

Deploying Existing Port Infrastructure to Support the Rollout of Renewables - Northern Ireland



GL Garrad Hassan



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First offshore work 1989

First major offshore wind farm project commenced in 1997

FEED study for Gwynt y Mor

Over 350 separate renewable energy project assignments completed in the last 10 years

Responsible for the project management of the largest offshore wind farm in the world (Thanet project)

Participation in FINO - platforms and RAVE

Measurements completed for offshore projects in the Irish Sea, North Sea and Baltic Sea

Leading market position as a service provider of project certification services.

Over **100 staff** and consultants working on offshore wind farm projects

Specialist Offshore Wind **Due Diligence** Team with extensive track record of wind farm and supply chain assignments

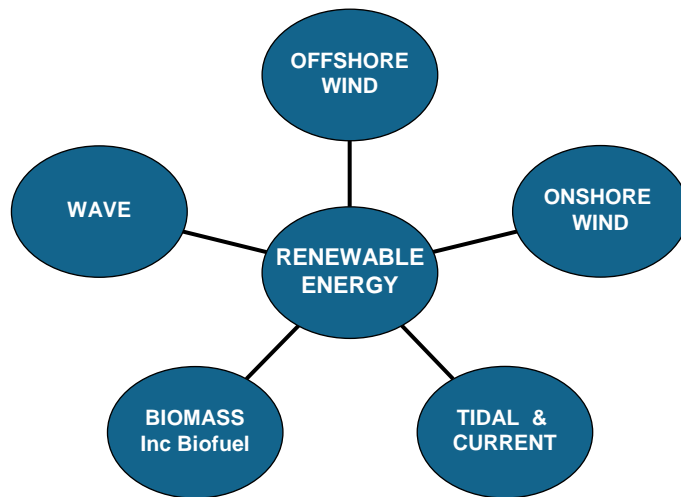
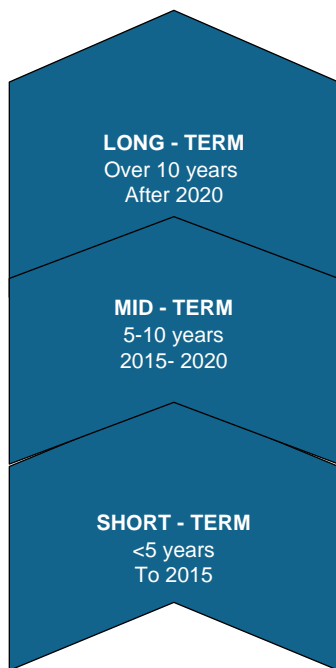
Maintain 700+ international database of all vessels with 100t+lift capacity, to support in Wind Farm **Vessel Selection and Installation Cost Modelling**

Carry out **Port Infrastructure Suitability** assessments and Scenario Cost Modelling to inform port invests

Scope :-

All forms of renewable energy relevant to ports

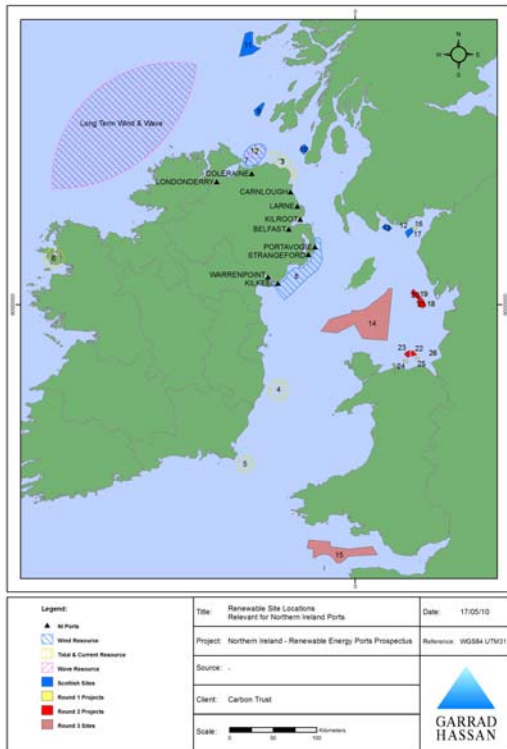
Within three timescales



Partner Document –

OPPORTUNITIES FOR NORTHERN IRELAND PORTS IN THE RENEWABLE ENERGY SECTOR

SURVEY OF EXPLOITABLE RENEWABLE ENERGY RESOURCES



KEY DOCUMENTS CITED

Northern Irish Strategic Environmental Assessment –

www.offshoreenergy.ni.co.uk/Data/NTS_FINAL_DEC_09.pdf

Republic of Ireland Strategic Environmental Assessment –

www.seai.ie/Renewables/Ocean_Energy/Offshore_Renewable_SEA/

The Crown Estate –

Leases granted in Rounds 1, 2, 2 ½ & 3 and Scottish sites.

www.thecrownestate.co.uk/offshore_wind_energy

RESOURCE MAP

The marine renewable resource areas were mapped (left) and for each site

- water depth
- seabed geology
- metocean conditions
- distance from Northern Irish ports

were reviewed.

