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Moray Firth Project development challenges

Liverpool, 29th June, 2010



www.edprenovaveis.com



I

EDPR at a glance. Why offshore?

II

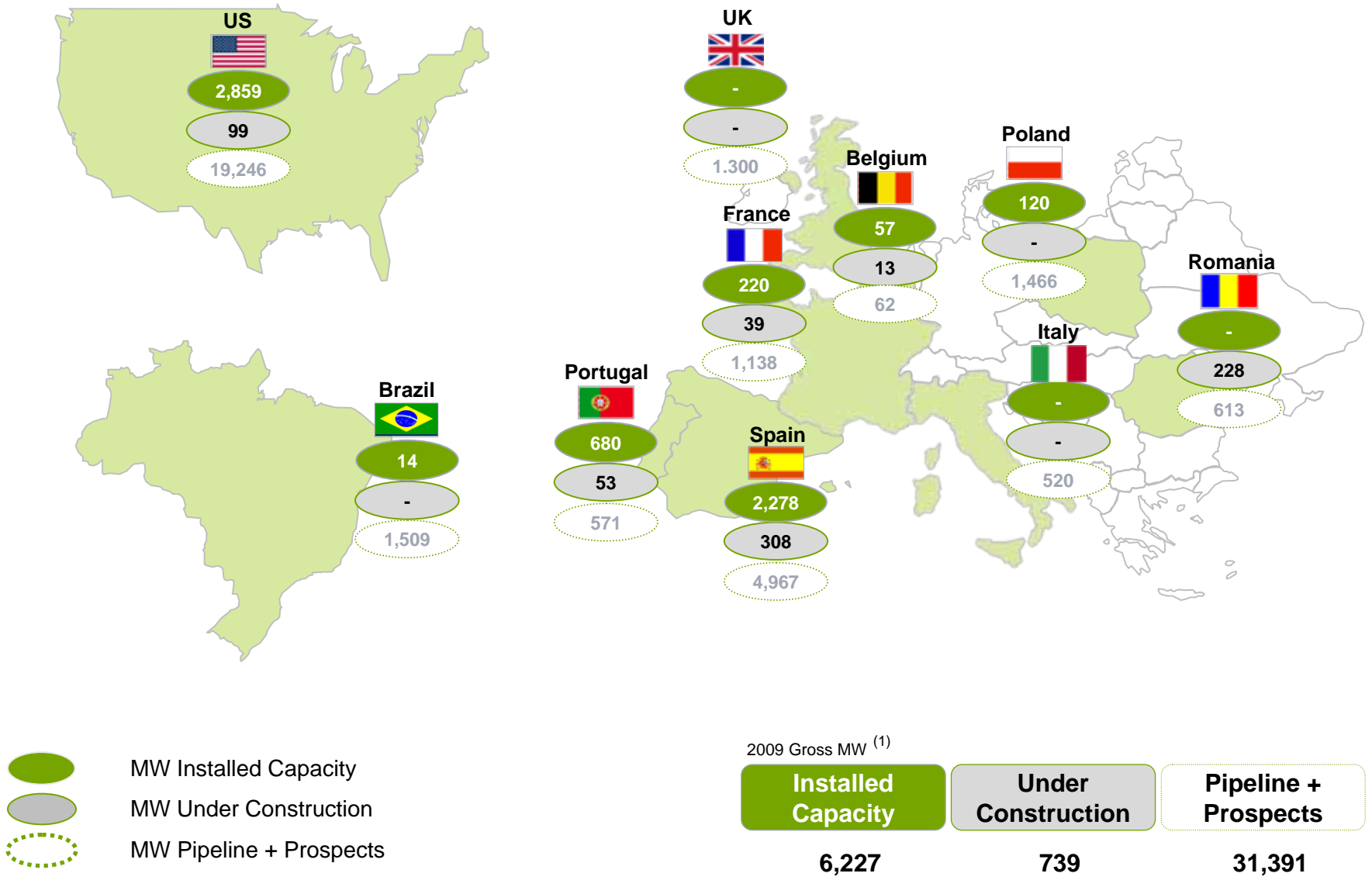
MORL & The Moray Firth project

III

Some key challenges

EDPR is a pure wind player with a quality asset base

Onshore wind geographical diversification is achieved



Note: (1) Including UK and Italy

