

Ørsted's perspective on offshore wind in Asia

EU- Japan Energy Business Summit



Ørsted

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



- Revenue (2018): DKK 76.9 bn (USD 11.6 bn)
- EBITDA (2018): DKK 30.0 bn (USD 4.5 bn)
- Credit Rating: Moody's Baa1 (stable), S&P BBB+ (stable)
- 6,080 employees
- Active in Scandinavia, United Kingdom, Germany, The Netherlands, France, USA, Taiwan and Japan

Major Shareholders (voting share %)

- Danish State 50%
- Seas NVE 10%
- Capital Group 5-10%

Offshore Wind



- Global leader in offshore wind with 5.6 GW operational capacity
- Develop, construct, own and operate offshore wind farms
- Significant and attractive build-out plan of 3.4 GW towards 2022
- **Ambition of 15 GW installed offshore wind capacity by 2025**

Onshore Wind



- US onshore wind portfolio with 813 MW operational capacity
- Develop, construct, own and operate onshore wind farms
- 184 MW under construction and a pipeline of more than 1.5 GW
- Energy storage solutions with the first 20 MW battery storage project in operation
- Solar: first large-scale solar PV project Permian Solar 250 MW

Bioenergy



- #1 in Danish heat and power generation with 25% of market
- Converting heat and power plants from coal and gas to biomass
- Innovative waste-to-energy technology (Renescience)

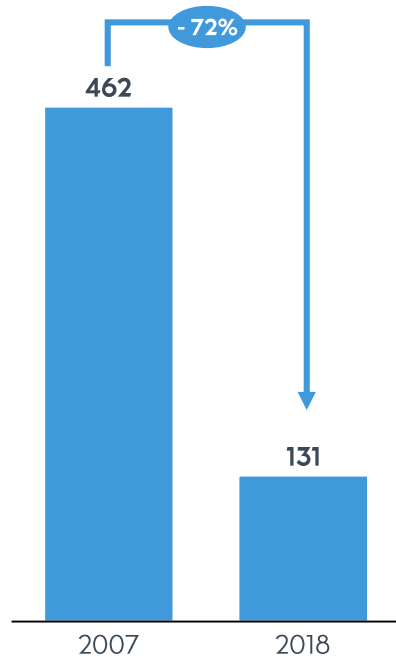
Customer Solutions



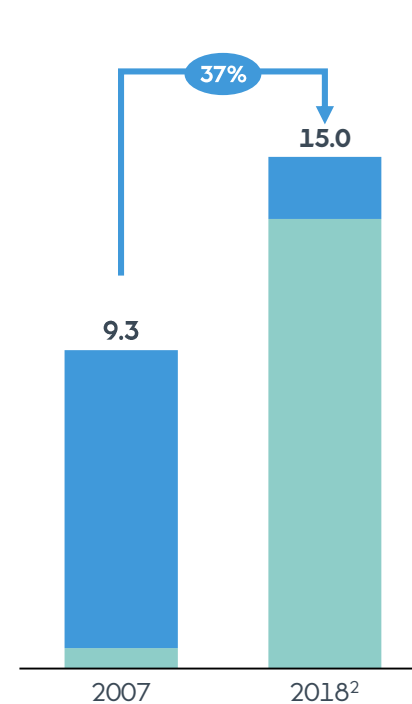
- Develop green, innovative and cost efficient solutions for our B2B customers
- Provide competitive route-to-market for own and customers' generation portfolio
- Optimize activities within natural gas
- Market trading operations to optimize hedging contracts