Analysis of the Business Opportunities

The following methodology was adopted

Scope the options for energy conversion devices at each site

Estimate foundation sizes and weights

Review installation vessels

Assess the likely port-related demands of each project

Find the distance between each port and each resource site

Assess each port against the demands of the resources areas

Make a judgement on the
LEVEL OF OPPORTUNITY
for **EACH RESOURCE AREA**
to be of benefit to **EACH PORT**

Northern Ireland Renewable Energy Ports Prospectus

http://www.investni.com/opportunities_for_northern_ireland_ports_in_the_renewable_energy_sector_report.pdf

Port owner's name :	Port of Londonderry Trust	Postal address :	Londonderry Port & Harbour Commissioners, Port Road, Lisahally, Londonderry, Northern Ireland, BT47 6FL
Port contact's name :	Mr Brian McGrath	Location :	55° 02' 30" N 7° 15' 46" W
Port website address :	www.londonderryport.com		
Port contact's eMail :	brian@londonderry-port.co.uk		
Port contact phone number :	+044 (0)28 7186 0555		



SUMMARY OF PORT SUITABILITY – OFFSHORE RENEWABLE ENERGY MOBILISATION

Offshore renewable energy mobilisation port	✓	Covered storage areas (1,000+ m ²) adjacent to quayside	✓
Quayside(s) of sufficient length for large installation vessels	✓	Vessel access unlimited - by width	✓
Water depth for large installation vessels alongside at any state of the tide	✓	Vessel access unlimited - by tidal access (e.g. shallow channel)	✓
Water depth for large installation vessels alongside at some states of tide	✓	Vessel access unlimited - by overhead restrictions	-*
Quayside deck strength sufficient for foundations and turbines	✓	Number of RoRo berths	-
Reinforced quayside areas for heavy lifts	✓	Dry dock & ship repair capabilities [Medium / Large]	-
Concrete decked/hardcore storage areas (10,000+ m ²) near quayside	✓	Bunkering of large vessels available	-

SUMMARY OF PORT SUITABILITY – OFFSHORE RENEWABLE ENERGY OPERATIONS AND MAINTENANCE PORT

Operation and maintenance port	✓	Vessel access unlimited - by tidal access (e.g. shallow channel)	✓
Quayside(s) or floating berths suitable for O&M vessels	✓	Bunkering of small vessels available	✓
Berth(s) can be accessed at any state of the tide	✓	Slipway	-
Covered storage area for warehousing / repairs adjacent to berth	✓	Grillage for inspection and minor repairs	-
Vessel access unlimited - by width restrictions	✓	Small dry dock & workboat repair capabilities	-

OTHER FACILITIES AND SERVICES

Port areas fenced and has 24hr port security	✓	Availability of potable water	✓
Secure areas have fixed flood-lighting	✓	Availability of electrical connection in covered areas	✓

OTHER INFORMATION

No restrictions on working hours/ noise	✓	Channels are dredged	✓
Port has no exclusive labour agreements for loading/offloading	✓		
Additional Note 1	* Overhead HV power lines between Coolkeeragh power station and the Republic of Ireland pass low over approach channel. Could be buried.		
Additional Note 2			
Additional Note 3			

Site by Site Assessment of Ports

Market location ¹	1. NI SEA Tidal & Current 1			2. NI SEA Wave 1			3. NI SEA Tidal 2			4. SEAI Tidal & Current 6			5. SEAI Tidal & Current 7			6. SEAI Tidal & Current 11			7. NI SEA Wind 1			8. NI SEA Wind 2		
	Distance from port [m]	Mobilisation port	O&M facility	Distance from port [m]	Mobilisation port	O&M facility	Distance from port [m]	Mobilisation port	O&M facility	Distance from port [m]	Mobilisation port	O&M facility	Distance from port [m]	Mobilisation port	O&M facility	Distance from port [m]	Mobilisation port	O&M facility	Distance from port [m]	Mobilisation port	O&M facility	Distance from port [m]	Mobilisation port	O&M facility
Londonderry	37	G	G	31	G	G	45	G	S	194	P	P	241	P	P	188	S	S	25	G	G	120	P	P
Larne	67	S	S	48	S	S	31	S	G	124	P	P	171	P	P	218	P	P	51	S	S	50	S	S
Kilroot	81	S	S	63	S	S	45	S	S	116	P	P	163	P	P	232	P	P	65	S	S	42	S	P
Belfast	92	G	S	73	G	S	55	G	S	127	S	P	174	S	P	242	P	P	76	G	S	53	G	S
Warrenpoint	145	P	P	126	P	P	108	P	P	77	G	S	122	G	S	295	P	P	129	P	P	30	G	G
Coleraine	23	P	G	12	P	G	22	P	G	172	P	P	220	P	P	174	P	P	6	P	G	98	P	P
Portavogie	100	P	P	81	P	P	63	P	P	89	P	P	136	P	P	250	P	P	84	P	P	15	P	G
Strangford	114	P	P	96	P	P	78	P	P	85	P	P	132	P	P	265	P	P	98	P	P	11	P	G
Kilkeel	134	P	P	116	P	P	98	P	P	66	P	S	112	P	S	285	P	P	118	P	P	19	P	G

