

Rhyl Flats Offshore Wind Farm Construction Newsletter



Front cover: A transition piece is fitted over one of the foundation piles at Rhyl Flats Offshore Wind Farm

npower renewables welcomes you to the second Rhyl Flats Offshore Wind Farm construction newsletter. We produced the first edition in March 2008. Here's what's happened since.

Rhyl Flats Offshore Wind Farm statistics:

Location
The eastern end of Constable Bank between Abergele and Rhos-on-Sea.

5 miles
Distance from shore – 5 miles (approximately 8 kilometres) from the nearest landfall, Rhos Point.

25
Number of wind turbines.

3.6MW
Turbine capacity (each).

90MW
Installed capacity of wind farm.

80 metres
Turbine hub height – above mean sea level (MSL).

134 metres
Maximum height to blade tip – above MSL.

61,000
The equivalent number of homes the wind farm's electricity production could supply every year.

Offshore

The 25 foundation monopiles have been sunk into the seabed. This activity involved the use of one of Europe's largest construction vessels, the HLV Svanen.

A monopile is a long and robust metal cylinder which provides the support for the wind turbine itself.



Monopiles laid out at Mostyn Dock.



HLV Svanen in Liverpool Bay.

Rhyl Flats Offshore Wind Farm will be our second offshore wind farm project after North Hoyle, also located off the coast of North Wales. Rhyl Flats will make an important contribution towards achieving government targets to increase electricity generation from renewable sources like the wind, sun and water in our rivers and seas.

These fuels are important as they can help all of us to reduce our reliance on imported fossil fuels like coal and gas, the costs of which have risen dramatically in recent years.

They also help in the battle against climate change because they prevent the release of polluting greenhouse gases, like carbon dioxide, that would otherwise be produced by power stations burning fossil fuels to generate electricity.

The monopiles were brought to Mostyn Dock on board the Baltic Sailor. They were taken from there out to the HLV Svanen by two tugs, Sveasund and Danasund.



Monopiles arrive at Mostyn Dock on board the Baltic Sailor.

At each wind turbine location, HLV Svanen raised a monopile vertically and, using a pile hammer, drove it into the seabed.

Once a monopile had been sunk, HLV Svanen lifted a yellow transition piece on top of it. The transition piece lowers over the top of the monopile like a sleeve and is grouted in place to hold it firm.

The transition piece provides a flatbed upon which to place the turbine tower, and it also supports the ladders that the operations and maintenance crews will use to climb up from their boats to the turbine, once the wind farm is complete.



The pile hammer is moved into position ready to sink the monopile into the seabed.



Transition pieces stand erect at Mostyn Dock awaiting transfer to the wind farm site.



A transition piece is lifted on top of the newly sunk pile.



Five completed monopiles and transition pieces.

Onshore

Construction of the substation at Towyn is now nearly complete. It is at the substation where the electricity generated by the wind farm will be converted to a voltage suitable for connection into the local electricity distribution system.

The overhead electrical cables, which transfer the electricity from the substation into the distribution system, are now all in place.



The transformer is delivered to the substation site.

Where can I find out more about the project?

For more information about Rhyl Flats Offshore Wind Farm, please visit the project web pages at www.npower-renewables.com/rhylflats

If you would like to send us your comments about the Rhyl Flats Offshore Wind Farm, please e-mail us at rhylflats@npower-renewables.com or write to: Rhyl Flats Offshore Wind Farm newsletter, npower renewables, RWE Innogy, Trigonos, Windmill Hill Business Park, Whitehill Way, Swindon, Wiltshire, SN5 6PB.

npower renewables is the UK subsidiary of RWE Innogy.

What's happening now?

Offshore cable works

In September, the offshore electrical cabling works started and these will continue during the autumn.

This work involves the laying of cables through which the power generated by the wind farm will be brought to shore. Underground ducts have already been constructed in the beach area at Towyn to receive the cables.

There are two phases to cable-laying. Firstly, three separate export cables are laid from the beach out to the wind farm, with each cable leading to one of three of the recently completed foundations. In phase two, cables are laid in sequence between all 25 foundations to connect each of the turbines at the wind farm site so that their power can be transferred to shore.