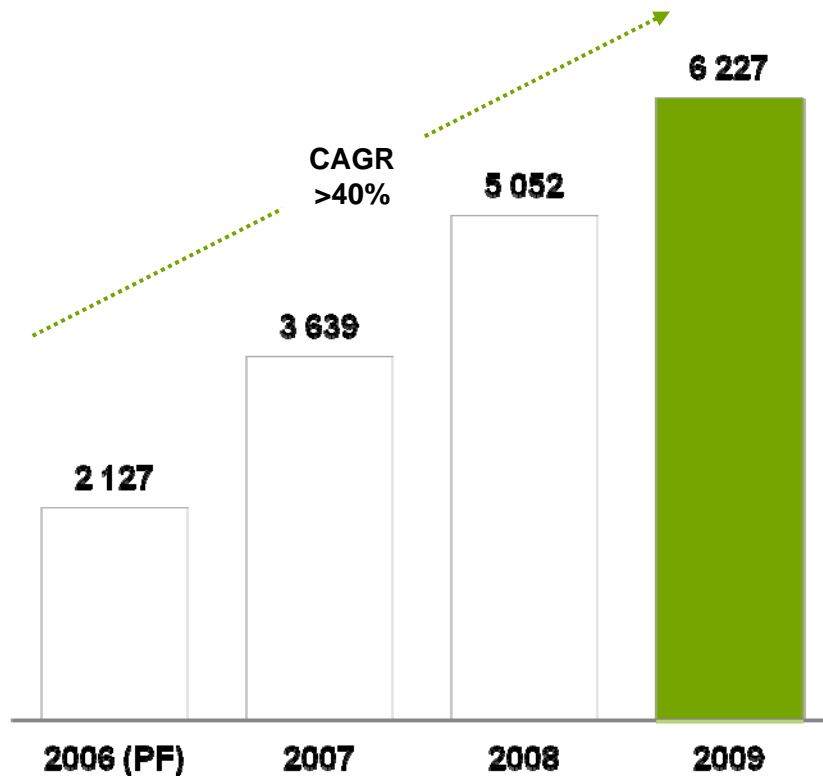
Offshore wind brings a new option growth for EDPR

New decade will see the industrialisation of offshore wind



EDPR's Historic Capacity Growth

(Gross MW)



Some good reasons for going offshore

Diversify geographically into an evolving technology...

...aligned with our business plan timing...

...with obvious synergies...

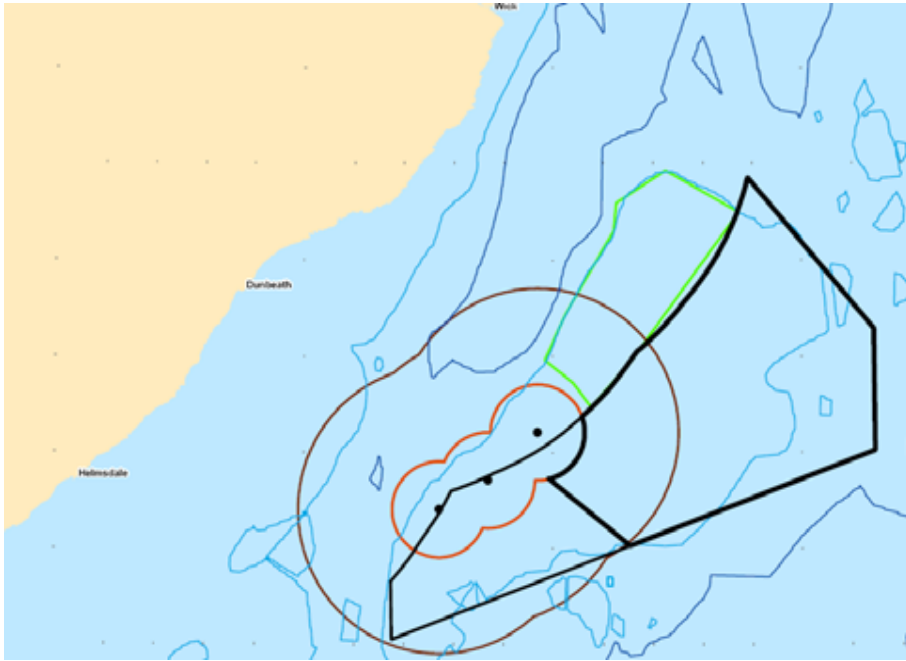
...located in stable markets.

