

Rhyl Flats Offshore Wind Farm Construction Newsletter

Construction giant 'HLV Svanen' takes to Welsh waters



npower renewables welcomes you to the first Rhyl Flats Offshore Wind Farm construction newsletter, as we approach the start of the main offshore site works which will begin in April 2008.

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.

Over the coming months, you will see the project progress through the various phases of construction and, through future construction newsletters, updates on our website www.npower-renewables.com/rhylflats and through the local media, we will keep you up to speed with the work.



Turbines at North Hoyle Offshore Wind Farm.

About the scheme
Rhyl Flats Offshore Wind Farm was initially developed by Celtic Offshore Wind Limited and was granted planning consent in 2002. npower renewables acquired the scheme in December 2002, and with the experience we have gained through building and operating the nearby North Hoyle Offshore Wind Farm, we are well prepared to establish our second major offshore wind project off the coast of north Wales.

The wind farm will consist of **25 wind turbines**, each with an installed electrical capacity of **3.6 megawatts (MW)**. With a total installed capacity of **90MW**, Rhyl Flats Offshore Wind Farm will make an important contribution towards achieving government targets for renewable energy electricity generation. It will help in the battle against climate change by offsetting the release of tens of thousands of tonnes of the main greenhouse gas carbon dioxide that would otherwise be produced by traditional fossil fuel-burning energy generation.



Monopiles like this one are the mainstay of each wind turbine.

If you would like this newsletter in larger print, please contact Judith Roberts on 0151 648 0896.

Front cover: A transition piece installed at North Hoyle Offshore Wind Farm.

What's happened so far?

Offshore

Scour protection installation at 13 of the 25 turbine locations was carried out during the summer of 2007.

Onshore

In the latter part of 2007 and early 2008, onshore cabling works were carried out, including directional drilling under the railway at Towyn. Underground ducts have been laid and prepared to receive cabling. Construction of the substation at Towyn also began in 2007 and is due to be completed by October 2008. The majority of the onshore works have now been completed, having been undertaken during the winter period to minimise local disturbance during the busier spring and summer holiday periods.

What's happening now?

Start of wind turbine foundation installation

From early April, HLV Svanen will begin driving each of the 25 monopiles – the robust foundations for each of the wind turbines.

Each of the 40m long, 4.7m wide, cylindrical steel piles will be driven into the seabed, so that the lower section penetrates the seabed, and the upper section rises up through, and emerges above, the surface of the water.

Completion of the monopile foundations will be followed by the installation of support structures known as "transition pieces".

Mostyn Docks

Mostyn Docks will be the hub of the majority of our offshore construction activities, calling on its history and experience of managing the heavy construction requirements of offshore wind farm construction. This began with the build of the UK's first major offshore wind farm, North Hoyle, developed, built and operated by npower renewables.

Machinery, equipment and the parts required to construct Rhyl Flats Offshore Wind Farm, will begin arriving at Mostyn Docks towards the end of March 2008.

Fact File 1
(Offshore works)

Scour protection works – rock is strategically layered on to the seabed at each of the turbine locations on site to prevent localised erosion of the seabed around the turbine foundations.

Installation of the foundation piles – large metal piles are driven into the seabed by the crane barge 'HLV Svanen' (further details in this newsletter). These monopiles are the mainstay of each wind turbine.

Transition pieces – these are shorter, yellow tubular sections which are lowered on top of the piles. A transition piece will be positioned on top of each of the piles, forming a base upon which each wind turbine will stand. The transition pieces are painted yellow to ensure they are visible to any vessels passing the wind farm.

Erection of turbine towers, nacelles and blades

– the wind turbine towers are craned into position, followed by the nacelles, the "box" which sits on top of the tower containing the generator, which also provides the attachment point for the rotor hub and blades.

Electrical cables – the turbines are connected together, and then to the shore, via heavily armoured cables which are buried under the seabed. Inter-turbine cables link each turbine to the next in the required sequence and export cables transport the electricity from the wind farm to the shore.



(Photos above) A monopile is delivered to Mostyn Docks during construction of North Hoyle Offshore Wind Farm.

