



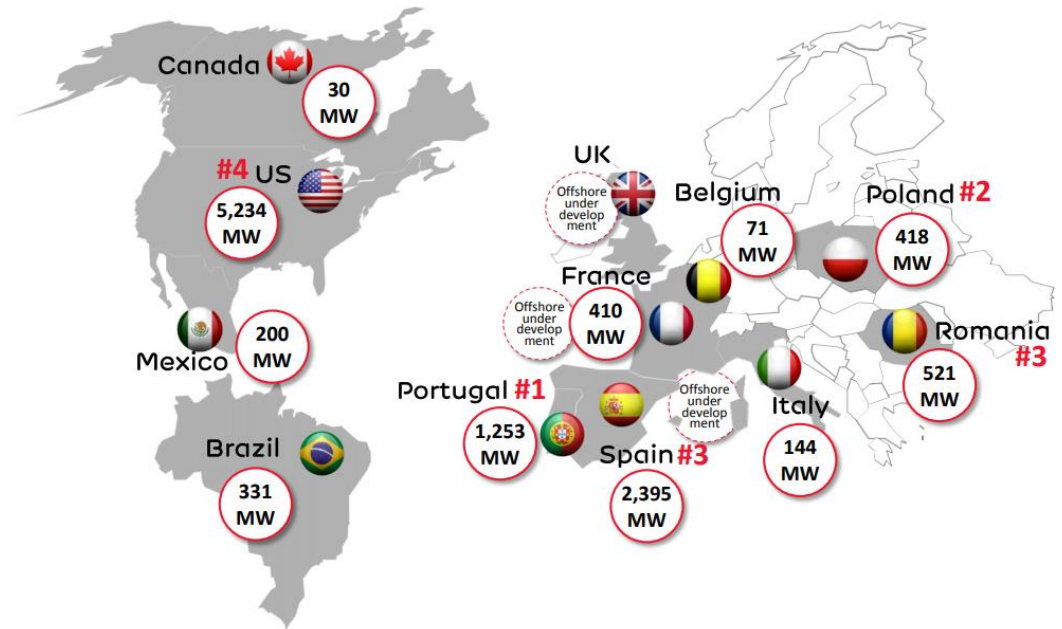
# **Offshore Wind Development Deployment in Scotland**

Fisheries Management Scotland Annual Conference, 29 March 2019

# Introduction to EDPR

A global leader in the renewable energy sector

- World's fourth-largest wind energy producer
- 11GW+ of installed capacity
- Presence in 13 markets
- 1330+ employees
- Increasing capacity in solar and energy storage
- Featured on the Dow Jones Sustainability Index for ten consecutive years
- Principal shareholder Energias de Portugal, S.A. (EDP), the principal shareholder of EDPR, is a global energy company and a leader in value creation, innovation, and sustainability

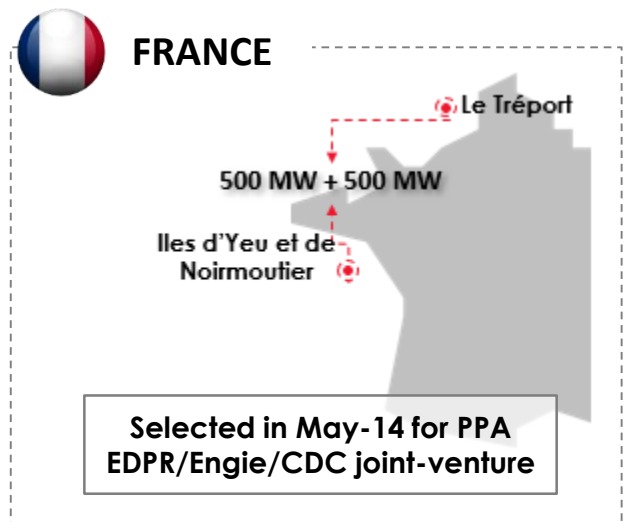
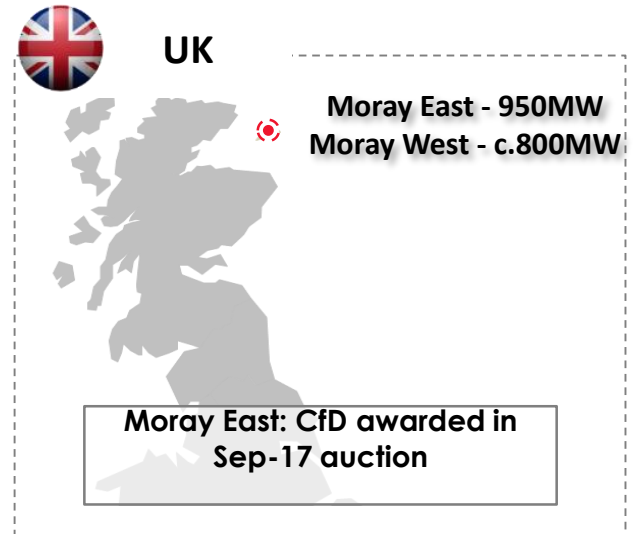


