Global offshore wind growth and Japan outlook

REVision 2020

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Ørsted Introduction

Our vision

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

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Ørsted Offshore: Global overview

30 years of experience of developing, building and operating offshore wind farms

The global leader in offshore wind

- **5,600 MW** in operation
- **4,300 MW** under construction
- **1,150+** turbines spinning
- **25** offshore wind farms in operation
- **2,500** dedicated employees

The world's first

Vindeby, 1991
5 MW

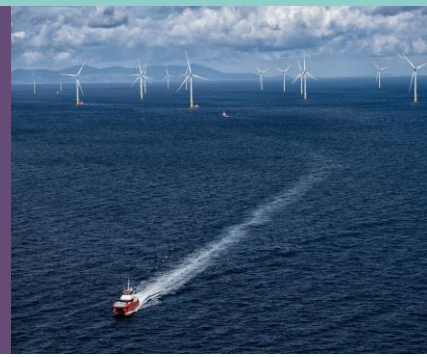
Firsts outside Europe

Formosa 1 Wind Farm, 2019
128 MW (1st in Taiwan)

Block Island Wind Farm, 2016
30 MW (1st in USA)

The world's largest

Walney Extension, 2018
659 MW



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Global Industry Overview

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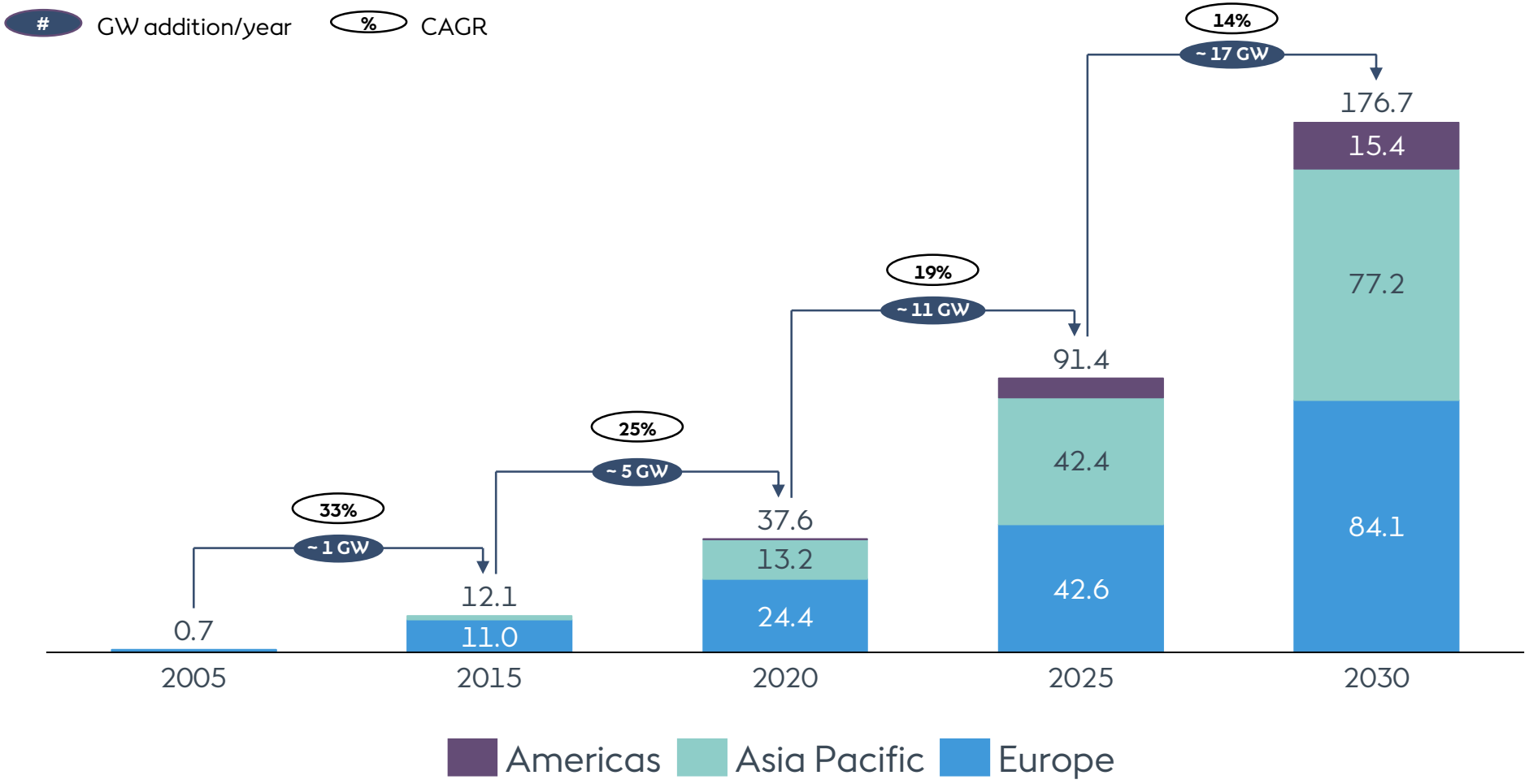
Offshore wind is experiencing explosive global growth