Significant transformation of Ørsted over the past decade ¹

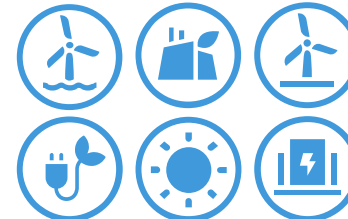
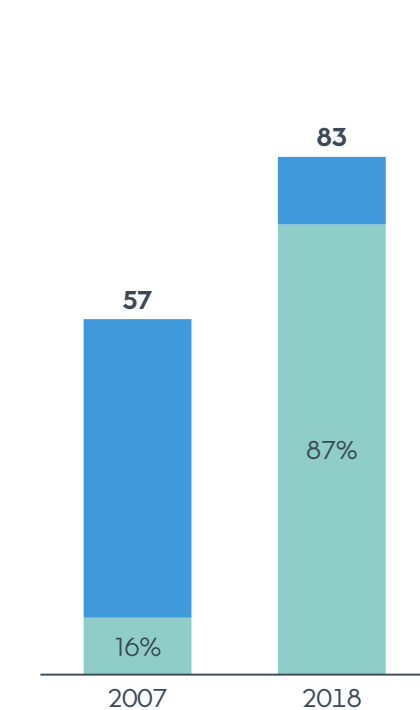
CO₂ emissions reduced by almost three quarters g/kWh



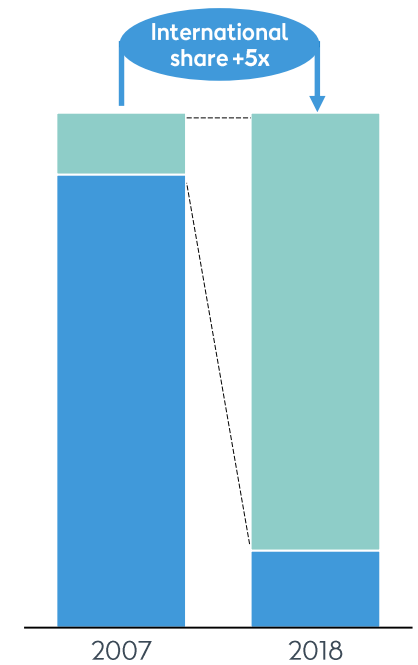
Operating profit (EBITDA) DKK bn



Capital employed DKK bn



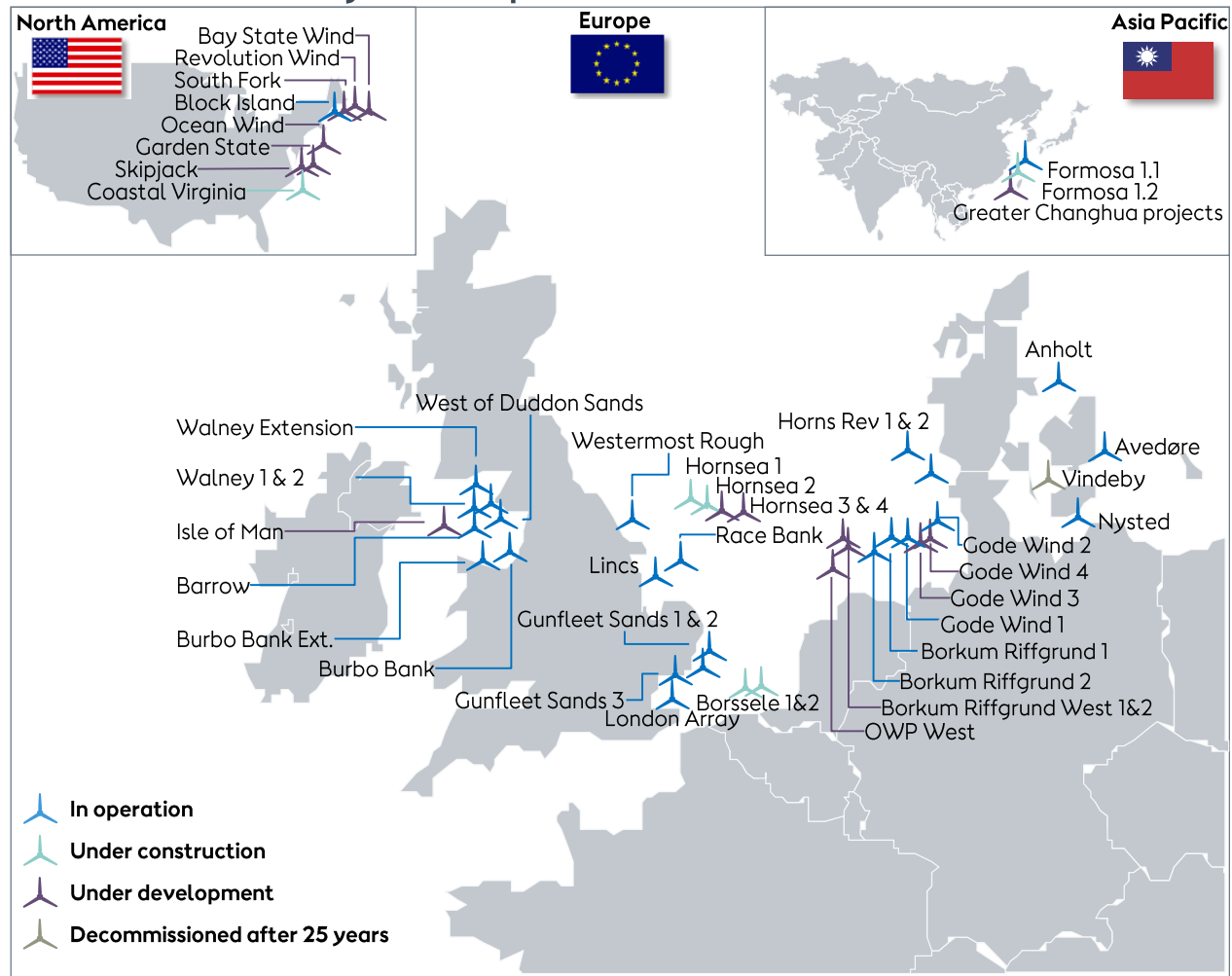
International expansion Share of operating profit (EBITDA) %



