

# Offshore wind outlook and supply chain opportunities & risks based on the UK/EU market

26<sup>th</sup> DCA Annual Congress Stratford-upon-Avon

# Contents

- Who are we?
  - The greenest energy company
  - A global energy player
  - The global leader in offshore wind!
- Renewable outlook and supply chain risks
- Ørsted's portfolio of projects & supply chain opportunities in Europe
- HDD scopes for offshore wind and sourcing
- Let's work together!
- Key take-aways

# From Oil & Gas to renewables

**DONG**  
energy

- Dansk Naturgas A/S was founded and renamed to Dansk Olie og Naturgas A/S (DONG) in 1973

- DONG acquired/merged a few Danish electrical power producers and public utility companies

- IPO Copenhagen Stock Exchange

- Sold off its oil and gas business to Ineos
- Phase-out from coal power generation

- Win first project outside Europe (APAC)
- Acquired Deepwater to expand offshore wind in the US

1972 1991 2002 2005 2014 2016 2017 2018 2019 2020 2021 2022

- World's first Offshore Wind Farm Vindeby 4.95 MW (11 x 450 Kw) was installed (decem. 2016)

- World's first large scale offshore wind farm Horns Rev (160 MW) was installed

- Divested its last onshore wind turbines, focusing on offshore wind power
- Shares partly sold to Goldman Sachs, Danish pension funds, etc.

- Change its name to Ørsted after the Danish scientist Hans Christian Ørsted

**DONG**  
energy

**Ørsted**

Further developments in Europe / APAC / US

# Ørsted develops energy systems that are green, independent and economically viable

■ Installed ■ Under construction

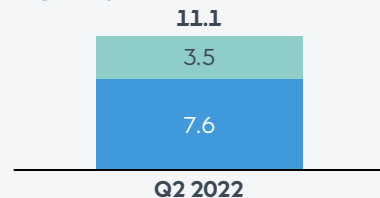


## Offshore wind



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

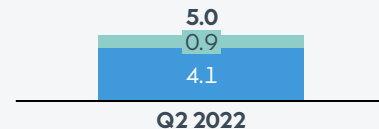
### Capacity, GW



## Onshore renewables



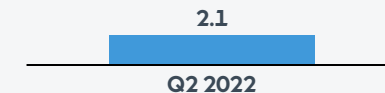
- Strong presence in the **United States and Europe**
- Develop, operate and own onshore wind, solar PV and storage projects
- Ambition to reach ~17.5 GW installed capacity by 2030



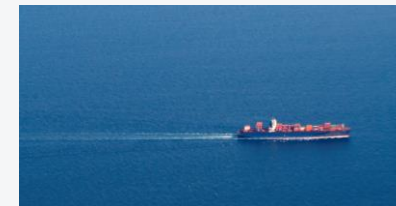
## Bioenergy & other



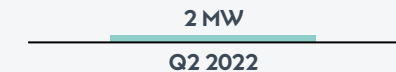
- Presence in **Europe**, including bioenergy plants, legacy gas activities and patented waste-to-energy technology
- Own and operate bioenergy and waste-to-energy plants, and optimise gas portfolio<sup>1</sup>



## 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



1. We neither enter into new long-term gas sourcing contracts nor prolong expiring contracts, our focus is on maximising the value of our legacy natural gas portfolio

# Ambition to become the world's leading green energy major by 2030

Become the world's leading green energy major



One of the world's largest **green electricity producers**

**Global no. 1**  
in offshore



**Global top 10**  
in onshore



**A global leader** in renewable H<sub>2</sub> & green fuels



One of the world's largest and most value creating **deployers of capital** into the green transformation



The world's **leading talent platform** in renewable energy



A **globally recognised sustainability leader**



A core contributor and **catalyst for change** towards a world running entirely on green energy