Global offshore wind installed capacity
GW



Source: Bloomberg New Energy Finance (BNEF), 1H 2019 offshore wind market outlook

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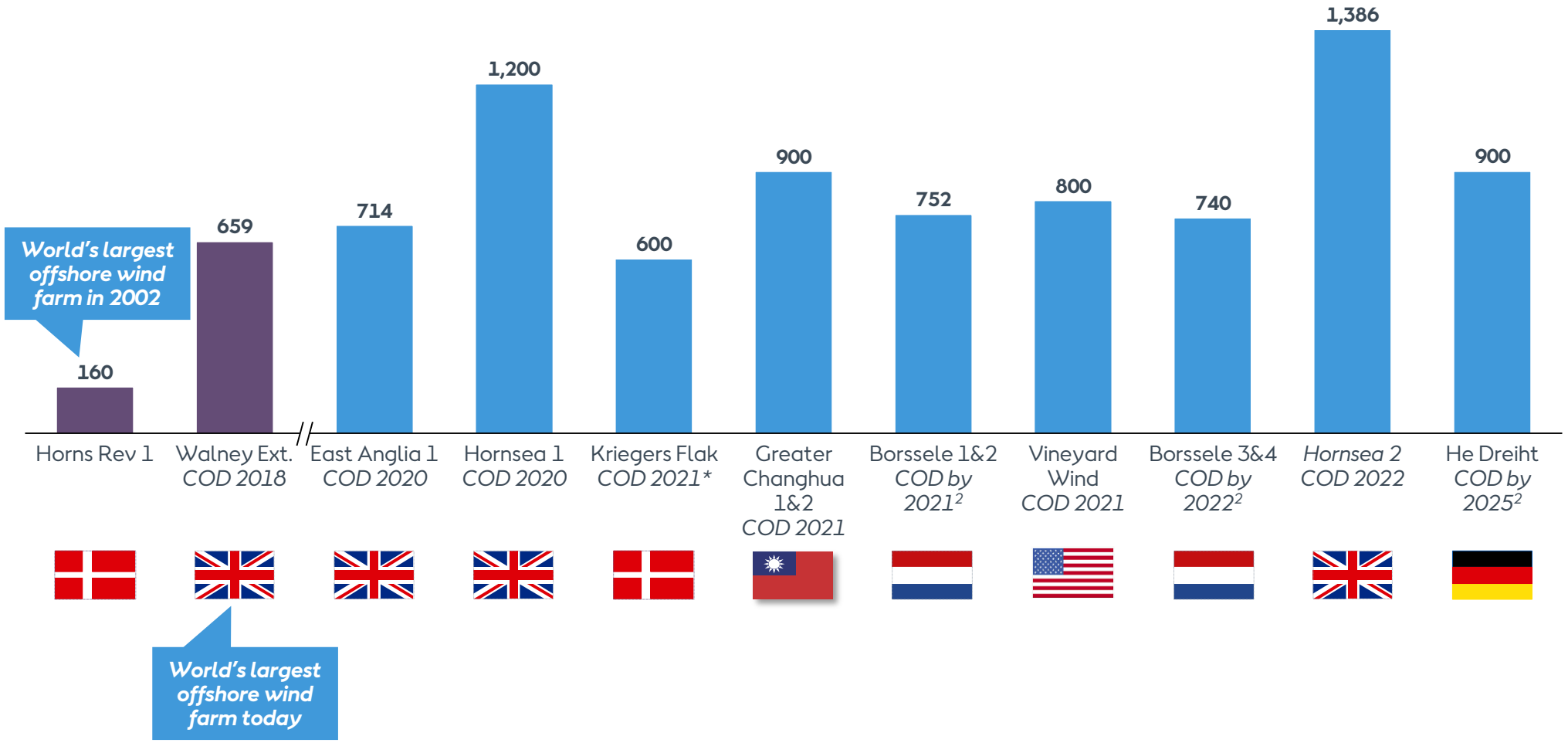
The move towards larger projects is a global trend

