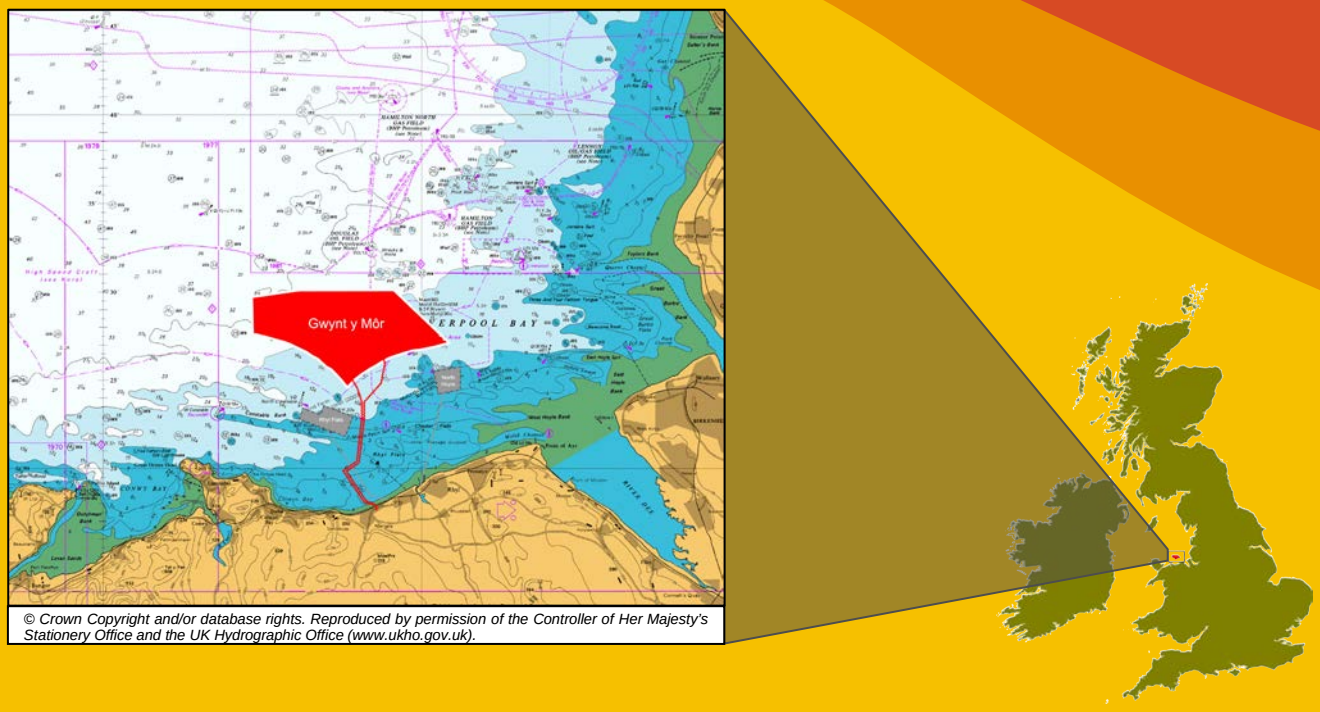
Gwynt y Môr Offshore Wind Farm

- Construction Activities -



Construction Activities

The Gwynt y Môr Offshore Wind Farm Project is located between 15km to 20km off the coast of North Wales in the Liverpool Bay area of the Irish Sea. It is adjacent to RWE Innogy's North Hoyle and Rhyl Flats offshore wind farms. The consented site covers an area of 124km2. The water depth ranges from 12m to 28m LAT with a tidal range of 8.5m. Predicted mean wind speed @ 80m hub height is 9.0m/s.

The Gwynt y Môr Offshore Wind Farm Project comprises an array of WTGs, supported on foundations, and connected to offshore substation platforms by subsea array cables. The offshore substation platforms are connected via a 20km offshore export cable route to landfall and a 12km onshore export cable route to an onshore substation at St Asaph in North Wales where the Project will be connected to the National Grid at 400kV.