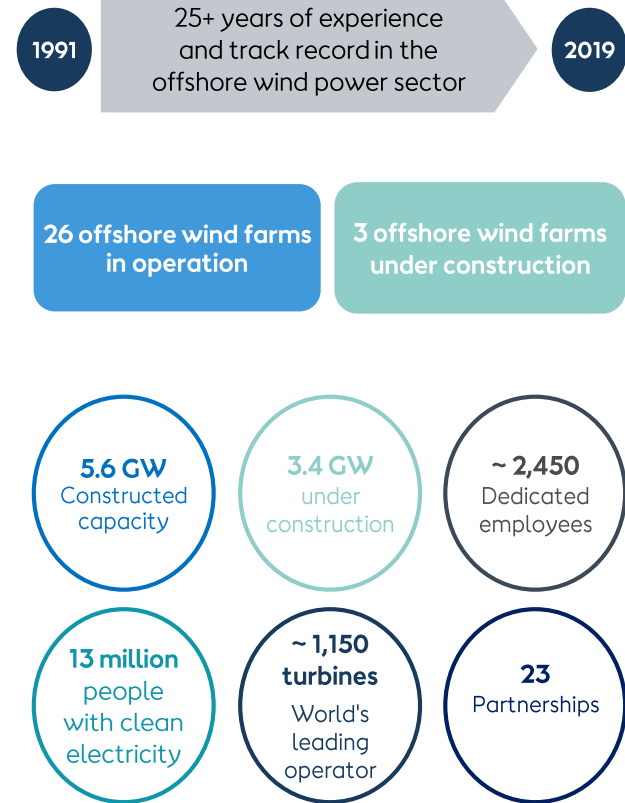
Note 1: figures taken from Ørsted's Annual Report 2018 and Capital Markets Day 2018
 Note 2: excludes EBITDA contribution from new partnerships