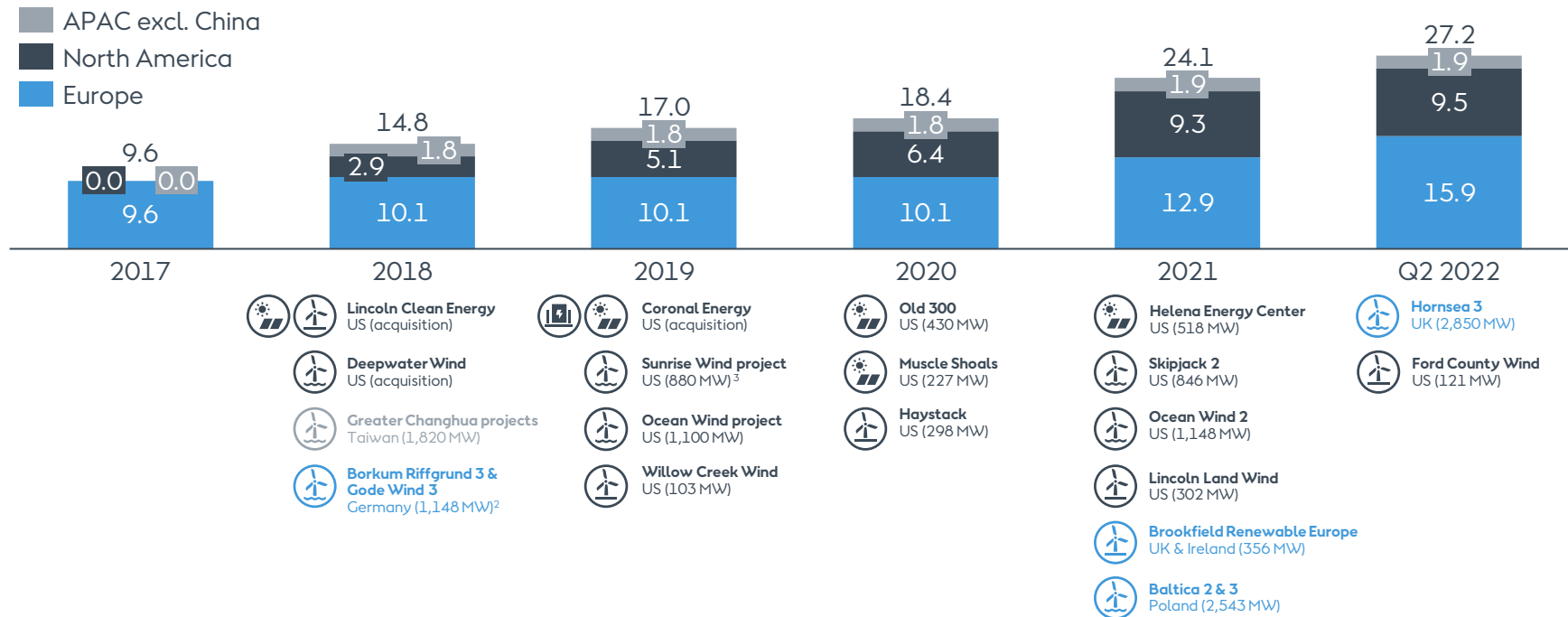


**Ranked the most sustainable  
energy company in the world  
four years in a row**



# During the last years, we have expanded our geographical and technological footprint

Total capacity installed, under construction, awarded and contracted<sup>1</sup>  
GW



1. Excluding thermal heat and biomass 2. Nameplate capacity now accounting for 1,166 GW 3. Nameplate capacity now accounting for 924 MW

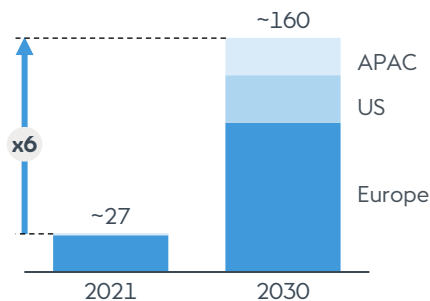
Note: Projects shown represent new additions to Ørsted portfolio (projects acquired or awarded)

Source: Ørsted Interim Financial and ESG Report Q1 2022

# Driven by falling costs, the renewable market is expected to grow massively towards 2030

## Offshore wind

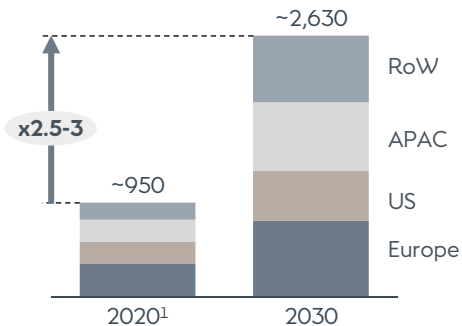
Installed capacity **excl. China** (GW)