The 576MW project base case comprises 160 x Siemens SWT-3.6-107 WTGs, 2 x 288MW 33/132kV offshore substation platforms, 33kV inter-array subsea cables, 132kV export subsea cables, 132kV export onshore cables, a 132kV GIS onshore substation, 2 x 132/400kV transformers and a 400kV GIS onshore substation (by National Grid).

Offshore Works

The 160 WTGs will be supplied by Siemens Wind Power AS in Denmark. Each turbine will have a rated capacity of 3.6MW and a rotor diameter of 107m. The turbine hub height will be 84.4m LAT and the tip height 137.9m LAT.

WTG foundations will be steel monopiles up to 6m diameter. The first stage WTG foundations will cover 92 locations with a maximum water depth of 21m LAT. The second stage of WTG foundations will cover 68 locations with a maximum water depth of 28m LAT.

Transition pieces (TPs) will be used to connect the WTG tower to the foundation by means of a grouted joint and elastomeric bearing.

Safety Zone Scheme

During construction activities, a Safety Zone of 500m is requested around the installation vessels, and a 50m zone around each structure after installation. During installation of the export cable, a 1000m safety corridor and afterwards a 200m anchorage exclusion zone is requested. All vessels are requested to adhere to the safety zones, which as well as reducing the risk of collision damage will provide protection to the installation vessel, In field structures and cables, and also the export cables.

Contact Details

Fisheries Liaison Officer - Dr Jim Andrews
Tel: +44 (0) 845 800 2540, Mob: +44 (0) 7908 225865
Email: jim@awjmarine.co.uk

Gwynt y Môr Marine Coordinator
Mob: +44 (0) 7827 244495
Email: GyM.MarineCoordinators@RWE.com

Edition: January 2012

40' 35' Long 3° 30' West

30'

25'

Lat 53° 20' North

NOT TO BE USED FOR NAVIGATION

RWE
The energy to lead

North Cardinal Buoy
Q - range 5nm

North Cardinal Buoy
VQ - range 5nm

West Cardinal Buoy
Q (9) 15s - range 5nm

Special Marks Buoy
Fl Y 2.5s - range 5nm

Met Mast

Sub Station East

Sub Station West

West Cardinal Buoy
VQ (9) 10s - range 5nm

East Cardinal Buoy
VQ (3) 5s - range 5nm

Special Marks Buoy
Fl Y 2.5s - range 5nm

Special Marks Buoy
Fl Y 2.5s - range 5nm

Red Can Buoy
Fl R 2.5s - range 5nm

Rhyl Flats
Offshore Wind Farm

North Hoyle
Offshore Wind Farm

Pensarn Beach

Abergele


Vessel: Tideway Rollingstone


Vessel: Victoria Mathias

Vessel: Crew Transfer

Kingfisher Awareness Chart

SEAFISH
the authority on seafood

Proposed Gwynt y Môr Offshore Wind Farm

FIELD LAYOUT LEGEND

- Wind Turbine (Not To Scale)
- Wind Turbine with Navigation Light (Not To Scale) (Fl Y 5s - range 5 nautical miles)
- Wind Turbine with Navigation Light (Not To Scale) (Fl Y 2.5s - range 5 nautical miles)

* Please note: Outer perimeter wind farm turbines will have aviation lights when commissioning is complete.

- Inter Array Cable
- Export Power Cable
- Consented Wind Farm Boundary
- Sub Station (Not To Scale)
- Met Mast (Not To Scale)
- Fog Signal (Mo(U) 30s)

WGS 84 Spheroid - Satellite Datum
WOULD SKIPPERS PLEASE PLOT COORDINATES INTO THEIR FISHING PLOTTERS OR ELECTRONIC CHARTS
COORDINATE COMPATIBLE WITH GPS SYSTEMS

Edition: January 2012

Key Programme Dates

Activity	2012				2013				2014	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Scour Protection Works (Tideway Rollingstone):										
Installation of Foundations and Transition Pieces:										
Installation of Sub Station Jackets:										
Installation of Export Cables:										
Installation of Inter Array Cables - Phase 1:										
Installation of Inter Array Cables - Phase 2:										
Installation of Wind Turbine Generators:										
Installation of Sub Station:										