The cable is being laid by the AMT Explorer, a 100-metre long barge which is assisted by 5 additional support vessels.



AMT Explorer on the beach near to Towyn.

To lay the cable, AMT Explorer tows a plough which simultaneously lays and buries the cable between one and two metres below the seabed.

If you would like this newsletter in larger print or if you missed the first edition and would like a copy, please contact Judith Roberts on 0151 648 0896.

Wind turbines

Earlier this autumn, a jack-up barge called Lisa arrived in Liverpool Bay. This vessel will be used to erect wind turbines at the Rhyl Flats Offshore Wind Farm site.

The Lisa is a four-legged barge with a leg extension of approximately 40 metres. It is a towed vessel which is supported by two tugs and is equipped with an onboard crane.

The components for the wind turbines have been arriving at the Port of Mostyn by sea since mid-September.

To construct a turbine, the barge, loaded with the components, manoeuvres alongside the appropriate foundation, lowers its legs to the seabed and then starts to raise itself hydraulically i.e. jack up. Using the onboard crane, the turbine tower is lifted into place, followed by the nacelle - the 'box' which sits on top of the tower containing the generator, the hub - the cone-shaped piece on the front of the turbine, and the three blades.



Jack-up barge Lisa in port at Mostyn Dock.

Lisa is capable of carrying sufficient components for two turbines at a time. The 3.6 megawatt wind turbines are being supplied and installed by Siemens plc.

A tower consists of two sections of long tube, with one fitted on top of the other to form a single column. Lisa is able to carry a fully assembled tower.

Construction of the turbines will take place during both day and night. In contrast with the work undertaken earlier in the year to sink the foundation piles however, the turbine installation work is not expected to generate noise which will be audible onshore.

Subject to weather conditions, work installing the wind turbines is expected to commence in late November. Work will be suspended during the winter and will resume at the beginning of April 2009.

Photographs © Guy Woodland

Cylchlythyr Adeiladu Fferm Wynt Ar y Môr Gwastadeddau y Rhyl y Rhyll



Mae npower renewables yn eich croesawu i ail rifyn cylchlythyr adeiladu Fferm Wynt Ar y Môr Gwastadeddau y Rhyl. Cynhyrchwyd y rhifyn cyntaf ym mis Mawrth 2008. Dyma'r hyn a ddigwyddodd ers hynny.

Ystadegau Fferm Wynt Ar y Môr Gwastadeddau y Rhyl

Lleoliad
Ochr ddwyreiniol Banc Constable rhwng Abergele a Llandrillo-yn Rhos.

5 milltir
Pellter o'r lan - 5 milltir (tua 8 cilometr) o olwg y tir agosaf, Pwynt Rhos.

25
Nifer y tyrbinau gwynt.

3.6MW
Gallu'r tyrbinau i gynhyrchu - yr un.

90MW
Gallu'r fferm wynt i gynhyrchu.

80 metr
Uchder bothau'r tyrbinau uwchlaw'r lefel môr cymedrig (LMC).

134 metr
Uchafswm yr uchder i flaen y llafnau uwchlaw'r LMC.

61,000
Cyfwerth nifer y cartrefi y medrai'r trydan a gynhyrchir yn y fferm wynt eu cyflenwi bob blwyddyn.

Ar y Môr

Cafodd 25 o fonobyst sylfaen eu suddo i wely'r môr. Defnyddiwyd HLV VSvanen, un o longau adeiladu mwyaf Ewrop, ar gyfer y gwaith hwn.

Mae monobostyn yn sylindr metal hir a chadarn sy'n rhoi'r gefnogaeth ar gyfer y tyrbinau gwynt ei hunan.



