Ørsted U.S. Offshore Wind

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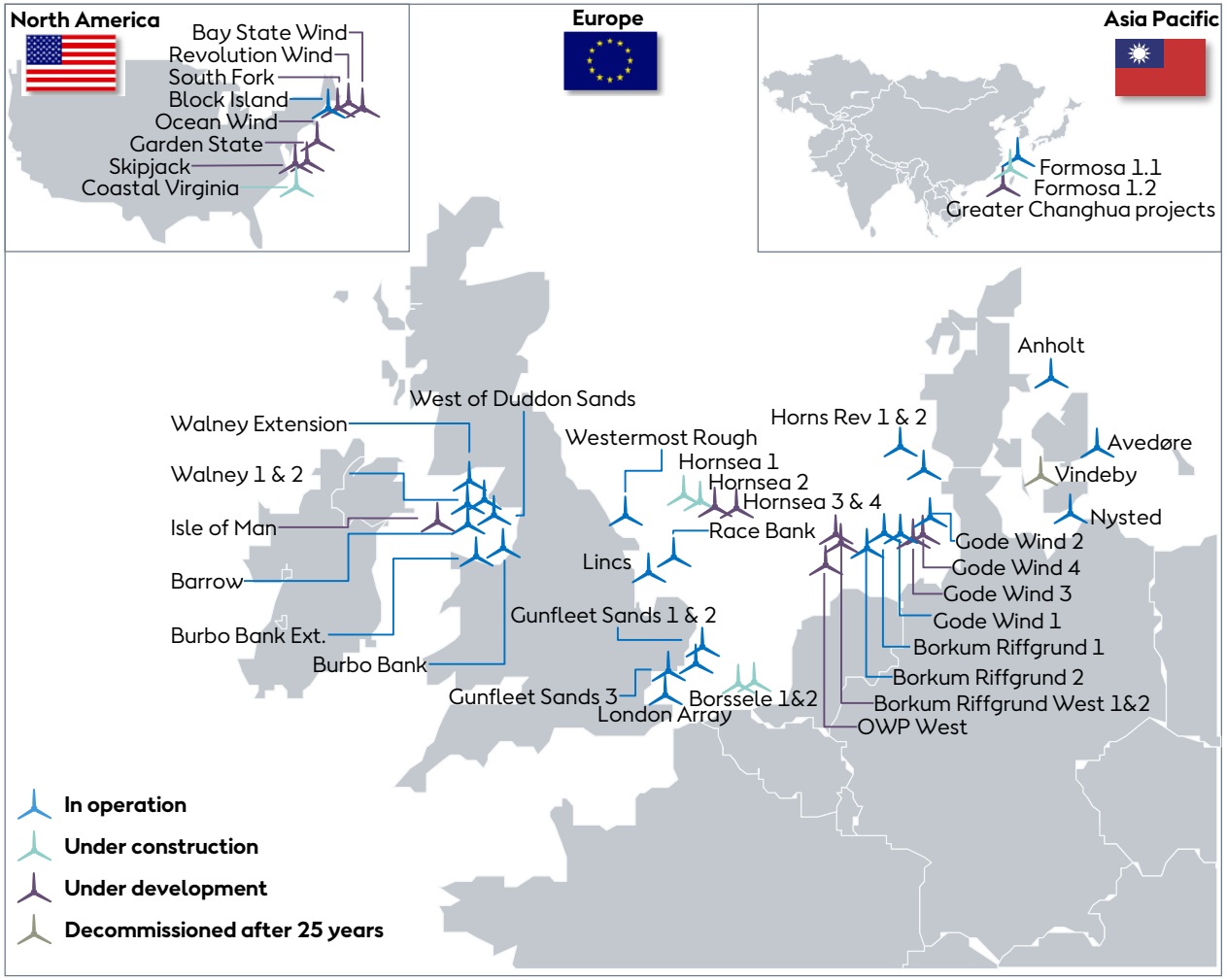
Clint Plummer
PJM Footprint Roundtable
April 24, 2019