Wind Farm Coordinates

Turbine Positions

Nº	Position	Nº	Position	Nº	Position
A1A	53°29.405'N 003°36.678'W	F5R	53°27.739'N 003°38.269'W	K6K	53°26.406'N 003°36.947'W
A2A	53°29.409'N 003°36.029'W	F6R	53°27.743'N 003°37.620'W	K7K	53°26.410'N 003°36.299'W
A3A	53°29.413'N 003°35.380'W	F7J	53°27.748'N 003°36.971'W	K8L	53°26.414'N 003°35.650'W
A4B	53°29.440'N 003°33.925'W	F8J	53°27.752'N 003°36.322'W	K9H	53°26.421'N 003°34.200'W
A5C	53°29.444'N 003°33.276'W	F9K	53°27.756'N 003°35.673'W	L1M	53°26.056'N 003°39.211'W
A6C	53°29.448'N 003°32.627'W	G1N	53°27.384'N 003°41.182'W	L2M	53°26.061'N 003°38.562'W
A7C	53°29.451'N 003°31.978'W	G10K	53°27.422'N 003°35.343'W	L3M	53°26.065'N 003°37.914'W
B1R	53°29.089'N 003°36.995'W	G11H	53°27.428'N 003°33.892'W	L4L	53°26.069'N 003°37.265'W
B2A	53°29.093'N 003°36.345'W	G12H	53°27.432'N 003°33.243'W	L5L	53°26.073'N 003°36.617'W
B3A	53°29.097'N 003°35.696'W	G13G	53°27.436'N 003°32.595'W	L6L	53°26.077'N 003°35.969'W
B4B	53°29.103'N 003°34.244'W	G14F	53°27.439'N 003°31.946'W	L7L	53°26.081'N 003°35.320'W
B5B	53°29.107'N 003°33.595'W	G15E	53°27.443'N 003°31.297'W	L8H	53°26.087'N 003°33.870'W
B6C	53°29.111'N 003°32.946'W	G16E	53°27.447'N 003°30.648'W	M1M	53°25.727'N 003°38.232'W
B7C	53°29.114'N 003°32.297'W	G17E	53°27.450'N 003°30.000'W	M2M	53°25.732'N 003°37.584'W
B8C	53°29.118'N 003°31.648'W	G18E	53°27.454'N 003°29.351'W	M3L	53°25.736'N 003°36.935'W
B9C	53°29.104'N 003°31.027'W	G19E	53°27.457'N 003°28.702'W	M4L	53°25.740'N 003°36.287'W
C1Q	53°28.747'N 003°37.962'W	G2P	53°27.389'N 003°40.533'W	M5L	53°25.744'N 003°35.639'W
C10D	53°28.785'N 003°31.318'W	G3P	53°27.393'N 003°39.884'W	N1M	53°25.394'N 003°37.902'W
C11D	53°28.793'N 003°30.707'W	G4P	53°27.397'N 003°39.236'W	N2M	53°25.398'N 003°37.253'W
C2R	53°28.752'N 003°37.313'W	G5Q	53°27.402'N 003°38.587'W	N3L	53°25.402'N 003°36.605'W
C3J	53°28.755'N 003°36.664'W	G6R	53°27.406'N 003°37.938'W	N4L	53°25.406'N 003°35.957'W
C4A	53°28.760'N 003°36.015'W	G7J	53°27.410'N 003°37.289'W	P1M	53°25.089'N 003°36.924'W
C5A	53°28.764'N 003°35.366'W	G8J	53°27.414'N 003°36.641'W		
C6B	53°28.770'N 003°33.914'W	G9K	53°27.418'N 003°35.992'W		
C7B	53°28.773'N 003°33.265'W	H1N	53°27.047'N 003°41.499'W		
C8C	53°28.777'N 003°32.616'W	H10K	53°27.085'N 003°35.662'W		
C9C	53°28.781'N 003°31.967'W	H11H	53°27.091'N 003°34.211'W		
D1Q	53°28.410'N 003°38.281'W	H12H	53°27.095'N 003°33.562'W		
D10D	53°28.447'N 003°31.637'W	H13G	53°27.099'N 003°32.914'W		
