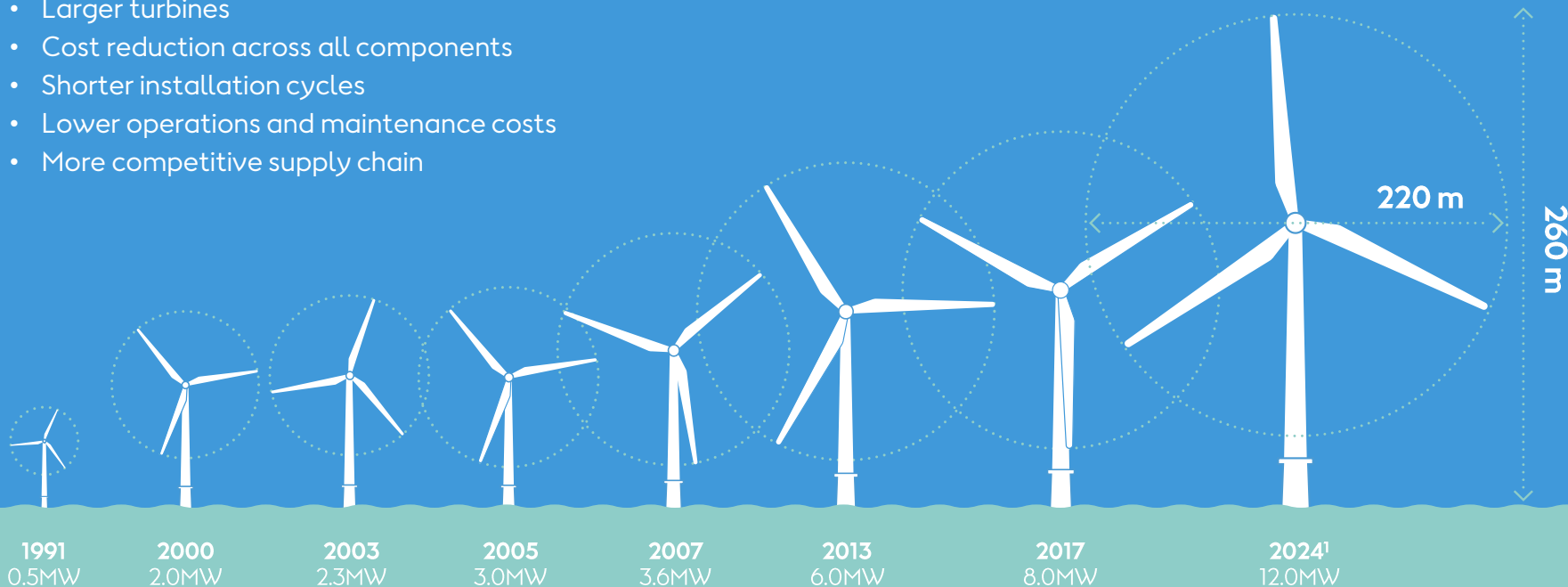
# We identified significant cost-out potential through scale and innovation

## Key cost reduction levers

- Larger sites
- Larger turbines
- Cost reduction across all components
- Shorter installation cycles
- Lower operations and maintenance costs
- More competitive supply chain



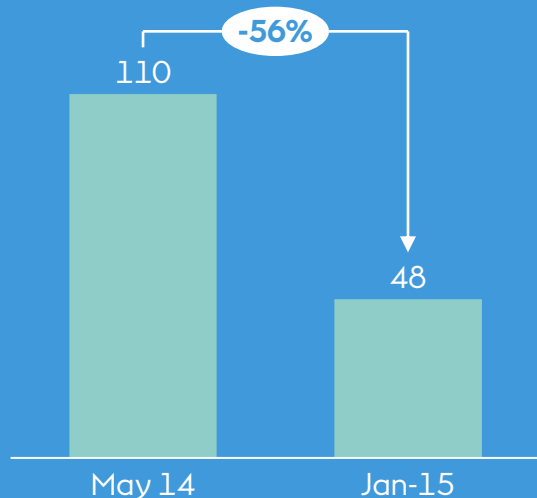
Boeing 747-8  
Length: 76m



# Divestment of oil and gas completed the green transformation in 2017

The oil price dropped by 56% in the second half of 2014

Oil price  
USD / boe



Oil and gas business was restructured and later divested



**Restructuring of oil and gas business from 2015 to 2016**

- Exploration spend reduced by approx. 40%
- Hejre project discontinued
- New investments brought to a halt
- Organisational cut-backs