Ørsted Offshore overview

Ørsted offshore wind global footprint



Unparalleled experience and track record

1991 — 25+ years of experience and track record in the offshore wind power sector — 2019

26 offshore wind farms in operation

3 offshore wind farms under construction

5.6 GW Constructed capacity

3.4 GW under construction

~ 2,450 Dedicated employees

13 million people with clean electricity

~ 1,150 turbines World's leading operator

4 U.S. states America's leading developer

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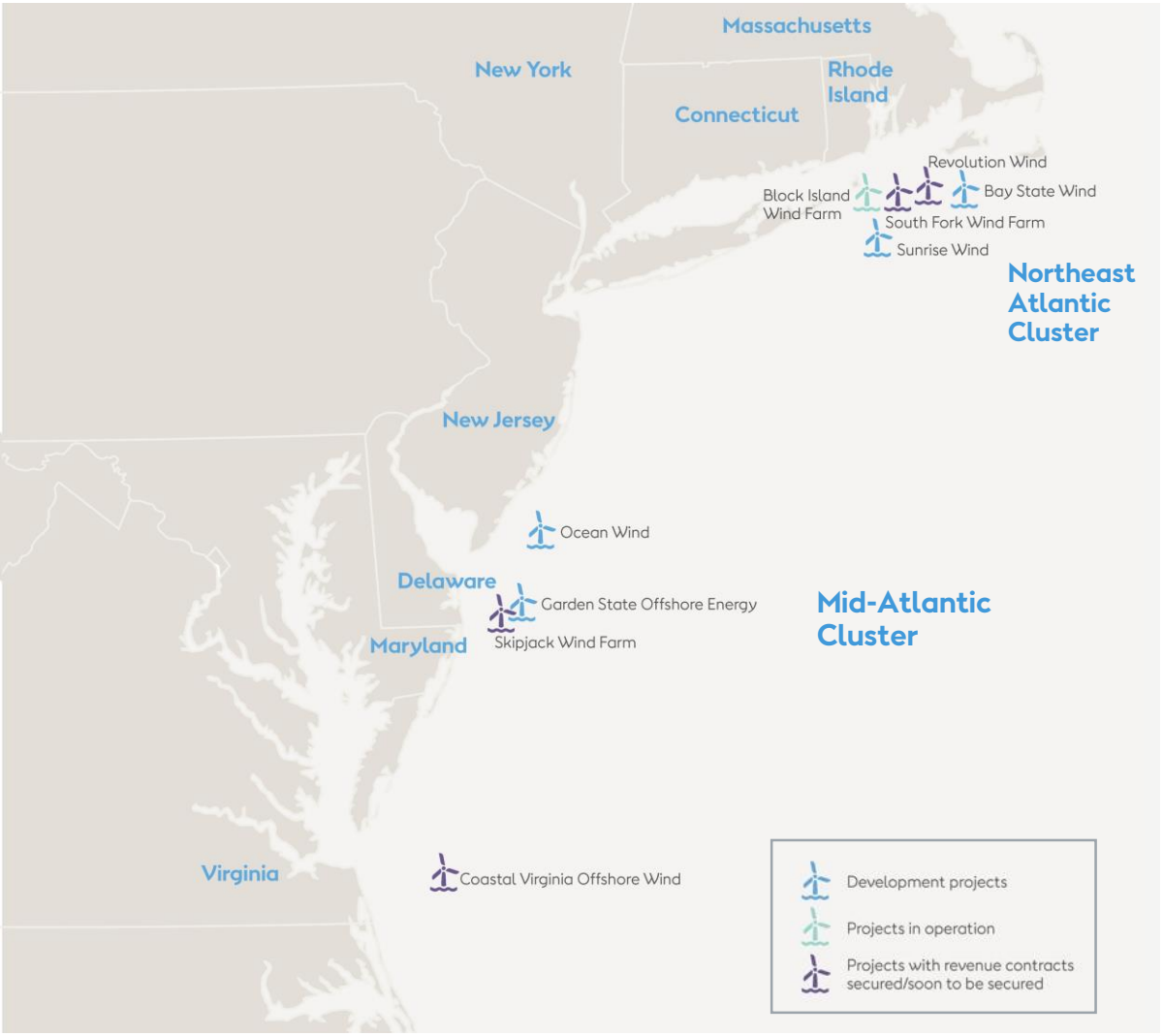
Our geographically diverse portfolio can serve the East Coast with 8-10GW