D11D	53°28.451'N 003°30.988'W	H14G	53°27.102'N 003°32.265'W		
D12D	53°28.454'N 003°30.339'W	H15F	53°27.106'N 003°31.616'W		
D2R	53°28.414'N 003°37.632'W	H16F	53°27.110'N 003°30.968'W		
D3R	53°28.418'N 003°36.983'W	H17F	53°27.113'N 003°30.319'W		
D4J	53°28.422'N 003°36.334'W	H18F	53°27.116'N 003°29.670'W		
D5A	53°28.426'N 003°35.685'W	H19F	53°27.120'N 003°29.022'W		
D6B	53°28.432'N 003°34.233'W	H2N	53°27.051'N 003°40.851'W		
D7B	53°28.436'N 003°33.584'W	H20F	53°27.123'N 003°28.373'W		
D8B	53°28.440'N 003°32.935'W	H21F	53°27.127'N 003°27.724'W		
D9C	53°28.444'N 003°32.286'W	H3N	53°27.056'N 003°40.202'W		
E1P	53°28.059'N 003°40.546'W	H4P	53°27.060'N 003°39.554'W		
E10A	53°28.099'N 003°33.903'W	H5P	53°27.064'N 003°38.905'W		
E11B	53°28.103'N 003°33.254'W	H6Q	53°27.069'N 003°38.256'W		
E12B	53°28.107'N 003°32.605'W	H7R	53°27.073'N 003°37.608'W		
E13D	53°28.110'N 003°31.956'W	H8J	53°27.077'N 003°36.959'W		
E14D	53°28.114'N 003°31.307'W	H9K	53°27.081'N 003°36.310'W		
E15D	53°28.117'N 003°30.659'W	J1N	53°26.731'N 003°41.169'W		
E16D	53°28.121'N 003°30.010'W	J10K	53°26.752'N 003°35.332'W		
E17D	53°28.124'N 003°29.361'W	J11H	53°26.758'N 003°33.881'W		
E2Q	53°28.064'N 003°39.897'W	J12G	53°26.761'N 003°33.233'W		
E3Q	53°28.068'N 003°39.248'W	J13G	53°26.765'N 003°32.584'W		
E4Q	53°28.072'N 003°38.599'W	J14G	53°26.769'N 003°31.935'W		
E5R	53°28.077'N 003°37.950'W	J15G	53°26.773'N 003°31.287'W		
E6R	53°28.081'N 003°37.301'W	J16G	53°26.776'N 003°30.638'W		
E7J	53°28.085'N 003°36.652'W	J17F	53°26.788'N 003°29.993'W		
E8J	53°28.089'N 003°36.003'W	J2N	53°26.718'N 003°40.520'W		
E9A	53°28.093'N 003°35.355'W	J3N	53°26.722'N 003°39.872'W		
F1P	53°27.722'N 003°40.864'W	J4N	53°26.727'N 003°39.223'W		
F10H	53°27.762'N 003°34.222'W	J5P	53°26.731'N 003°38.575'W		
F11H	53°27.765'N 003°33.573'W	J6Q	53°26.735'N 003°37.926'W		
F12H	53°27.769'N 003°32.924'W	J7J	53°26.740'N 003°37.277'W		
F13F	53°27.773'N 003°32.276'W	J8K	53°26.744'N 003°36.629'W		
F14E	53°27.777'N 003°31.627'W	J9K	53°26.748'N 003°35.980'W		
F15E	53°27.780'N 003°30.978'W	K1M	53°26.385'N 003°40.190'W		
F16E	53°27.784'N 003°30.329'W	K10G	53°26.424'N 003°33.551'W		
F17E	53°27.787'N 003°29.680'W	K11G	53°26.428'N 003°32.903'W		
F18E	53°27.791'N 003°29.031'W	K2M	53°26.390'N 003°39.541'W		
F2P	53°27.726'N 003°40.215'W	K3N	53°26.394'N 003°38.893'W		
F3P	53°27.731'N 003°39.566'W	K4N	53°26.398'N 003°38.244'W		
F4Q	53°27.735'N 003°38.917'W	K5Q	53°26.402'N 003°37.596'W		