- Fastest growing green technology ~20% annual growth towards 2030
- Strong growth across all regions, with largest market in Europe and significant markets in US and APAC

## Onshore renewables

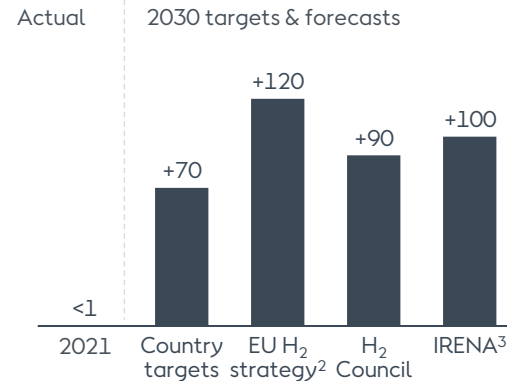
Installed capacity **excl. China** (GW)



- High annual growth rates in all key onshore markets
- Highest growth in APAC, while Europe will remain the largest onshore region in 2030 with ~770 GW

## Renewable H<sub>2</sub> & green fuels

Installed electrolyser capacity (GW)



- Massive growth expected in renewable hydrogen and green fuels
- Broad range of forecasts for expected build-out towards 2030

1. BNEF expected to publish 2021 figures mid-2022

2. Electrolyser capacity based on REPowerEU target of 10 million tonnes of domestic renewable hydrogen production and 10 million tonnes of imports by 2030

3. Based on current global country H<sub>2</sub> targets

Source: BNEF New Energy Outlook 2021 for Onshore, Solar PV and Batteries; BNEF Offshore Wind Market Outlook H2 2021 for Offshore; H2 Council; EU; IRENA; BNEF Global Hydrogen Strategy Tracker 2022



# Supply chain risks in context of massive growth

## Supply chain risks

Numerous wind farm projects under execution / Ørsted pipeline approximately doubled every 5 years

-> Tensions on onshore and landfall HDD (design and execution) and marine supply chain

# Our global offshore footprint

**United States of America**  
In operation: 30MW  
Under construction: 130MW  
Under development: 4,842MW

**Denmark**  
In operation: 940MW

**United Kingdom**  
In operation: 4,912MW  
Under construction: 1,386MW  
Under development: 4,000-5,000MW

**Sweden**  
Under development: 3,000MW

**Poland**  
Under development: 2,500MW

**Germany**  
In operation: 1,346MW  
Under construction: 1,166MW

**The Netherlands**  
In operation: 752MW

**Japan**

**South Korea**  
Under development: 1,600MW

**Taiwan**  
In operation: 128MW  
Under construction: 900MW  
Under development: 3,590MW

**Vietnam**

## Status

- In operation
- Under construction
- Under development

# HDD and other trenchless scopes for offshore wind

## Different categories of HDDs


- **Horizontal Directional Drilling:**
  - Land-to-land HDDs incl. design
  - Landfall HDDs incl. design and associated marine support
  - HDD intersects for marine scopes
  - Complex crossings on land of existing infrastructure
- **Other options could include:**
  - Direct pipe installations
  - Auger boring
  - Microtunnelling

# Sourcing

## Sourcing

- **No bundling of HDD categories under Ørsted tender procedures as they have very different requirements, risks and drivers:**
  - Different drilling equipment required / different length and diameter of HDD bores for Offshore and onshore cable installation
  - Experience of cooperation with marine contractors for Landfall HDDs
  - Local geotechnical conditions, water depth profile and topography
  - Weather and tide
  - Local environmental and permitting restrictions: seasonal restrictions on the LF HDD construction
- **Ørsted Procurement Portal**
- **Achilles Prequalification system**
- **Mix of evaluation/contract award criteria**
  - Price
  - Contractual reservations
  - Technical proposal (incl programme, proposed organization chart etc...)
  - QHSE
  - Local contents

# Ørsted Procurement Portal



## Ørsted Procurement Portal

### Register in the Procurement Portal

As a supplier, you can register your organization to become a part of Ørsted's database and get access to your own profile.

Ørsted use the Procurement Portal to manage e-sourcing and supplier management.