Ørsted offshore overview

Ørsted offshore wind global footprint

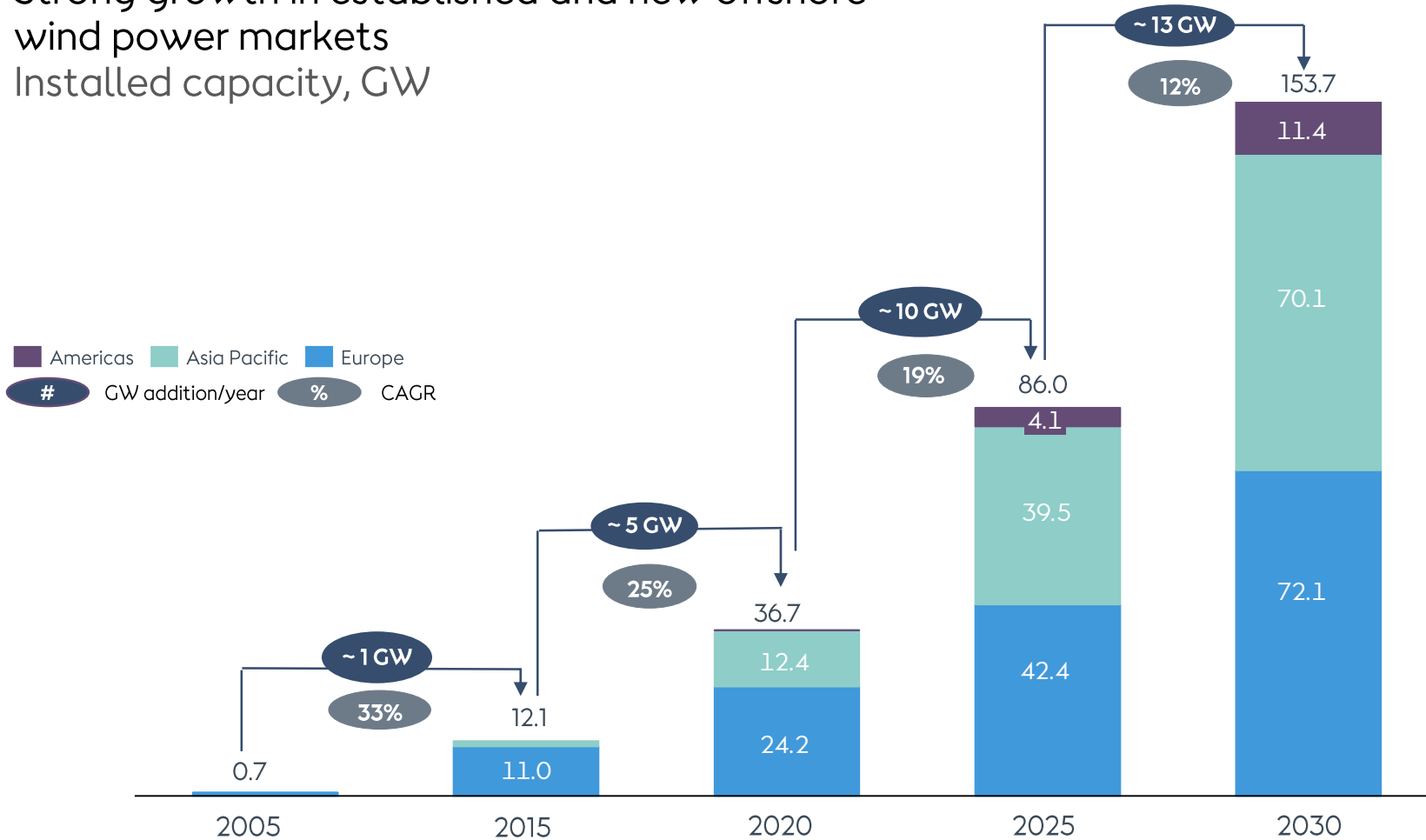


Unparalleled experience and track record



By 2030 offshore wind power will be truly global...