## Company Structure



# EDPR in Offshore Wind

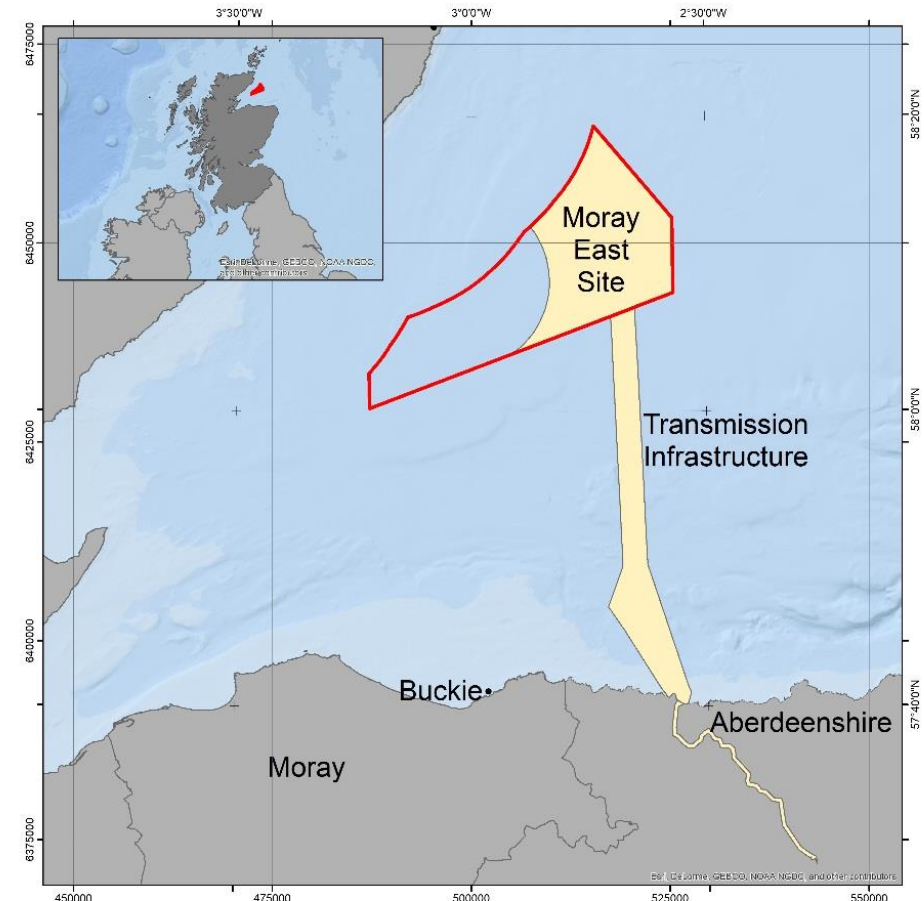
- Involved in the offshore wind sector since 2008.
- Key growth area for the company:
  - UK: 950MW Moray East project under construction.
  - UK: c.800MW Moray West project under development.
  - France: 1GW route to market and consents secured (Le Tréport & Normoutier)
  - USA: Successful in recent Massachusetts leasing round securing a lease area for approximately 1.6 GW via Mayflower Wind Energy.
- Actively expanding offshore portfolio globally.
- Team of 100+ (and growing) based in EDPR's offshore headquarters in Edinburgh (incl. joint venture partners)