¹ Locations are shown in Section 3.1 - NI SEA & SEAI refer to published strategic siting zones, otherwise known offshore wind project plans
² Colour coding as per Section 2

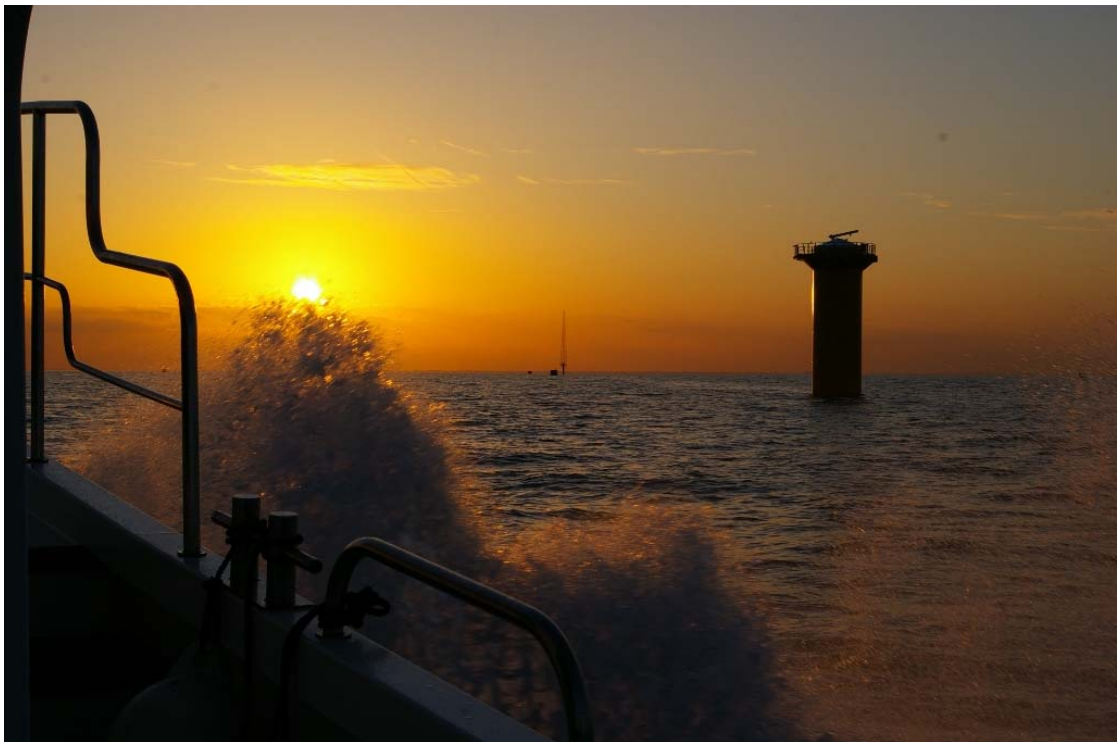
SUMMARY MATRIX

PORT	Port size	Offshore Wind – Construction port	Offshore Wind – O&M port	Wave – Construction port	Wave – O&M port	Tidal – Construction port	Tidal – O&M port	Biomass – Thermal power station	Biomass – Liquid bio-fuel import
Londonderry	Large	G	G	G	G	G	G	G	S
Larne	Large	S	S	S	G	S	G	S	S
Kilroot	Medium	S	S	P	P	P	P	G	G
Belfast	Large	G	G	G	G	G	G	G	G
Warrenpoint	Large	G	G	G	G	G	G	G	S
Coleraine	Small	P	G	P	G	P	G	P	P
Carnlough	Small	P	S	P	P	P	S	P	P
Portavogie	Small	P	G	P	S	P	S	P	P
Strangford	Small	P	G	P	P	P	P	P	P
Kilkeel	Small	P	G	P	P	P	P	P	P
KEY TO COLOUR CODE									
Good Prospects	G								
Some Prospects	S								
Poor Prospects	P								

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THANK YOU



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