OFFSHORE WIND
Industry Highlights
Giles Dickson
CEO, WindEurope
EWEA is now WindEurope
Market Leaders

- DONG Energy
- Enel Green Power
- Enercon Energy for the World
- GE Renewable Energy
- Iberdrola Renewables
- Siemens
- Vestas

Leading Members

- Acciona Energía
- E.ON Climate & Renewables
- EDF Energies Nouvelles
- EDP Renewables
- ERG Renew
- MHI Vestas Offshore Wind
- Nordex
- RES
- Sentient Science
- Vattenfall

Wind Europe
The offshore wind industry today
Offshore Wind
The industry today

11,027 MW
3,230 Turbines
82 Sites
€47bn Financed
41 TWh

in new assets 2010-2015

Source: WindEurope
Offshore wind in 2015

3,019 MW
754 Turbines
22 Sites
€13bn Financed in new assets

Source: WindEurope
Offshore wind farms
A truly European project: Wikinger offshore wind farm
Developed by Iberdrola

- Construction started in 2016
- Online in 2017
- €1.4bn investment
- 350 MW from 70 x 5 MW turbines
- Distance to Baltic shore: 75km
- Average water depth: 35m
Wikinger

- German wind farm
- Spanish Developer
- French/Spanish turbines
- Danish/Spanish jackets
- Dutch vessels
- Italian cable maker
- Additional Manufacture in Sweden / Norway
Future industry highlights
Opening up the seas

**Finland – Overcoming sea ice**
- Commercialisation of steel coffer foundations freeing up the icy Baltic Seas – Pori 2 in the pipeline

**Floating wind takes next leap**
- Scotland is developing first commercial arrays
- Tenders in France in the Atlantic and Mediterranean

Image: Seppo Keranen
Increasing turbine capacities

Larger turbines are aiding cost reduction through increased energy yields

- **450kW**  First turbines in 1991
- **4.2 MW**  Average turbine installed in 2015
- **8MW**    Largest turbine – installation Q1 2017

Orders for turbines in 2015 exceeded 5GW, an increase of 75% over the previous year

Source: WindEurope
Effect of project volumes in cost reduction

- Delivering LCoE <€80/MWh (£65/MWh), incl. grid costs for FID in 2025 is feasible:
  - 4 GW/year and Energy cooperation and regulatory harmonisation

4 GW/year (from 2020 onwards)
FID 2025 = €85/MWh
FID 2030 = €80/MWh

7 GW/year (from 2020 onwards)
FID 2025 = €79/MWh
FID 2030 = €72/MWh

Analysis is based on Central and High Scenario projections in WindEurope Wind Energy Scenarios 2030 with a 20% learning rate applied to derive the cost of energy.

The starting point is an LCoE of EUR 96/MWh for projects reaching FID in 2020 and based on the current national offshore wind energy targets it is expected that over 24 GW will be installed in 2020. Prices are EUR 2012.
THANK YOU