# Moray East Offshore Windfarm – Summary

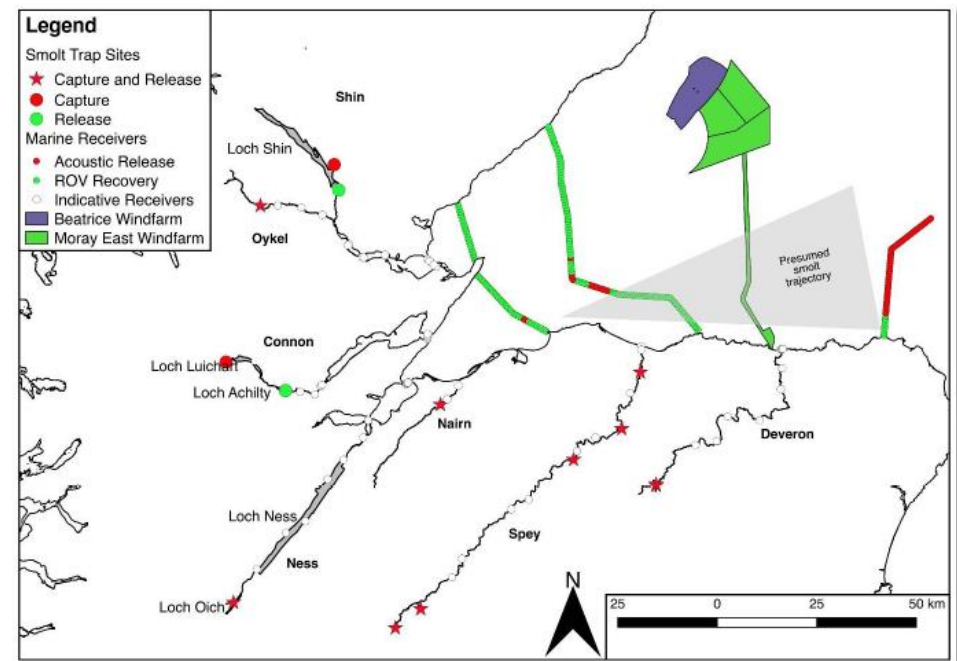


- 950MW Offshore Windfarm currently under construction:
  - 2010: Development Commenced
  - 2014 Consent Awarded
  - 2017: CfD Award (lowest cost for offshore wind in the UK to date)
  - 2018: Onshore Construction Starts and Financial Close
  - 2019: Offshore Construction Starts
  - 2021: First Generation
- At closest point 12nm from shore
- Water depths up to 57m/190 feet
- 100 turbines (MHI Vestas V164 – 9.5MW)
- Largest infrastructure project in Scotland:
- **Equivalent to two Queensferry Crossings**
- **Will power the equivalent of 40% of Scotland's households**



# Moray East and Diadromous Fish

- No significant impacts were predicted from the construction or operation of the Moray East Offshore Wind Farm.
- However, the EIA recognised the uncertainty around the use of the Moray Firth (and coastal areas generally) by diadromous fish, and salmon smolts in particular, and around potential interactions with marine renewable energy.
- As a result, Moray East has been involved in the MSS-led **National Monitoring and Research Strategy for Diadromous Fish**.
  - Purpose: to identify knowledge gaps and information requirements in relation to the potential effects of offshore and marine renewable energy generation on Atlantic salmon and other freshwater fish that migrate to and from the sea.
- This has led to Moray East's participation in the **Moray Firth Tracking Project**.



# UK: The Future Outlook

Forecast deployment of UK offshore wind:

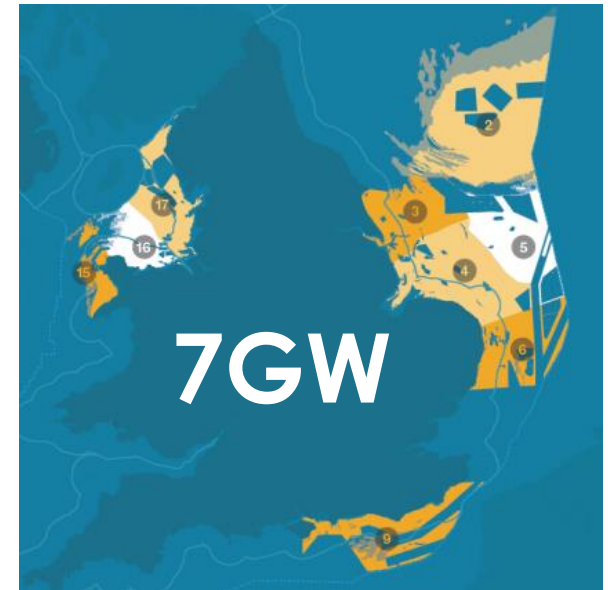
- 9.5GW by end 2019
- 10.2GW by end 2020
- 13.9GW by end 2023
- CfD Round 3 predicted to release 3-4GW for delivery from 2024.
- Current potential pipeline in terms of awarded sites up to 19.4GW

Competitive CfD process drives efficiencies

March 2019: UK Offshore Wind Sector Deal confirming the potential for up 30GW of installed capacity by 2030

Both the Crown Estate and Crown Estate Scotland will launch new offshore wind leasing rounds in 2019 (all details subject to confirmation).

Fixed bottom and floating?



# Global: The Future Outlook

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**Renewable UK 2018:** *“The global pipeline of offshore wind projects stands at over 104 GW, up from 95GW in June 2017.”*

**Wood Mackenzie 2019:** *“Global offshore wind power capacity is expected to increase almost sixfold in the next decade”*

The following countries are actively pursuing future offshore wind development (in no particular order and non exhaustive):

**UK**

**Germany**

**France**

**Netherlands**

**Belgium**

**Denmark**

**Poland**

**China**

**India**

**USA**

**Taiwan**

**Japan**

**South Korea**

**Vietnam**

**Canada**

**Brazil**

**Ireland**

**Norway**

**Sweden**

**Italy**

**Greece**

**Finland**



**Thank you**