

## **RWE Innogy, Stadtwerke München and Siemens build offshore wind farm Gwynt y Môr**

- Construction begins in 2011, completion in 2014
- Investment of more than two billion Euros
- Order worth 1.2 billion Euros for Siemens
- Forecast saving of 1.7 million tonnes CO<sub>2</sub> per year
- RWE Innogy orders second offshore construction ship

*Essen/Munich, 4. June 2010*

RWE Innogy, Stadtwerke München (SWM - *Munich Municipal Utility*) and Siemens have entered into a joint venture to build the offshore wind farm Gwynt y Môr (Welsh for “wind of the sea”). RWE Innogy will hold a 60% stake in this joint venture, Stadtwerke München 30% and Siemens 10%. The total investment amounts to more than two billion Euros, including the grid connection to the coast. The investment will be divided between the partners accordingly. Gwynt y Môr is to be built with an installed capacity of 576 megawatts in Liverpool Bay, around 18 kilometres off the North Wales coast. Work will start towards the end of 2011 to erect the first foundations for a total of 160 wind turbines. All permits for the wind farm covering an area of 79 square kilometres have already been obtained. Siemens will supply, install and maintain the wind turbines, and provide the connection to the grid.

The Secretary of State for Energy and Climate Change Chris Huhne said: “This is the first, of what I hope will be many, examples of how we can make the most of our island’s huge renewable energy potential. I want to make sure we grab all the opportunities the rapidly expanding renewables industry has to offer, and that wind power can come of age under this government.”

Prof. Fritz Vahrenholt, CEO of RWE Innogy, explains: “In 2008 we started making RWE greener. With an output of almost 580 MW and an annual saving in CO<sub>2</sub><sup>1</sup> production of around 1.7 million tonnes, Gwynt y Môr will contribute significantly to this. This is the fifth offshore wind farm which RWE is not only developing but also building – a balance to be proud of”.

<sup>1</sup> Compared with electricity generated by conventional coal-fired power stations.

Hans Bunting, CFO of RWE Innogy, adds: “RWE Innogy is very open to partnerships for implementing projects in the area of renewables. Green Gecco, our joint venture with 26 municipal utilities is just one example. We are proud that for Gwynt y Môr we have again succeeded in finding strong partners in SWM and Siemens, with whom we have had good business relationships for many years. We are already looking forward to our continued work together”.

In its first phase of expansion, the wind farm is planned to generate electricity as early as 2013. The project is expected to be completed in 2014. From then onwards it is forecast to generate around 1,950 gigawatt hours of electricity annually, enough to supply around 400,000 British households<sup>2</sup>. The site is in a very favourable location: Liverpool Bay in North Wales is characterised by comparatively shallow water and very high wind speeds.

Dr. Kurt Mühlhäuser, Chairman of the SWM Board: “SWM has a very ambitious aim: by 2015 we intend to have generated sufficient green energy in our own power stations to enable us to supply all the approx. 800,000 private households in Munich. By 2025 we even intend to cover the whole demand for electricity in Munich, which would make us the first city of a million inhabitants worldwide to have achieved this ambitious target. We are committed at a local, regional and European level to our expansion plans for renewable energy, in which we are investing around nine billion Euros. The wind farm off the coast of Wales now brings us one massive step closer to achieving our expansion target. With our share, and the projects instigated and completed to date, we will be able to increase our green energy production within two years from an initial 350 million kilowatt hours per year to around 1,800 million kilowatt hours. This would supply over 700,000 households in Munich. We are therefore confident that we will achieve our interim target for 2015 substantially earlier. To be this successful, you have to have strong and reliable partners. We have found such partners in RWE Innogy, with whom we already collaborate on the solar power station Andasol 3 in southern Spain, and in Siemens.”

**Siemens supplies wind turbines and is responsible for connection to the grid and maintenance of the wind farm.**

For this project Siemens Energy will receive the contract not only for supply, erection and maintenance of the wind turbines, but also for electrical connection of the Gwynt y Môr wind farm to the mainland. The value of the contract for Siemens is around 1.2 billion Euros.

“Offshore wind power represents an enormous growth market.

<sup>2</sup> Equivalent homes supplied is based on an annual electricity consumption per home of 4700 kWh.

Siemens made an early commitment to this sector and can therefore look back on many years of experience. We are pleased that our proven wind power plants will also be used in this major project. Our co-operation with RWE in building as many as three offshore wind farms in Great Britain is a clear signal that both companies are driving forward the expansion of wind energy in the sea," says Wolfgang Dehen, CEO of the Siemens Energy Sector and member of the Executive Board of Siemens AG.