Capacity of select offshore wind farms under construction
MW



1. Excludes test and demonstration projects.
2. COD may occur earlier, but these are latest allowed commissioning years

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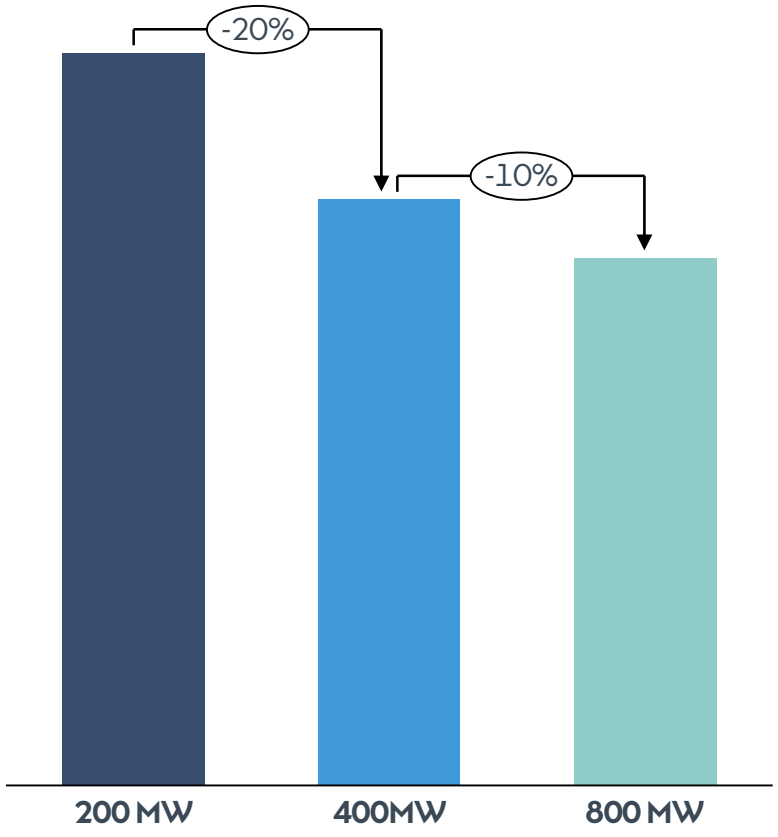
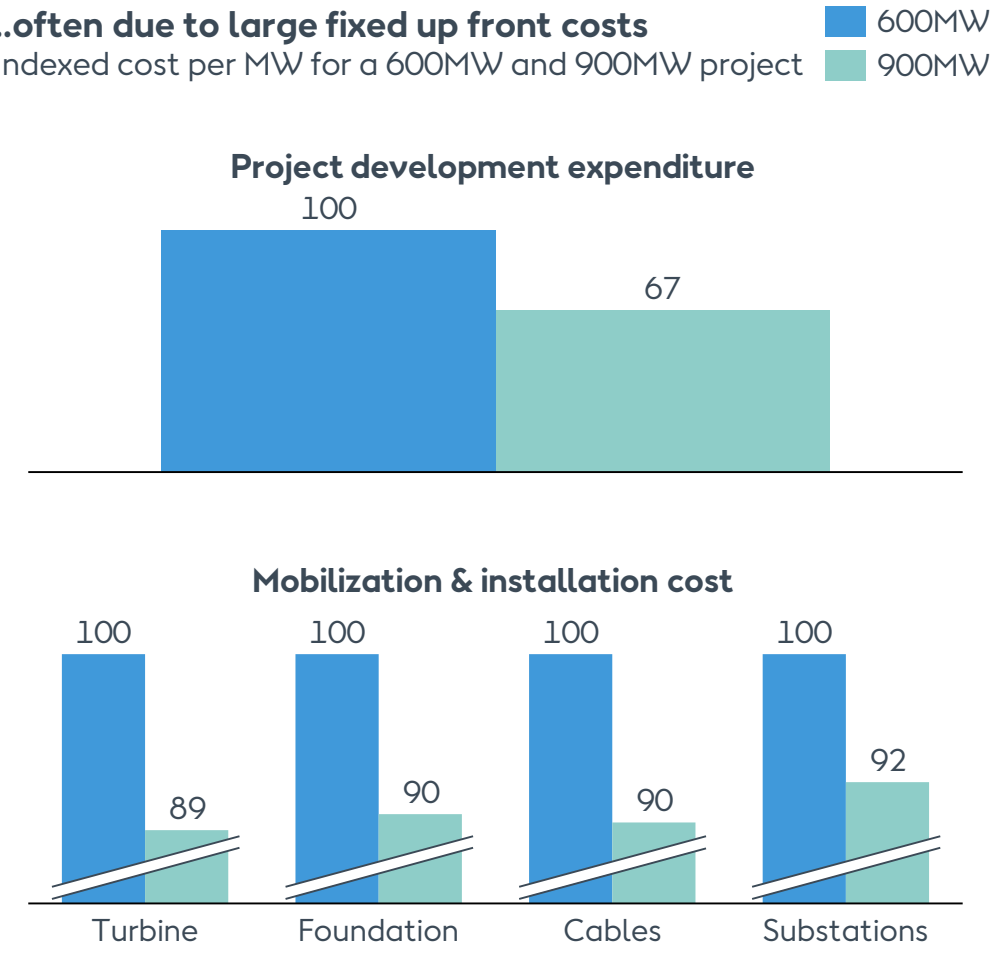
Larger projects allow for increased optimization and unlocks economies of scale benefits