The UK Round 3 provided a window of opportunity that enabled EDPR entering firmly into offshore

Moray Offshore Renewables Ltd. was awarded Zone 1 EDPR and SeaEnergy incorporated MORL for R3 tender



Zone 1 potential development areas



Key figures

Capacity: 1,300 MW
Area: 530 km²
Avg. Depth: 35-55 m
Avg. shore distance: 26 km
Development budget: ~ £40 M

Zone 1 key constraints

Cumulative & In-combination impacts with STW

- Marine Mammals, Birds, Nature Conservation, Radar & Aviation, Shipping, Fisheries

Grid

- Onshore & Offshore

Impact on SAC & SPA features

Potential key spatial conflicts:

- Fisheries, MOD (inc radar), Shipping, aviation

Seabed features and soils

- Water depths, wrecks, UXO, sandwaves, & Soils

Ports/Harbours

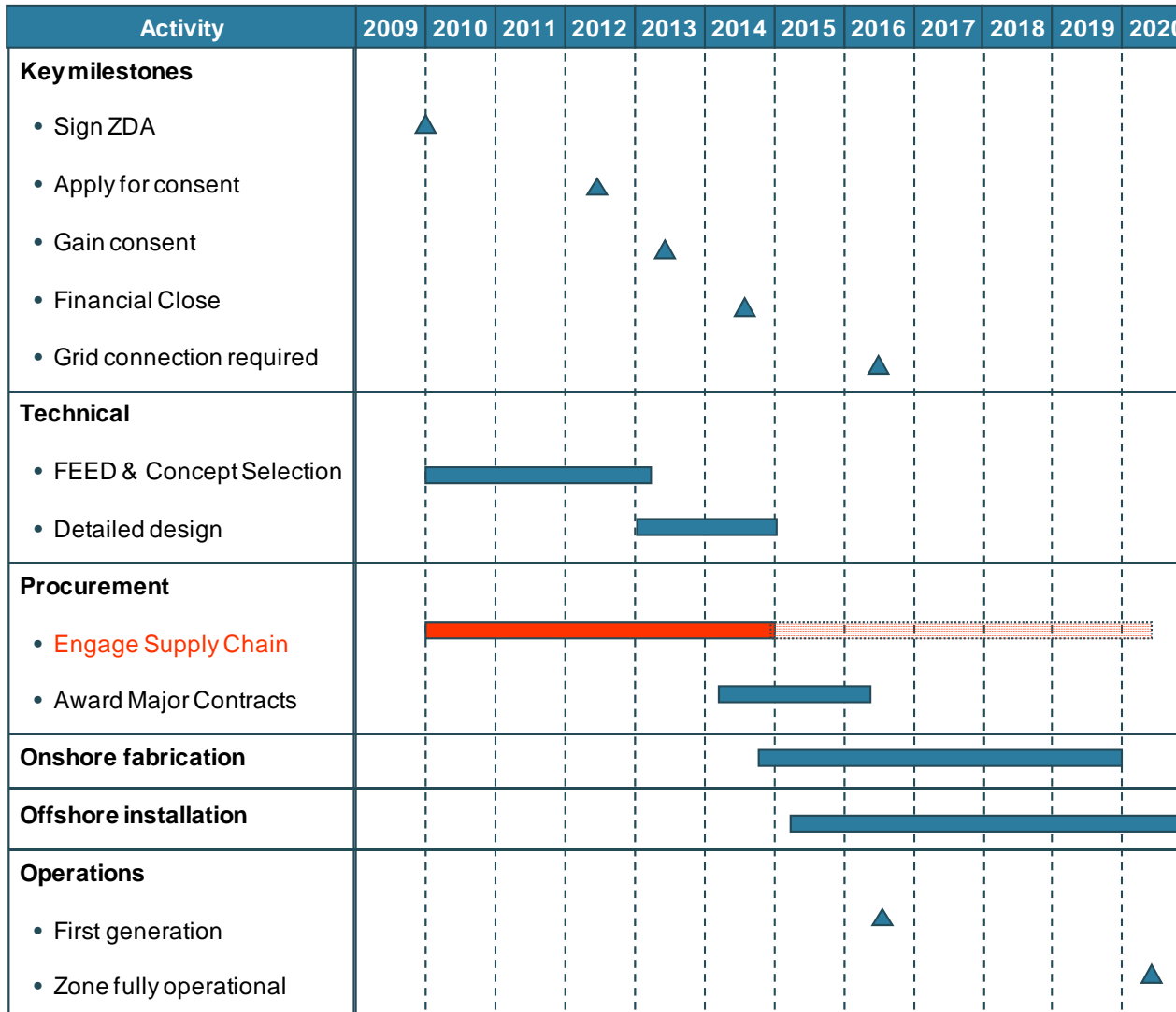
Oil & Gas

Delivery plan: challenging but doable

First generation programmed in 2016



Programme Summary



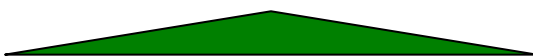

- Commence consenting activities in 2009 to protect the schedule
- Early engagement of supply chain to secure delivery
- Realistic durations for offshore scope including weather downtime
- Dedicated vessel spreads for each development within the zone
- Grid connection required in 2016
- 150 MW first generation Q2 2016
- 1.3 GW fully operational Q3 2020

EDPR has partnered with a team committed to deliver

Early engagement and collaboration are key for timely delivery



MORAY OFFSHORE RENEWABLES LTD



Supply Chain



Key Challenges for UK Round 3

Challenges

1. Supply Chain

- High resource competition, availability of people, vessels and primary equipment
- Constrained current capacity for development of Support Bases, Ports and Harbours

2. Funding & Finance

- Provide long-term and scale commitment with high uncertainty

3. Grid

- Lack of suitable connection to grid

4. Environment

- Establishing cumulative & in-combination environmental impact (regional and beyond)

5. Operations & Maintenance

- Scale, distance from shore, operation & maintenance

Our Approach

*Early Engagement
and Leverage on
EDPR scale*

*Board Commitment
Project Viability*

*Early Application
Full Collaboration*

*Engagement and
transparency*

*Leverage on 6000+
WTGs experience*

JVs & Strategic Alliances are leading offshore projects

We cannot disregard the inherent risks associated to them



Challenge: Ensure respective goals are compatible over time.