Fact File 2
(Onshore works)

Cabling works – a connection pit is constructed on the beach to receive the offshore export cables. Underground cables are laid onshore from the connection pit to the electrical substation.

Substation construction – a newly constructed electrical substation will transform the electricity generated by the wind farm to a voltage suitable for connection into the local distribution system.

Connection to the local distribution system – overhead lines transfer the electricity from the substation into the distribution system, where it is distributed to homes and businesses.



(Photos above) HLV Svanen will install the foundations of Rhyl Flats Offshore Wind Farm.

NEWS FLASH – Arrival of the 'HLV Svanen'

The start of April 2008 sees the arrival of one of Europe's largest construction vessels – the 'HLV Svanen', owned by Dutch company Ballast Nedam.

The giant catamaran-type, self-propelled crane barge is distinctive for its 75m high crane, with a capacity to lift up to 8,700 tonnes. Capable of travelling at up to 7.0 knots, the ship is due to arrive off the coast of north Wales in early April 2008.

On arrival, the vessel will anchor close to the north Wales coast, some distance from the site, where it will receive the first foundation components. 'HLV Svanen' will then move on to the actual wind farm site, 5 miles offshore, to begin installing the foundations.

Each pile is hoisted vertically and held in place by the vessel, before being driven into the seabed by a large hydraulic hammer. The pile-driving process will last approximately 2 to 4 hours per pile, and it is expected that the 'HLV Svanen' will be able to drive approximately one monopile every three days, subject to the weather.

'HLV Svanen' is one of a number of vessels which will be used during the construction of the offshore wind farm. We hope to bring you more information about vessels of interest in future newsletters.



HLV Svanen - one of the largest construction vessels of its kind in Europe.

Your construction questions answered

Q. How long will the foundation work go on for?

A. Piling work is scheduled to last for 2 to 3 months, subject to the weather. Scour protection will be installed in parallel but will last longer, possibly up to 5 months.

Q. Why are you starting now?

A. Our planning consent conditions allow the main offshore works to be carried out between April 1 and September 30, with certain activities such as cable and turbine installation permitted up to mid December. These timings are designed to avoid disturbance to the Common Scoter, a protected bird species, during the season when the bird is prevalent in the Towyn area.

Q. Will there be any noise from the work?

A. It is unlikely that you will hear construction noise from the shore during most of the construction works, however there will be some noise from the piling work and this may be audible under certain conditions, such as when the wind is blowing from the sea to the shore.

Pile-driving work will take approximately 2 to 4 hours per pile, and is likely to take place once every three days, depending on progress and weather. Our planning consent includes a strict noise limit and we are working closely with local Environmental Health Officers to ensure we do not exceed these limits during the works.

Q. Are you working at night?

A. There will be construction works at night, however these are unlikely to be audible during most of the construction period. It is likely that some piling work will take place at night and this may be audible under certain conditions, such as when the wind is blowing from the sea to the shore.

As a result of the tight time frames we have been given under the planning consent, we must work at night to ensure we have installed the foundations and most of the cables before September 30. We will however try not to pile at night where possible.

If you have any concerns about noise, please contact your local Environmental Health Officer.

Q. When will construction of the wind farm be completed?

The first turbines are expected to start generating in November 2008 and project completion is anticipated in July 2009.

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.



A turbine at North Hoyle Offshore Wind Farm.

Cylchlythyr adeiladu: Fferm Wynt Alltraeth Gwastadeddau Rhyl

'HLV Svanen', yn cymryd i'r dyfroedd yng Nghymru



Mae npower renewables yn eich croesawi i'r cylchlythyr adeiladu cyntaf ar gyfer Fferm Wynt Alltraeth Gwastadeddau Rhyl, wrth i ni nesáu at gychwyn y gwaith ar y prif safle alltraeth a fydd yn dechrau yn Ebrill 2008.

Ystadegau Fferm Wynt Alltraeth Gwastadeddau 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.