Monopyst wedi'u gosod allan yn Noc Mostyn



HLV Svanen ym Mae Lerpwl

Fferm Wynt Ar y Môr Gwastadeddau y Rhyl fydd ein hail brosiect fferm wynt ar y môr ar ôl Gogledd Hoyle, sydd hefyd ger arfordir Gogledd Cymru. Bydd Gwastadeddau y Rhyl yn gwneud cyfraniad pwysig tuag at gyflawni targed y llywodraeth o gynyddu cynhyrchiant trydan o ffynoneillau adnewyddadwy fel y gwynt, môr a dŵr yn ein hafonydd a'n moroedd.

Mae'r tanwyddau hyn yn bwysig gan y medrant helpu pawb ohonom i ostwng ein dibyniaeth ar danwyddau ffosil wedi eu mewnfario fel glo a nwy sydd wedi gweld cynnydd syfrdanol yn eu prisiau mewn blynyddoedd diweddar.

Maent hefyd yn helpu yn y frwydr yn erbyn newid yn yr hinsawdd oherwydd eu bod yn atal rhyddhau nwyon tŷ gwyrdd llygroel fel carbon deuocsid, a fyddai fel arall yn cael eu cynhyrchu gan orsafoedd pŵer sy'n llosgi tanwyddau ffosil i gynhyrchu trydan.

Cludwyd y monobyst o Ddoc Mostyn allan i HLV Svanen ar fwrdd y Baltic Sailor. Aethpwyd â hwy oddi yno at yr HLV Svanen gan ddau dynfad, Sveasund a Danasund.



Monobyst yn cyrraedd Doc Mostyn ar fwrdd y Baltic Sailor

Ym mhob lleoliad tyrbinau gwynt, cododd HLV Svanen fonobyst yn fertigol a, gan ddefnyddio morthwyl postyn, eu gosod yng ngwely'r môr.

Unwaith y suddwyd monobostyn, cododd HLV Svanen ddarn trosiant melyn ar ei ben. Mae'r darn trosiant yn gostwng dros dop y monobostyn fel llawes a chaiff ei growtio yn ei le i'w cadw'n gadarn. Mae'r darn trosiant yn rhoi gwely fflat ar gyfer doddi'r tŵr tyrbinau, ac mae hefyd yn cefnogi'r ysgolion y bydd y criwiau gweithredu a chynnal a chadw yn eu defnyddio i ddringo o'u cychod i'r tyrbinau unwaith y bydd y fferm wynt wedi'i gorffen.



Ffotograffau © Guy Woodland

Symudir y morthwyl postyn i'w safle yn barod i suddo'r monobostyn i wely'r môr.



Darn trosiant yn barod yn Noc Mostyn i'w cludo i safle'r fferm wynt.



Darn trosiant yn cael ei godi ar ben pob postyn newydd ei suddo.



Pum monobostyn a darn trosiant wedi'u cwblhau.

Ar y Tir

Mae'r gwaith o adeiladu'r is-orsaf yn Nhowyn bellach bron yn barod. Yn yr is-orsaf y caiff y trydan a gynhyrchir gan y fferm wynt ei drosi yn foltedd addas i'w gysylltu i'r system ddsosbarthu trydan leol.

Mae'r ceblau trydanol uwch ben, sy'n trosglwyddo'r trydan o'r is-orsaf i'r system ddsosbarthu, oll yn awr yn eu lle.



Y newydd yn cael ei gludo i safle'r is-orsaf.

Ymhle allaf gael hyd i fwy o wybodaeth am y prosiect?

Am wybodaeth bellach ynglŷn â Fferm Wynt Ar y Môr Gwastadeddau Rhyl, beth am ymweld â thudalennau gwe'r prosiect, sef www.npower-renewables.com/rhylflats

Os hoffech ddanfoni eich sylwadau atom ynglŷn â Fferm Wynt Ar y Môr Gwastadeddau Rhyl, danfonwch e-bost at ryhlfats@npower-renewables.com neu ysgrifennwch at: Rhyl Flats Offshore Wind Farm newsletter, npower renewables, RWE Innogy, Trigonos, Windmill Hill Business Park, Whitehill Way, Swindon, Wiltshire, SN5 6PB.

npower renewables yw is-gwmni RWE Innogy yn y DU.

Beth sy'n digwydd yn awr?