Strong growth in established and new offshore wind power markets
Installed capacity, GW



Taiwan as Ørsted's hub for Asia Pacific has grown significantly over the last 2 years



- Established Taipei office as the APAC hub in **May 2016**
- APAC team growing to over **50 employees**, **>50% local employees**



Market leading position in Taiwan with 1.8GW secured capacity

Ørsted Offshore's activities in Taiwan

Formosa 1

- 128MW capacity
- 2-6km from shore
- Water depths of 15-35m
- 35% ownership share

Changhua 1 & 2 & 4

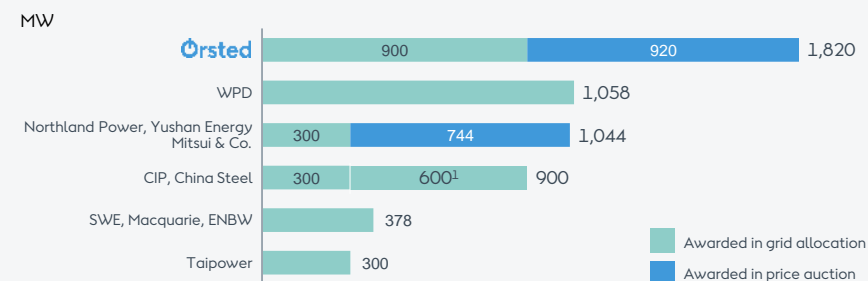
- 1,820MW capacity awarded
- 35-60km from shore
- Water depths of 35-45m
- Wind speeds of 9-10m/s



- Awarded projects
- Exclusive pipeline options
- APAC Headquarters

Market update and Ørsted opportunities

Taiwan allocation and auction outcome



Market

- Taiwan has now met its target of awarding 5.5GW of capacity to be installed by 2025
- Future auctions are being planned for projects post 2025

Ørsted

- 900MW² awarded in grid allocation in April – expected to be completed in 2021 subject to FID in 2019
- 920MW³ awarded in price-based auction in June. Expected to be completed in 2025, subject to FID in 2023. Winning bid price was TWD 2,548/MWh (~EUR 72.3/MWh)
- Greater Changhua 3 (583MW) available for future auctions