Other Structures

1. Sub Station – East
   53°27.940'N 003°32.440'W
2. Sub Station – West
   53°26.235'N 003°37.431'W
3. Met Mast
   53°28.900'N 003°30.500'W

Wind Farm Boundary

Nº	Position
01	53°29.712'N 003°46.026'W
02	53°30.101'N 003°41.522'W
03	53°30.109'N 003°32.649'W
04	53°27.110'N 003°27.406'W
05	53°27.089'N 003°27.516'W
06	53°26.868'N 003°28.913'W
07	53°26.727'N 003°30.015'W
08	53°26.665'N 003°30.907'W
09	53°26.474'N 003°31.965'W
10	53°26.283'N 003°32.937'W
11	53°26.071'N 003°33.653'W
12	53°25.860'N 003°34.198'W
13	53°25.648'N 003°34.829'W
14	53°25.359'N 003°35.584'W
15	53°25.018'N 003°36.337'W
16	53°24.577'N 003°37.001'W
17	53°25.076'N 003°37.701'W
18	53°25.599'N 003°38.529'W
19	53°25.769'N 003°39.047'W
20	53°26.191'N 003°39.786'W
21	53°26.410'N 003°40.476'W
22	53°26.583'N 003°40.866'W
23	53°26.776'N 003°41.555'W
24	53°27.043'N 003°42.460'W
25	53°27.162'N 003°43.018'W
26	53°27.349'N 003°44.133'W
27	53°27.582'N 003°45.590'W
28	53°27.577'N 003°45.940'W
29	53°29.712'N 003°46.026'W

Coordinates for the Proposed Offshore Export Cable Routes

Eastern Export Cable

Nº	Position
01	53°27.940'N 003°32.440'W
02	53°26.422'N 003°33.876'W
03	53°26.000'N 003°33.463'W
04	53°24.819'N 003°33.844'W
05	53°23.755'N 003°35.433'W
06	53°23.408'N 003°35.428'W
07	53°22.849'N 003°35.421'W
08	53°20.320'N 003°35.910'W
09	53°20.052'N 003°36.551'W
10	53°19.820'N 003°37.105'W
11	53°18.150'N 003°35.256'W
12	53°17.913'N 003°34.362'W
13	53°17.616'N 003°34.236'W

Western Export Cable

Nº	Position
01	53°26.235'N 003°37.431'W
02	53°26.067'N 003°37.590'W
03	53°24.544'N 003°36.076'W
04	53°23.755'N 003°35.658'W
05	53°23.423'N 003°35.653'W
06	53°22.865'N 003°35.646'W
07	53°20.396'N 003°36.122'W
08	53°20.164'N 003°36.676'W
09	53°19.855'N 003°37.414'W
10	53°18.067'N 003°35.434'W
11	53°17.913'N 003°34.362'W
12	53°17.616'N 003°34.236'W

Buoys

1. Red Can (Fl R 2.5s)
   53°24.900'N 003°37.080'W
2. Yellow Pillar (Fl Y 2.5s)
   53°25.870'N 003°39.600'W
3. West Cardinal (VQ(9) 10s)
   53°26.832'N 003°42.129'W
4. West Cardinal (Q(9) 15s)
   53°28.303'N 003°40.772'W
5. North Cardinal (Q)
   53°29.670'N 003°36.857'W
6. North Cardinal (VQ)
   53°29.735'N 003°31.710'W
7. Yellow Pillar (Fl Y 2.5s)
   53°28.390'N 003°29.340'W
8. East Cardinal (VQ(3) 5s)
   53°27.130'N 003°27.078'W