Yn ystod y misoedd nesaf, fe welwch y prosiect yn datblygu drwy amrywio gamau adeiladu, ac mi fyddwn yn eich darparu â'r newyddion diweddaraf ynglŷn â'r gwaith, drwy dafenni newyddion, diweddariadau ar ein gwefan www.npower-renewables.com/rhylflats a chyfryngau lleol.



Tyrbinau yn Fferm Wynt Alltraeth North Hoyle.

Os hoffech y cylchlythyr hwn mewn print bras, cysylltwch â Judith Roberts ar 0151 648 0896.

Clawr blaen: Darn cyfnewid yn cael ei osod yn Fferm Wynt Alltraeth North Hoyle.

Beth sydd wedi digwydd hyd yn hyn?

Alltraeth
Gosodwyd dulliau diogel rhag sgwrfa yn 13 o'r 25 tyrbîn yn ystod haf 2007.

Artraeth

Ar ddiwedd 2007 a dechrau 2008, aethpwyd ati i gynnal gwaith ar y ceblau, gan gynnwys drilio cyfeiriadol o dan y rheilffordd yn Nhywyn. Gosodwyd dwythellau tanddaerol a'u paratoi i dderbyn y ceblau. Cychwynwyd hefyd ar waith adeiladu'r is-orsaf yn Nhywyn yn 2007 a disgwylir ei gwblhau erbyn Hydref 2008. Erbyn hyn mae'r mwyafrif o'r gwaith artraeth wedi ei gwblhau, o ganlyniad y gwaith a gynhaliwyd dros y gaef ar mwyn lleihau'r aflonyddwch adeg cyfnodau prysuraf y gwanwyn a'r haf.

Gwybodaeth am y cynllun
Datblygwyd Fferm Wynt Alltraeth Gwastadeddau Rhyl yn wreiddiol gan Celtic Offshore Wind Limited a chawsant ganiatâd cynllunio ar ei chyfer yn 2002. Daeth y cynllun i ddwylo npower renewables ym mis Rhagfyr 2002, a gyda'r profiad yr ydym wedi ei ennill hyd yn hyd o ganlyniad adeiladu a gweithredu Fferm Wynt Alltraeth North Hoyle, sydd gerllaw, rydym mewn sefyllfa dda i sefydlu ein hail brosiect gwynt alltraeth fwyaf oddi ar arfordir gogledd Cymru.

Beth sy'n digwydd nawr?

Dechrau gosod sylfeini'r tyrbinau gwynt

O fis Ebrill, mi fydd HLV Svanen yn dechrau gyrru'r 25 o byst - y sylfeini cadarn ar gyfer pob un o'r tyrbinau gwynt. Mi fydd pob un o'r byst dur silindrog 40m o hyd, 4.7m o led yn cael eu gyrru i mewn i wely'r môr i alluogi'r adran isaf i dreiddio gwely'r môr, a'r adran uchaf i godi trwodd, a dod allan uwchlaw wyneb y dŵr. Ar ôl cwblhau'r sylfeini, mi fydd y strwythurau cynnal a elwir yn "ddarnau cyfnewid", yn cael eu gosod.

Porthladd Mostyn

Mi fydd Porthladd Mostyn yn ganolbwynt i'r mwyafrif o'n gweithgarwch adeiladu artraeth, gan alw ar ei hanes a'i brofiad o reoli'r anghenion sy'n codi yn sgil adeiladu fferm wynt alltraeth. Fe ddechreuodd hyn adeg adeiladu North Hoyle, fferm wynt alltraeth gyntaf y DU, a gafodd ei datblygu, ei hadeiladu a'i gweithredu gan npower renewables.

Mi fydd y peiriannau, offer a'r rhannau sydd eu hangen i adeiladu Fferm Wynt Alltraeth Gwastadeddau Rhyl yn dechrau cyrraedd Porthladd Mostyn tua diwedd Mawrth 2008.



Pyst fel yr un a welir yma yw prif gynhellad pob tyrbîn gwynt.

Ffeil ffeithiau 1 (gwaith alltraeth)

Gwaith diogel rhag sgwrfa - creigiau'n cael eu gosod yn strategol mewn haenau ar wely'r môr ymhob un o leoliadau'r tyrbinau ar y safle er mwyn atal erydiad lleoledig ar wely'r môr o amgylch sylfeini'r tyrbinau.