1. Capacity independently owned by Copenhagen Infrastructure Partners (CIP)
 2. Changhua 1&2a
 3. Changhua 2b&4

Formosa 1



Formosa 1



Formosa 1



Formosa 1



Formosa 1



Formosa 1

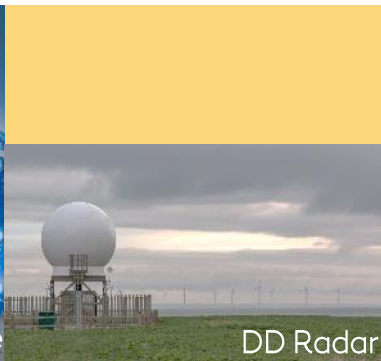


Working closely with local stakeholders in Taiwan

Supply chain development



Financing Strategy

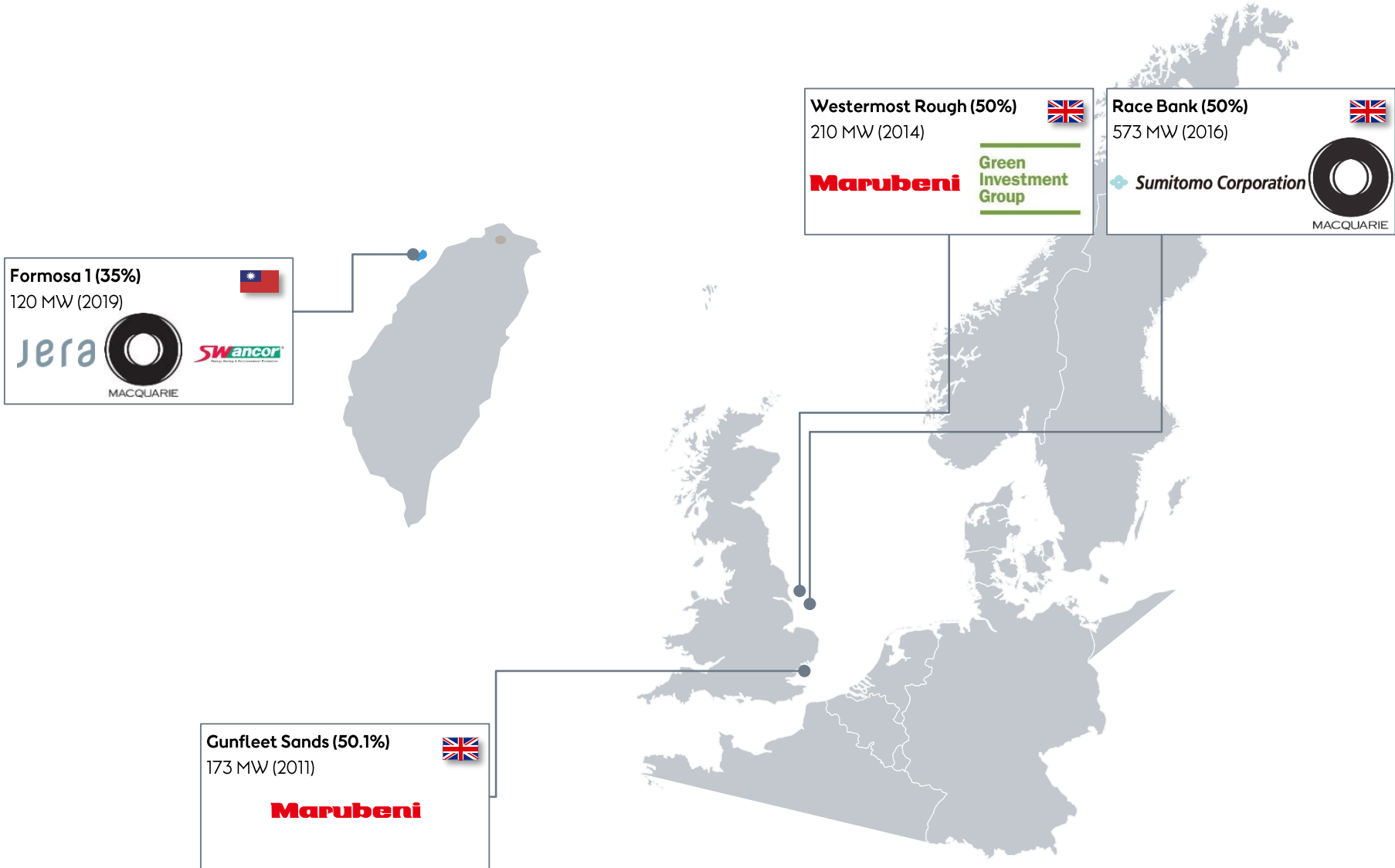


Research & development



Job creation & talent training

Long-term partnerships with Japanese investors



(%) represents Ørsted ownership interest and year when the partnership was created

Selected next horizon markets for offshore wind - Japan

January 2019, TEPCO and Ørsted sign MoU to work jointly on offshore wind projects

China

South Korea

Tokyo

Japan

Taiwan



Choshi project

Ørsted

TEPCO

Tokyo Electric Power Company Holdings

Ørsted

Unlock the offshore wind potential in Japan

- Japan has a strong fundamental need for offshore wind
- **Knowledge** Foreign knowledge is needed to accelerate the offshore wind market in Japan. There will be a healthy mix in the market with local and foreign developers
- **Scale** Large scale projects are possible and needed to bring down the cost for offshore wind
- **Opportunities** Offshore wind industry will bring many new job opportunities to Japan. Especially Orsted already works with Japanese suppliers in our European wind farms



New business model calls for a bolder vision

Vision

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

Mission

We want to develop and enable energy systems that are green, independent and economically viable