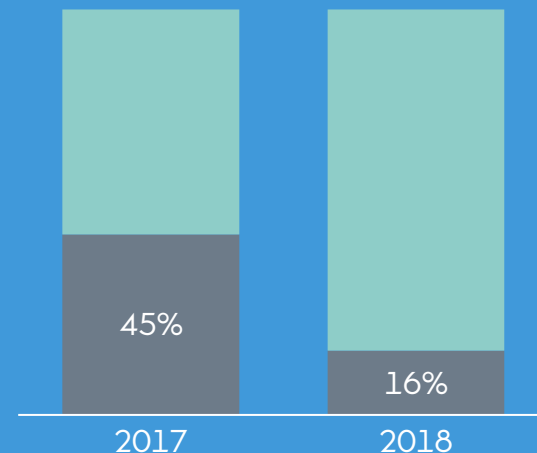


**Divestment of oil and gas business in 2017**

- Oil and gas business sold to INEOS for DKK 7 bn
- Long life assets and ~450 FTEs transferred to INEOS

Oil and gas divestment completed the green transformation

Fossil energy share of EBITDA<sup>1</sup>  
%

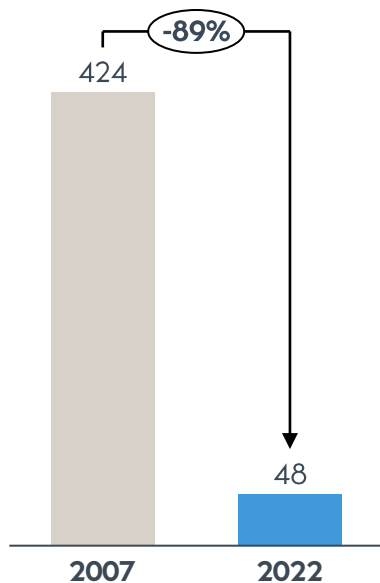


• 1 Oil and gas activities, gas trading and fossil-fuelled CHPs

# We have succeeded in profoundly transforming Ørsted

## CO<sub>2</sub> reduction

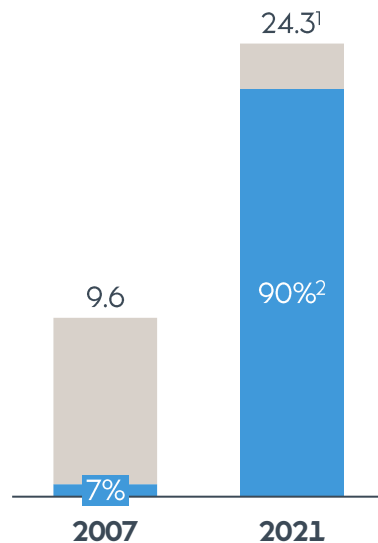
g CO<sub>2</sub>e/kWh (scope 1 & 2)



## Green transformation

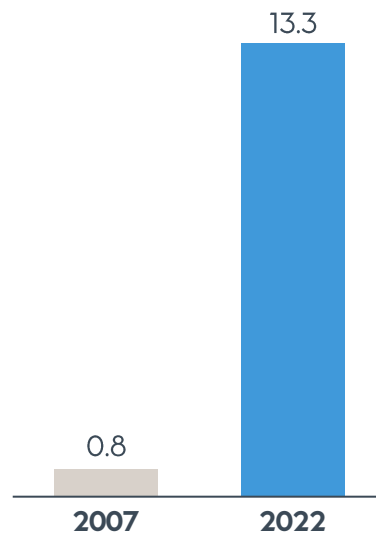
EBITDA, DKKbn, %

■ Share of renewables



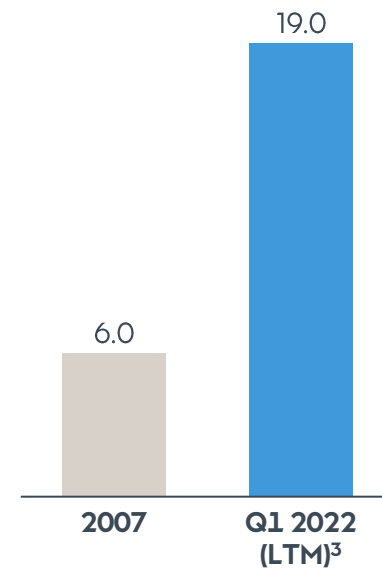
## Renewable capacity

Installed capacity, GW



## Profitability

ROCE, %



1. Including EBITDA from new partnerships 2. Taxonomy-aligned 3. LTM: Last twelve months

Source: Ørsted Interim Financial and ESG Report Q1 2022

# Over the coming decade, Ørsted will globalise based on its stronger growth platform and reinforce its position across technologies and markets