Larger projects create significant benefits..
Indexed LCOE reduction for offshore wind projects



..often due to large fixed up front costs
Indexed cost per MW for a 600MW and 900MW project



Innovative solutions continue to push the boundaries of our industry

Technological

- **15%-20% cost reduction** on foundations with switch from grouted to bolted connections
- **40% CAPEX reduction** on transmission system by increasing capacity in cables & reducing no. of substations

Commercial

- CPPAs help **mitigate or eliminate merchant risk** reducing risk and costs
- Ørsted & Northumbrian Power entered 10-year PPA for **100 GWh/year** in 2019
- CPPAs like this point us to the future of **subsidy free offshore wind**

Operations

- Move from manual blade inspections to use of drones cut WTG outage time from **1 day to 18 minutes**
- Deploying **battery storage systems** with our wind farms (e.g. Burbo Bank) to support production scheduling & provide grid services

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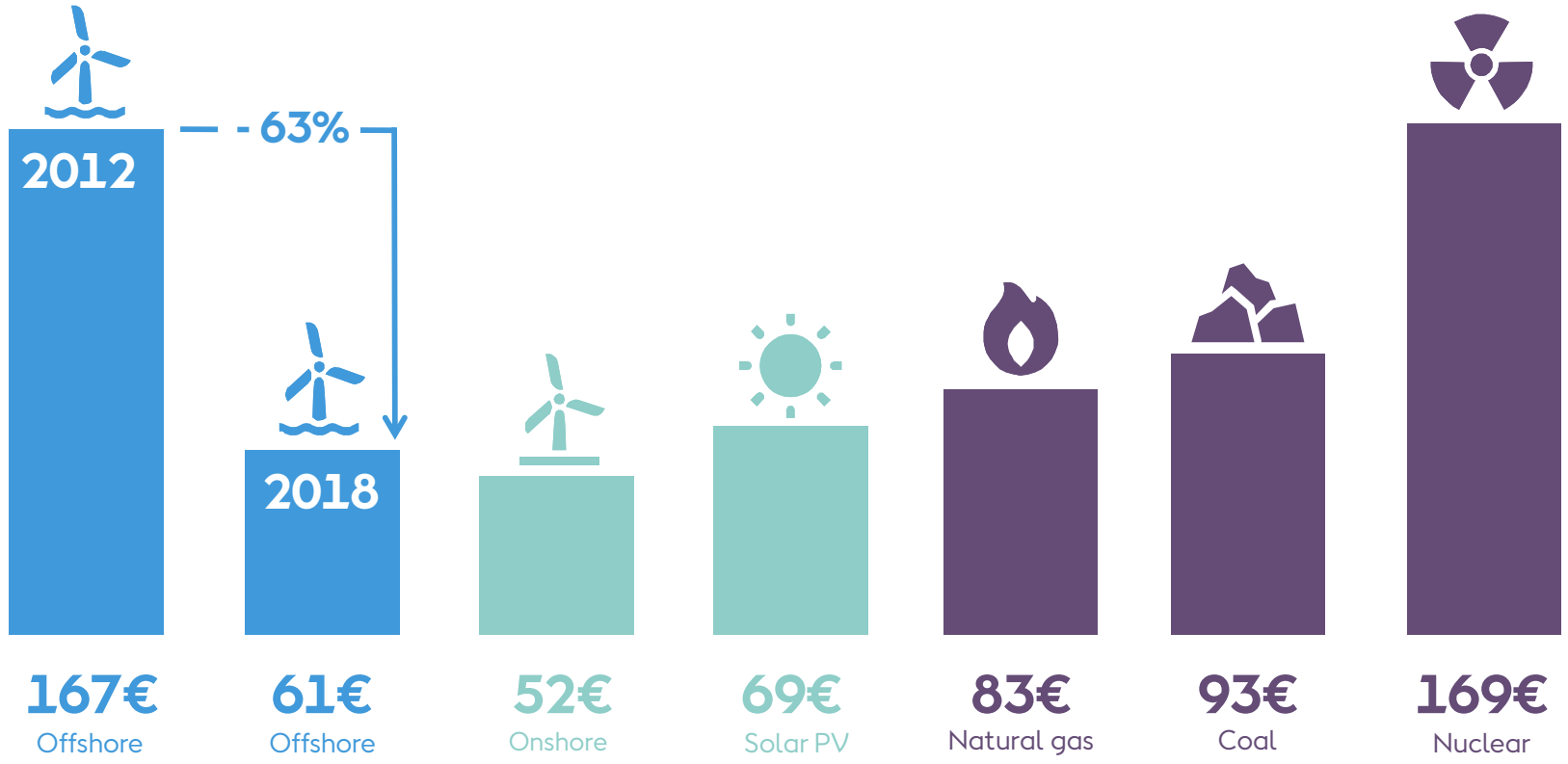
Offshore wind is already cost competitive in Europe

Levelized cost of electricity in Northwest Europe

EUR_{2018}/MWh



Source: Bloomberg New Energy Finance – 2H 2018 LCOE Update, current LCOE.