Gosod pyst y sylfaen - mae pyst mawr, metel yn cael eu gyrru i mewn i wely'r môr gan y craen ysgraff 'HLV Svanen' (manylion pellach yn y daflen newyddion hon). Y pyst hyn yw prif gynhelliaid pob tyrbîn gwynt.

Darnau cyfnewid - dyma'r rannau tiwbaid, melyn, byrdech sy'n cael eu gostwng i lawr ar ben y pyst. Mi fydd darn cyfnewid yn cael ei leoli ar ben bob un o'r pyst, gan ffurfio sylfaen ar gyfer pob tyrbîn. Mae'r darnau cyfnewid yn cael eu paentio'n felyn i sicrhau eu bod nhw'n weladwy i unrhyw gyhoch sy'n mynd heibio'r fferm wynt.

Adeiladu tyrau'r tyrbinau, y naselau a'r llafnau - mae tyrau'r tyrbinau gwynt yn cael eu gosod yn eu lle gan y craen, i'w dilyn gan y naselau, y "blwch" sy'n eistedd ar ben y tŵr sy'n cynnwys y generadur, sydd hefyd yn darparu'r pwynt ymgysylltu ar gyfer y both rotor a'r llafnau.

Ceblau trydanol - mae'r tyrbinau yn cael eu cysylltu â'i gilydd, ac yna i'r lan, drwy geblau haengaled trymion sy'n cael eu claddu dan wely'r môr. Mae ceblau cysylltu yn cael eu gosod rhwng y tyrbinau, gan gysylltu'r naill i'r llall yn y drefn angenrheidiol, ac mae ceblau allforio yn cludo'r trydan o'r fferm wynt i'r lan.



(Lluniau uchod) Postyn yn cael ei drosgludo i Borthladd Mostyn adeg adeiladu Fferm Wynt Alltraeth North Hoyle.

Ffeil ffeithiau 2 (gwaith artraeth)

Gosod Ceblau - mae pwll cysylltu yn cael ei greu ar y traeth er mwyn derbyn y ceblau allforio alltraeth. Mae ceblau tanddaerol yn cael eu gosod ar y lan o'r pwll cysylltu i'r is-orsaf drydan.

Adeiladu'r Is-orsaf - mi fydd is-orsaf drydan newydd yn cael ei hadeiladu i drawsffurfio'r trydan sy'n cael ei gynhyrchu gan fferm wynt i foltedd sy'n addas i gysylltu i'r system ddsosbarthu lleol.

Cysylltu i'r system ddsosbarthu leol - mae llinellau uwchben yn trosglwyddo'r trydan o'r is-orsaf i'r rhydwyaith, lle caiff ei drosglwyddo i gartrefi a busnesau.



(Lluniau uchod) Mi fydd HLV Svanen yn gosod sylfeini Fferm Wynt Alltraeth Gwastadeddau Rhyl.

NEWYDDION PWYSIG - 'HLV Svanen' yn cyrraedd

Mi fydd un o longau adeiladu mwyaf Ewrop - 'HLV Svanen', sy'n eiddo i'r Cwmni Ballast Nedam o'r Iseldiroedd, yn cyrraedd ym mis Ebrill 2008

Mae'r ysgraff hunanyredig anferth sy'n fath o gatamarán yn enwog am ei graen anferth sy'n 75m o uchder a ganddo'r gallu i godi hyd at 8,700 o dunelli. Disgwylir i'r llong, sydd yn medru teithio hyd at gyflymder o 7.0 not, gyrraedd arfordir gogledd Cymru ar ddechrau Ebrill 2008.

Ar ôl cyrraedd, mi fydd y llong yn angori'n agos i arfordir gogledd Cymru, rhyw bellter o'r safle, lle y bydd yn derbyn y cydrannau cyntaf ar gyfer y sylfeini. Yna, mi fydd 'HLV Svanen' yn symud ymlaen i safle'r fferm wynt, 5 milltir o'r lan, i ddechrau gosod y sylfeini.