- Increase ambition from 15 GW in 2025 to **30 GW** in 2030 by accelerating annual build-out to 3 GW
  - Expand footprint to **Baltics, Nordics, East Asia** and other growth markets
  - Take leading role in construction of **energy islands**
  - Build a strong position in **floating offshore wind**
- 
- Increase ambition from 5 GW in 2025 to **17.5 GW** in 2030
  - Continue to **accelerate US build-out** across technologies, and **globalise** by scaling EU platform and exploring APAC
  - Create **multi-technology solutions** with hybrid wind and solar PV projects and integrated storage
- 
- Build **global leadership position** in renewable hydrogen and green fuels
  - Execute on **+3 GW** project pipeline and pursue global opportunities across our growth platform
  - **Lean into selected** renewable hydrogen and green fuels **value chains** in close collaboration with key offtake partners

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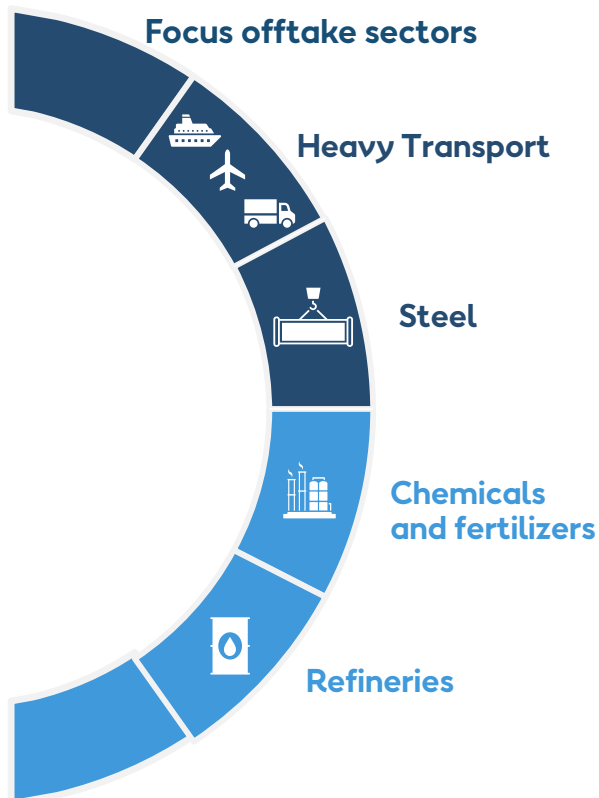
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# Ørsted Power-to-X is focused on serving customers in all 4 offtake sectors

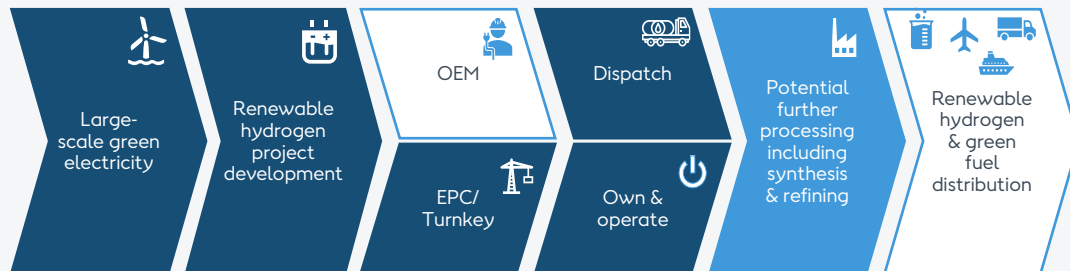
■ Fossil H<sub>2</sub> substitution ■ New renewable H<sub>2</sub> application



We work closely with our partners and customers to deliver end-to-end solutions

■ Ørsted current focus

■ Ørsted will lean into selected renewable H<sub>2</sub> and green fuel value chains