Gwaith cebl ar y môr

Dechreuodd y gwaith ceblu trydan ar y môr ym mis Medi a bydd yn parhau yn ystod yr hydref.

Mae'r gwaith hwn yn cynnwys gosod ceblau ar gyfer dod â'r pŵer a gynhyrchir gan y fferm wynt i'r tir. Cafodd dwythellau dan ddaear eisoes eu hadeiladu ar y traeth yn Nhowyn i dderbyn y ceblau.

Mae dau gam wrth osod ceblau. Yn gyntaf, caiff tri chebl allforio ar wahân eu gosod o'r traeth allan i'r fferm wynt, gyda phob cebl yn arwain at un o dair sylfaen a gwblhawyd yn ddiweddar. Yn yr ail gam, caiff ceblau eu gosod mewn trefn rhwng pob un o'r 25 sylfaen i gysylltu bob un o'r tyrbinau yn safle'r fferm wynt fel y medrir trosglwyddo eu pŵer i'r traeth.

Caiff y cebl ei osod gan AMT Explorer, bad 100-metr o hyd a gynorthwyr gan 5 o longau cefnogaeth ychwanegol.



AMT Explorer ar y traeth yn ymyl Towyn.

I osod y cebl, mae AMT Explorer yn tynnu aradr sydd yn gosod ac yn cuddio'r cebl ar yr un pryd rhwng un a dau fetr dan wely'r môr.

Os hoffech y cylchlythyr hwn mewn print mwy neu os na welsoch y rhifyn cyntaf ac yr hoffech gopi, cysylltwch â Judith Roberts ar 0151 648 0896 os gwelwch yn dda.

Tyrbinau gwynt

Yn gynharach yn yr hydref cyrhaeddodd bad jac-codi o'r enw Lisa ym Mae Lerpwl. Defnyddir y bad yma i godi tyrbinau gwynt yn safle Fferm Wynt ar y Môr Gwastadeddau y Rhyl.

Mae'r Lisa yn fad pedair coes gydag estyniad coes o tua 40 metr. Mae'n fad a gaiff ei dynnu a gefnogir gan ddau dynfad ac mae ganddi graen ar ei bwrdd.

Bu'r rhannau ar gyfer y tyrbinau gwynt yn cyrraedd Porthladd Mostyn ar y môr ers canol mis Medi.

I adeiladu tyrbinau, mae'r bad, wedi'r rhannau wedi'i lwytho arno, yn symud wrth ochr y sylfaen berthnasol, gostwng ei goesau i wely'r môr ac yna'n dechrau codi ei hunan yn hydrologig h.y. jac i fyny. Gan ddefnyddio'r craen ar y bad, caiff tŵr y tyrbinau ei godi i'w lle, a ddilyni'r gan y nacelle - y 'blwch' sy'n eistedd ar dop y tŵr yn cynnwys y generadur, y both - y darn siâp côn ar flaen y tyrbinau, a'r tair llafn.

Gall Lisa gludo digon o rannau ar gyfer dau dyrbinau ar y pryd. Caiff y tyrbinau gwynt 3.6 megawatt eu cyflenwi a'u gosod gan Siemens ccc.

Mae tŵr yn cynnwys dau ddarn o diwb hir, gydag un yn cael ei osod ar y llall i ffurfio un golafn. Gall Lisa gario tŵr wedi'i llawn gynnwll.

Caiff y tyrbinau eu hadeiladu yn ystod y dydd a'r nos. Yn wahanol i'r gwaith a wnaethpwyd yn gynharach yn y flwyddyn i suddo'r sylfeini, fodd bynnag, ni ddisgwylir y bydd gwaith gosod y tyrbinau yn cynhyrchu sŵn y medrir ei glywed ar y tir.

Yn dibynnu ar y tywydd, disgwylir y bydd y gwaith o osod y tyrbinau gwynt yn dechrau ddiwedd mis Tachwedd. Caiff gwaith ei ohirio yn ystod y gaeaf a bydd yn ailgychwyn ddechrau mis Ebrill 2009.



Bad jac-codi Lisa yn y porthladd yn Noc Mostyn