Most advanced project portfolio in America

In Operation

Block Island Wind Farm: operational since December 2016. 20-year PPA, starting price USD 236/MWh and 3.5%

Projects with revenue contracts (secured or soon to be secured)

South Fork Wind Farm: COD expected in 2022. 20-year PPA with LIPA (130MW); 50-50 JV with Eversource

Skipjack Wind Farm: COD expected in 2022. 20-year OREC contract, starting price USD 171/MWh and 1% price escalator (120MW)

Revolution Wind: 704MW (400MW to RI, 304MW to CT) Long-term PPAs currently under negotiation in Rhode Island and Connecticut; 50-50 JV with Eversource

Coastal Virginia Offshore Wind: 12MW (EPC contract)

Development projects

Ocean Wind: up to 3.5GW

Garden State Offshore Energy: up to 1GW; 50/50 JV with PSEG

Bay State Wind: up to 1GW; 50-50 JV with Eversource

Sunrise Wind: up to 1GW; 50/50 JV with Eversource

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Europe has approached the question of OSW transmission assets in two main ways

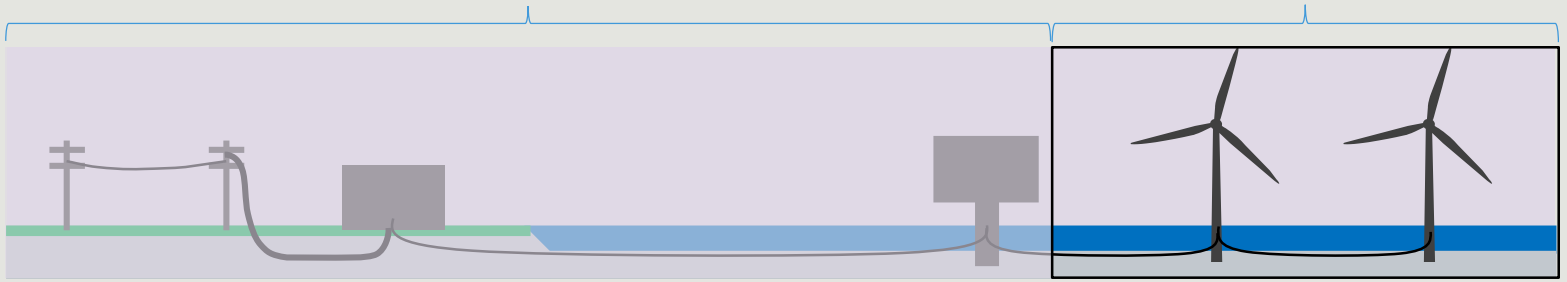
The "segmented" approach

Managed outside tender
(TSO/DSO)

Competitive tenders enforce price pressure
(Developer)

Examples..

(DK far from shore auctions)