Access to green electrons



Shaping market conditions



Technology scale-up



Proximity to offtake



Exploit portfolio synergies

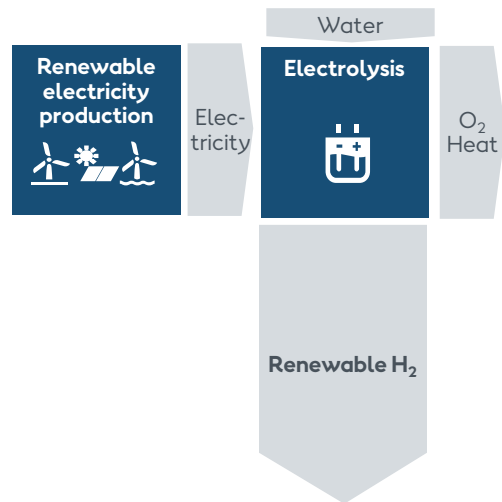


Pace

# Renewable hydrogen can be used to produce green fuels such as eMethanol and eAmmonia – Ørsted is leaning forward and orchestrating full value chain

Value chain

## Renewable hydrogen



Refineries



Steel

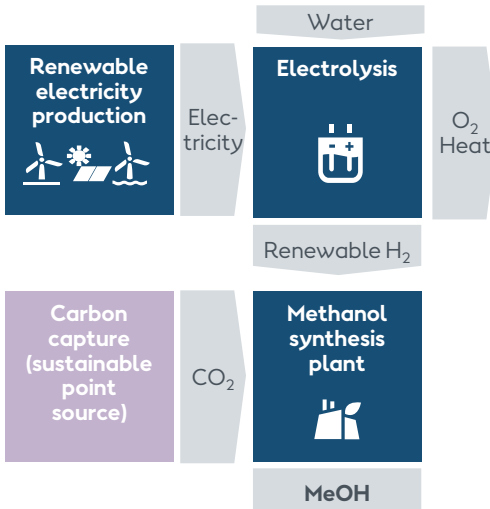


Heavy road



Ammonia prod.

## Green methanol (eMethanol)



Maritime

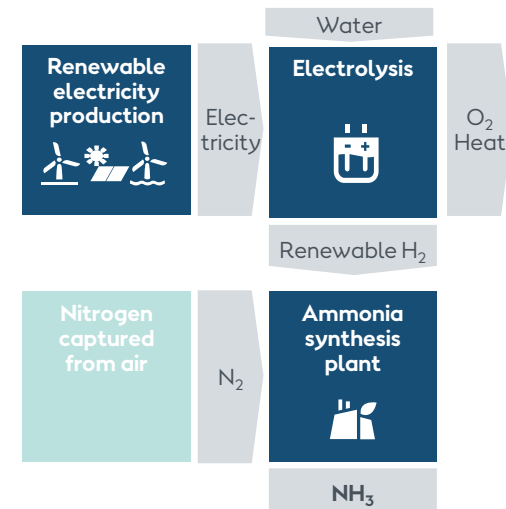


Input to chemicals



Potential input to green jet fuels

## Green ammonia (eAmmonia)



Maritime



Input to chemicals



Hydrogen carrier



Power plants

Examples of offtake sectors

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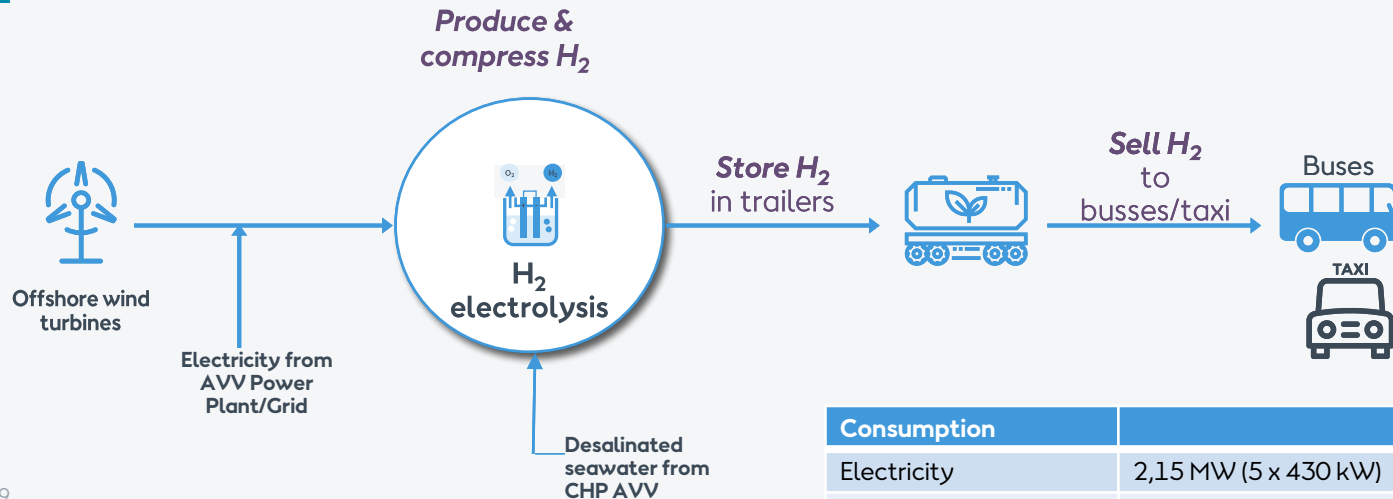
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# H2RES & Green Fuels for Denmark