- ! Misalignments over time: goals, risk profile, corporate culture, timing...
- ! Different incentives and skills of resources.
- ! Very long cycle industry.
- ! Technology evolutions may be disruptive

Mitigation measures: project focused organisations.

- ✓ Project oriented teams: accountable, avoiding matrix complexity with clear roles and responsibilities.
- ✓ Complementary resources and skills.
- ✓ Ensure consistency: standardisation & industrialisation.
- ✓ JVs to leverage on utility scale benefits: procurement, financing, IT systems, H&S policies...



Challenge: Excessive “interface management”.

- ! Vast range of capabilities may bring excessive work packages.
- ! Few turnkey solution contracts.
- ! Optimise scope, risk allocation, contract standards...
- ! Potential disputes and litigations.

Mitigation measures: Move away from one of a kind project.

- ✓ Build up contract & project management skills.
- ✓ Dimension appropriate number of contracts.
- ✓ Early engagement: insurance companies and financing entities (bankability).
- ✓ Share best practices and lessons learned.
- ✓ Excel in planning.

The Current Connection Regime Raises Specific Risks and Challenges



Challenge: Our project is the furthest North.

- ! Far from Load Centres, Grid upgrade desirable.
- ! Very High Financial Securities.
- ! OFTO Programme Risks.

Mitigation measure: early application and full collaboration.

- ✓ Support Review of Zonal Charging Regime.
- ✓ Support Connect and Invest Policies.
- ✓ Support Shallow OFTO Process..



How to contact Moray Offshore Renewables?

1. MORL office is located in Edinburgh

- An additional office in the Inverness area is planned
- <http://morayoffshorerenewables.co.uk>

2. Supplier candidates

- supplychain@edprenovaveis.com

3. Press and communication

- rafael.solis@edprenovaveis.com
-



edp renováveis

powered by nature

Project financing may be extremely challenging

Very few non-recourse project financing achieved thus far



Challenges

- ! Reduced availability of project finance
- ! Higher cost of project finance
- ! Reduced lender risk appetite
- ! Difficulty in syndication

Mitigation measures

- ✓ Ensure governments support towards offshore wind , GIB...
- ✓ Clear risk allocation in multi-contract approaches o
- ✓ Move to club deals from syndicated deals. Engage with a few large banks at early stage