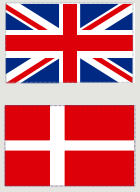


The "full scope" approach

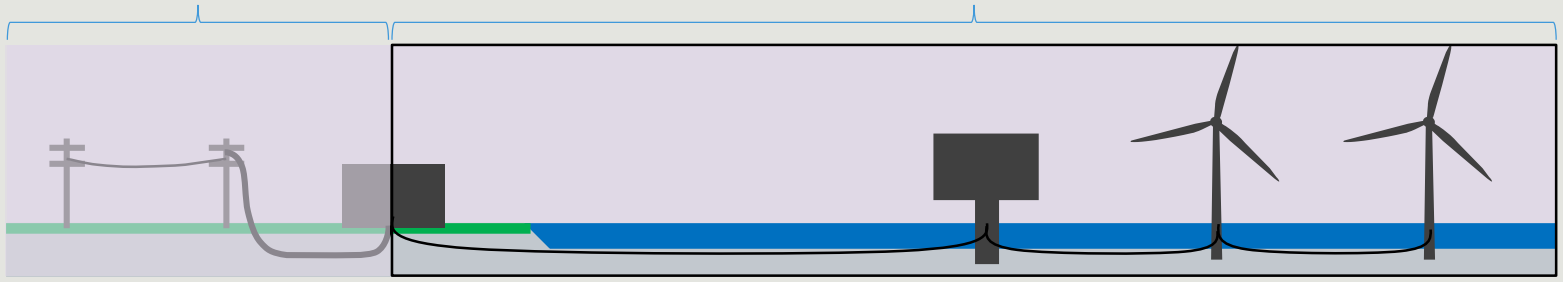
Managed outside tender
(TSO/DSO)

Competitive tenders enforce price pressure
(Developer)

Examples..



(DK nearshore auctions)



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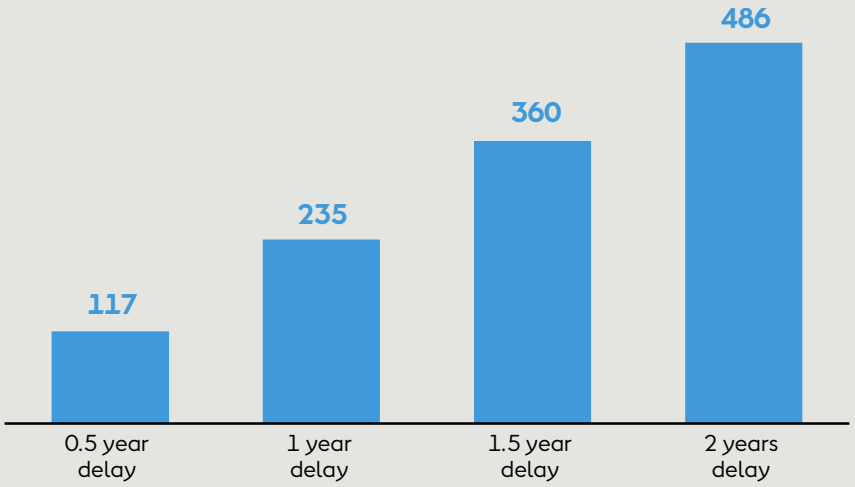
In Germany transmission delays led to offshore wind farms being stranded without grid connection for up to several years

The "segmented" approach led to costly grid delays in Germany

Cost increase due to transmission delays[1]
(USDm for 400MW OSW farm)



- First 8 German OSW farms experienced
  - Delays of 6-24 months (average of 13 months)
  - Cost overruns of up to 93%
- Delayed transmission assets built by TSO were major driver of this
- Cost of compensating developers for lost revenues = $1.3 bn
  - This was funded by extra levy on rate payers

3 challenges of a "segmented" approach

1. Interface issues
- Managing the interface between two complex interdependent, yet separately led, processes proved a challenge and source of big delays

2. Sub-optimal risk allocation
- Risks were not allocated to the player best able to deal with them (the developer), and managing them proved a challenge to the TSO

3. Complexity
- The German set-up introduced more players but had an unclear distribution of responsibilities and compensation
  - This complexity led to "gridlock" according to one government representative

× Splitting the scope prevents developers from optimizing size, solutions and life-time of transmission assets and the wind farm

1. Cost calculated by increasing construction time in LCoE model by 6-24 months for 2023 COD. Conservative estimate as it doesn't include increased OPEX or CAPEX

Source: DONG Energy; Hertie School of Governance

Sources: Hertie School of Governance, 'Offshore Wind Power Expansion in Germany'; Netztransparenz 2013&2014; AURES

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