19

Consumption	
Electricity	2,15 MW (5 x 430 kW)
Demi Water	9,3 m3/day
Production	
Hydrogen	961 kg/day
Oxygen	7.860 kg/day

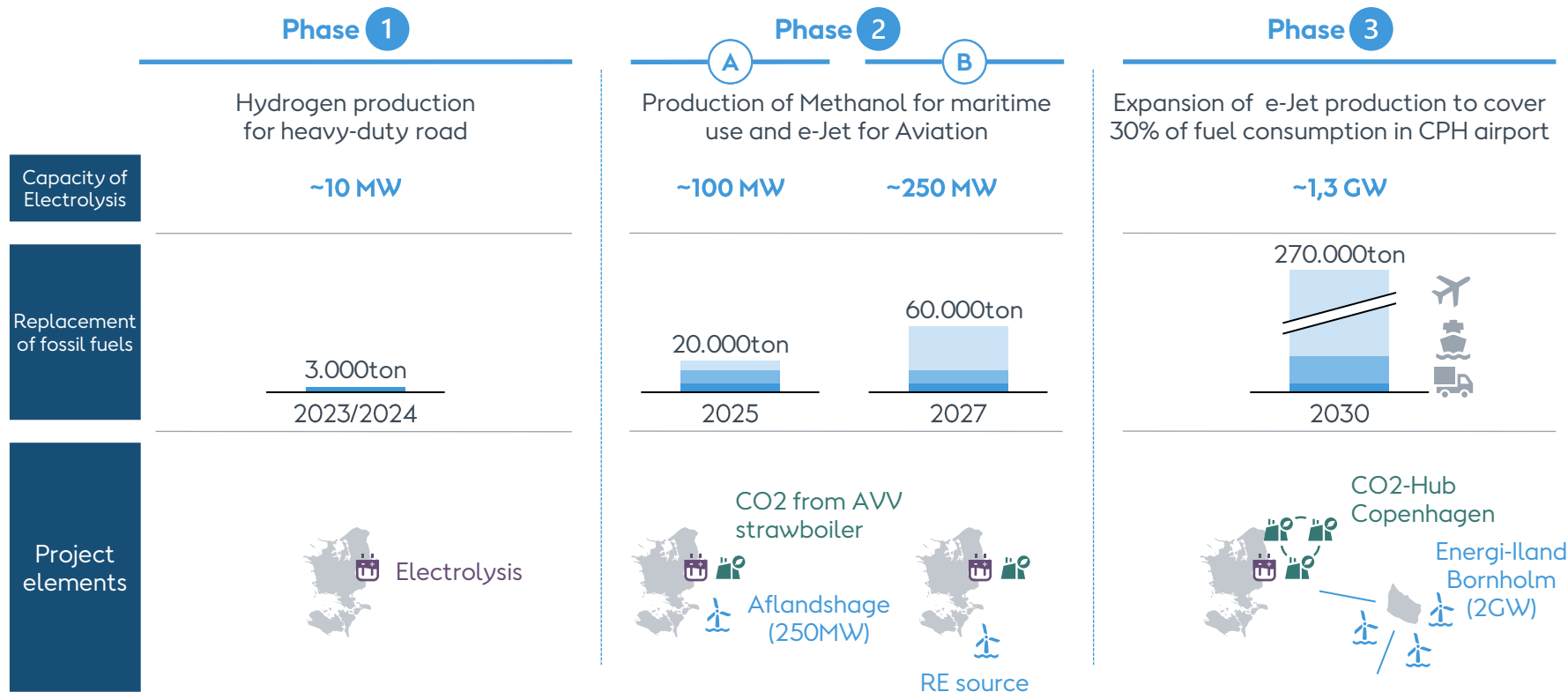
1 kg H<sub>2</sub> = 100 km in Taxi



## Site overview



# Green Fuels for Denmark: The vision is built upon partners' fuel offtake appetite and the capacity to produce expected volumes based on the future RE sources

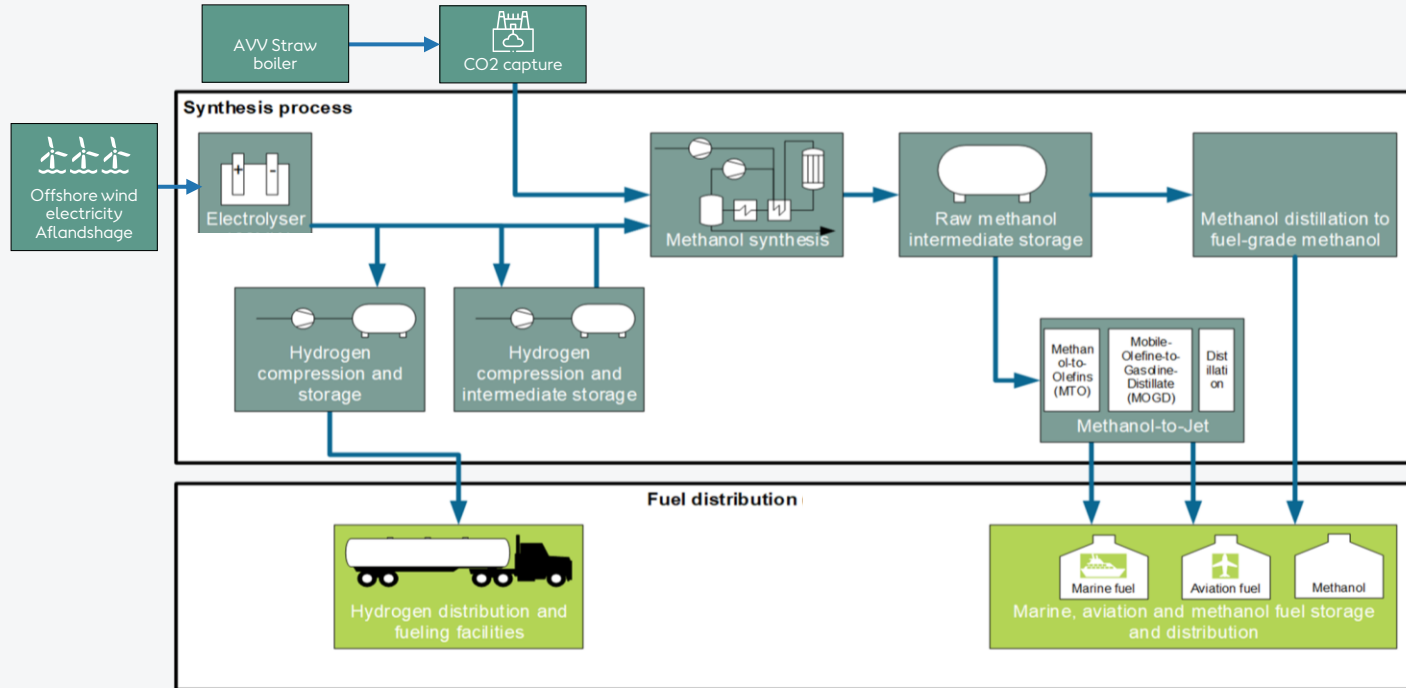


# Phase 1 focusses on scaling-up electrolysis technology, develop H<sub>2</sub> fueling stations to higher capacities and deploying them to pilot heavy-duty fuel cell electric transport



## Phase 2a onwards adds production of carbon-based fuels for marine shipping and aviation offtake in addition to H<sub>2</sub> for heavy-road applications

Process overview for phase 2a onwards





# GFDK layout

## Legend

- Phase 2a
- Phase 2b