[Supplier Registration](#) →

[Log In](#)

#### Existing Procurement Portal users






Username\*

Password\*

[Forgot password](#)

[Log In](#) [New Supplier? Register here](#)

#### Support for suppliers

				
<b>Open Tenders</b> Explore current opportunities at Ørsted.	<b>Written Guides</b> Read guides on how to register, manage user profiles and upload your tender response (including ESPD).	<b>Video Guide</b> Watch a guide on how to register as a supplier.	<b>Support</b> Reach out to Ørsted with questions or comments on the procurement process.	<b>Tech Support</b> Having technical trouble with the site?
<a href="#">Explore</a>	<a href="#">See guide</a>	<a href="#">See video</a>	<a href="#">Contact Ørsted</a>	<a href="#">Get help</a>

# What do we look for with supply chain partners?

Quality

Competitive

Schedule

Experience

HSE

Collaborative

Adaptability

Transparency

Sustainability

Local contents

Ability of delivery

Competence and value of delivery



# Key take-aways

➤ **Massive growth: great opportunities for the supply chain, but also challenges**

➤ **Critical scope**

Integration in overall offshore windfarm scope / interfaces with TJB and cable installation, permitting authorities etc ...

➤ **We are interested in developing long-term relationships**

- ❖ Same priorities
- ❖ Same ambition
- ❖ We plan, care and communicate!



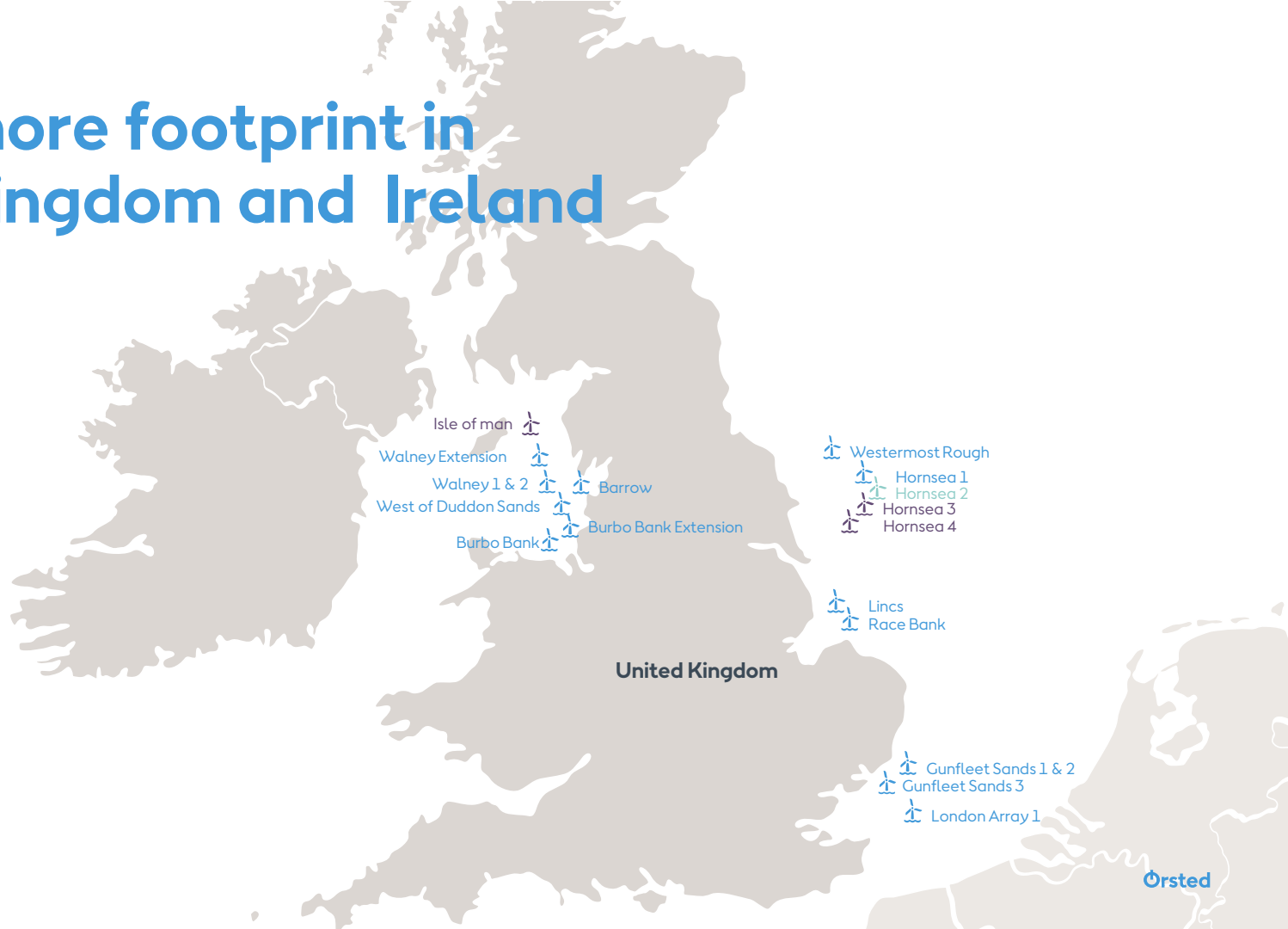
# Our offshore footprint in Northern Europe