Japan could become a world leading offshore wind market

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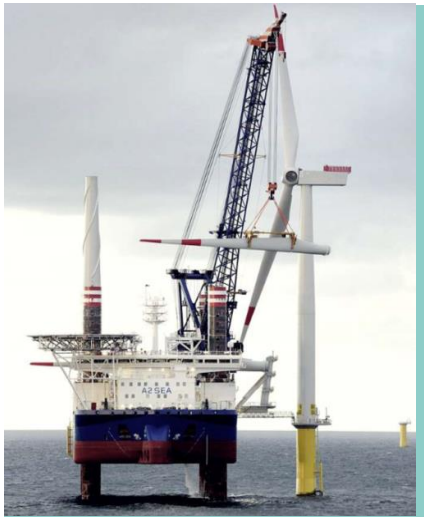
The window of opportunity is open and offshore wind is gaining momentum in Japan

Japan needs offshore wind

- 90% of energy demand is imported
- Lack of space onshore



2020 will see first offshore wind auction

- Plans to auction off 1.0-1.5 GW per year
- Competition & visibility will lower costs

Strong political momentum

- RES target of 24%, including 10 GW wind power by 2030

Significant potential

- Japan's "good-wind" sites hold 90 GW of fixed bottom offshore wind potential

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The following are key to Japan fulfilling its offshore wind potential

Large scale wind farms

Offshore wind costs fell by 63% from 2012-2019 in large part due to greater scale

Fixed targets

Visibility & pipeline are needed to build supply chain & attract investments

Flexible frameworks

Ability to adapt & optimize as well as industry led localization efforts will drive down costs

Mix of international experience & local expertise

Reap the benefits of 30 years' experience while adapting to local circumstances

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