Mi fydd pob un o'r pyst yn cael eu codi'n fertigol a'u dal gan y llong, cyn cael eu gyrru i mewn i wely'r môr gan forthwyl hydroelig, anferth. Mi fydd y broses o yrru'r pyst yn parhau am tua 2 i 4 awr fesul polyn, ac, yn ôl y tywydd, disgwylir y bydd 'HLV Svanen' yn medru gyrru tua un postyn bob tri diwrnod. 'HLV Svanen' yw un o nifer o longau a ddefnyddir adeg cyfnod adeiladu'r fferm wynt alltraeth. Gobeithio y bydd gennym fwy o wybodaeth ynghylch llongau o ddiddordeb yng nghylchlythrau'r dyfodol.



HLV Svanen - un o longau adeiladu mwyaf o'i bath yn Ewrop.

Atebion i'ch cwestiynau ynglŷn â'r gwaith adeiladu:

C. Pa mor hir fydd y gwaith i'r sylfeini yr parhau?
A. Disgwylir i'r gwaith o osod y pyst, barhau yn ystod y nos, fodd bynnag, mae'n am 2 i 3 mis, yn ôl y tywydd. Gosodir dulliau diogel rhag sgwrfa yn ystod yr un cyfnod, ond mi fydd hyn yn parhau'n hirach, o bosib hyd at 5 mis.

C. Paham ydych chi'n cychwyn nawr?
A. Mae ein caniatâd cynllunio yn caniatáu i ni gynnal y gwaith alltraeth rhwng 1 Ebrill a 30 Medi, gan ganiatáu gweithgareddau penodol fel gosod y ceblau a'r tyrbinau hyd at ganol Rhagfyr. Bwriad y fath amseru yw osgoi aflonyddu ar y fôr-hwyaden ddu, rhywogaeth o aderyn a warchodir, yn ystod y cyfnod pan mae'r adar fwyaf amlwg yn ardal Tywyn.

C. A fydd yna unrhyw sŵn o ganlyniad i'r gwaith?
A. Mae'n annhebygol y byddwch yn clywed sŵn yr adeiladu o'r lan am fwyaf y cyfnod adeiladu, serch hynny, mi fydd yna ryw faint o sŵn adeg gosod y pyst, ac mae'n bosib y bydd modd ei glywed dan rhai amgylchiadau, er enghraifft pan fydd y gwynt yn chwythu o'r môr tuag at y lan.

Mi fydd y gwaith o yrru'r pyst yn cymryd rhwng 2 a 4 awr y postyn, ac mi fydd hyn yn debygol o ddigwydd unwaith bob tri diwrnod, yn ôl cynnydd a'r tywydd. Mae ein caniatâd cynllunio yn cynnwys cyfyngiadau llym o ran sŵn, ac rydym yn gweithio'n agos gyda Swyddogion Iechyd yr Amgylchedd i sicrhau nad ydym yn mynd y tu hwnt i'r cyfyngiadau hynny yn ystod y gwaith.

C A ydych chi'n gweithio yn ystod y nos?
A. Mi fydd gwaith adeiladu yn cael ei gynnal yn ystod y nos, fodd bynnag, mae'n annhebygol y bydd modd ei glywed am fwyaf y cyfnod adeiladu. Yn ôl pob tebyg, ond mi fydd hyn yn parhau'n hirach, o bosib hyd at 5 mis.

Os oes gennych unrhyw bryderon ynglŷn â'r sŵn, cysylltwch â'ch Swyddog Iechyd yr Amgylchedd Lleol.

C. Pa bryd fydd gwaith adeiladu'r fferm wynt yn dod i ben?
Disgwylir y bydd y tyrbinau cyntaf yn dechrau cynhyrchu ym mis Tachwedd 2008, a disgwylir i'r prosiect gael ei gwblhau yng Ngorffennaf 2009.

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

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

Os hoffech ddanfôn eich sylwadau atom ynglŷn â Fferm Wynt Alltraeth Gwastadeddau Rhyl, danfonwch e-bost at rhylflats@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.



Tyrbîn yn Fferm Wynt Alltraeth North Hoyle.