**Status**

- In operation
- Under construction
- Under development

# Our offshore footprint in United Kingdom and Ireland



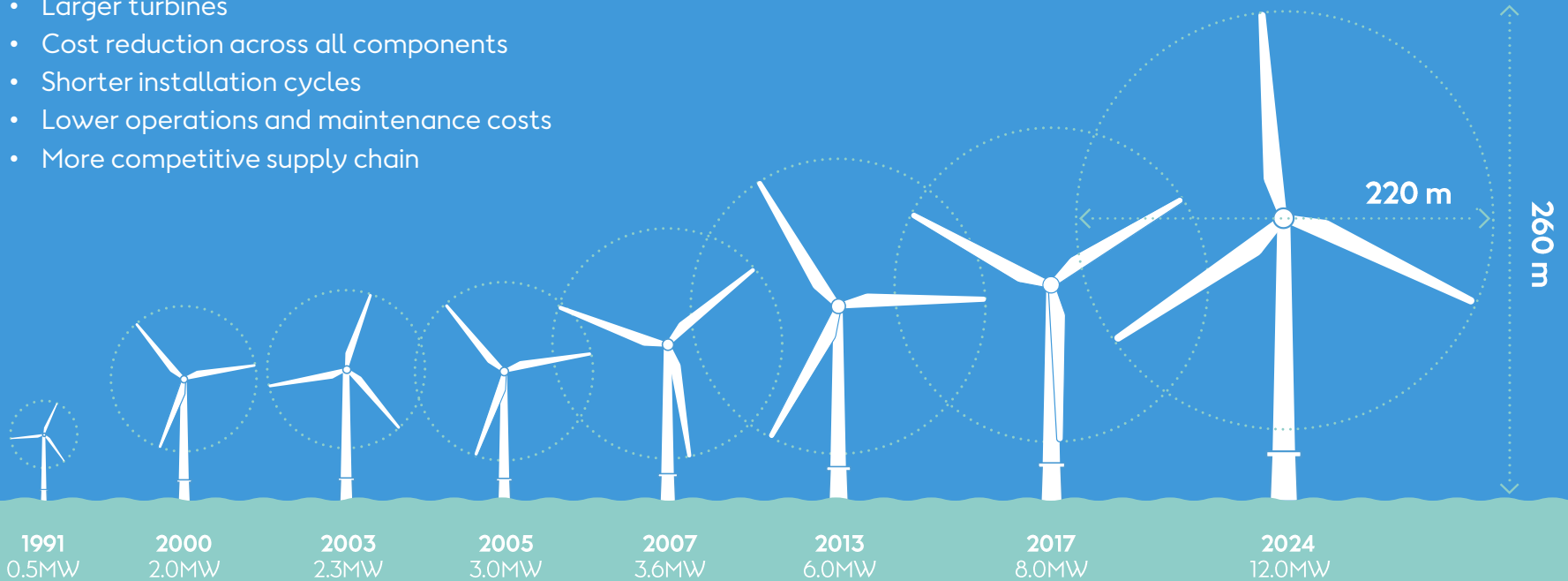
## Status

- In operation
- Under construction
- Under development

# Over the past decade, scale and continuous innovation have driven down the cost of offshore wind

## 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



# Disclaimer

All information in this presentation is owned by Ørsted and cannot in anyway be used or shared without the consent from Orsted.