Siemens will supply and erect 160 wind power installations each with a capacity of 3.6 megawatts for the Gwynt y Môr project. Siemens will also be responsible for connecting the wind turbines to the grid, which entails the delivery of two turnkey offshore transformer platforms. Using high-voltage sea cables, power will be transmitted to the Welsh town of St. Asaph, from where inland distribution will take place. Siemens will also be responsible for maintenance of the wind farm for five years, with the option of an extension for a further seven years.

#### **Further construction ship being built**

To build Gwynt y Môr, RWE Innogy has arranged for another offshore construction ship to be built by the Korean shipyard Daewoo. The first of these offshore construction ships, the largest in the world, was ordered by the company at the end of last year for the erection of the German offshore wind farm Nordsee Ost (*North Sea East*). The order value for each ship is around 100 million Euros. The new construction ship is expected at the end of 2011. The foundations and wind turbines are to be pre-assembled there and then transported out to sea.

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### Technical details of the Gwynt y Môr wind farm

- Total investment more than EUR2 billion
- 160 Siemens SWT-3.6-107 wind turbines
  - each with capacity of 3.6 megawatts
  - adjustable three-bladed rotor with a diameter of 107 m
  - blade length 52 m
  - weight of rotor 95 t, weight of nacelle 125 t
- 576 megawatts total generation capacity → equivalent to half the capacity of a nuclear power plant
- Annual power output of 1,950 gigawatt-hours → adequate to supply 400,000 households
- 79 square meters surface area
- Water depth between 15 m and 30 m with 9 m tidal range
- Annual CO<sub>2</sub> reduction of 1.7 million t → equivalent to the CO<sub>2</sub> emissions of 500,000 cars each clocking up 20,000 km a year (with 170 g CO<sub>2</sub>/km)
- Two Siemens offshore substation platforms
  - each with two transformers with a rating of 160 MVA
  - voltage level stepped up from 33 kilovolts (kV) to a transmission voltage of 132 kV
- Power transmission to St. Asaph via high-voltage submarine cable
  - 20 km offshore
  - 13 km onshore
- Siemens OFTO (Offshore Transmission Owner) substation in St. Asaph
  - two Siemens SVC-Plus-systems to stabilize the grid (+/- 50 MVar)
  - with three 32/400kV transformers each rated at 320 MVA
  - gas-insulated high-voltage switchgear (11 bays)

### RWE Innogy (offshore projects)

RWE Innogy operates the North Hoyle (60 MW) and Rhyl Flats (90 MW) wind farms off the Welsh coast. Another major project, the offshore wind farm Atlantic Array with a planned installed capacity of 1,500 MW, is under development in the Bristol channel off the South Wales coast. Moreover, RWE Innogy is currently involved in the construction of the 500 MW wind farm Greater Gabbard off the south coast of England. The company is also developing Triton Knoll (1,200 MW) and with our partners in the Forewind-consortium Dogger Bank (approx. 9,000 MW) off the east coast of England. RWE Innogy is also pursuing offshore wind power off the coast of continental Europe. In the German North Sea, the company is planning to build the wind farm Nordsee Ost (*North Sea East*) (295 MW) in 2011 and is developing a further major project there with Innogy Nordsee 1 (*North Sea 1*) (around 1,000 MW). In Belgium, RWE Innogy is the largest shareholder in the Thornton Bank wind farm, the first phase of which (30 MW) is already in commercial operation. Further information is available at: [www.rweinnogy.com](http://www.rweinnogy.com)

### **Stadtwerke München**

Stadtwerke München (SWM) is one of the largest energy and infrastructure companies in Germany. Over one million private households, SMEs and business clients benefit from the services provided by SWM on a daily basis. For decades, SWM has provided energy (electricity, natural gas, district heating) for the Bavarian capital in a safe and environmentally benign way. Among other things, the SWM development push for renewable energy and the push for eco-friendly district heating are an example to other districts. Furthermore, SWM supplies the megacity with fresh drinking water from the Bavarian Voralpenland – one of the best in Europe – and with 18 indoor and outdoor swimming pools they operate one of the most modern bathing environments in Germany. The MVG transport subsidiary is responsible for the underground, bus and tram systems and therefore a significant pillar in Munich's public transport network. SWM employs around 7,500 staff and in the 2009 fiscal year turnover reached around 4.9 billion euros. Further information is available at: [www.swm.de/en](http://www.swm.de/en)

### **Siemens Energy**

The Siemens Energy Sector is the world's leading supplier of a complete spectrum of products, services and solutions for the generation, transmission and distribution of power and for the extraction, conversion and transport of oil and gas. In fiscal 2009 (ended September 30), the Energy Sector had revenues of approximately EUR25.8 billion and received new orders totaling approximately EUR30 billion and posted a profit of EUR3.3 billion. On September 30, 2009, the Energy Sector had a work force of more than 85,100. Further information is available at: [www.siemens.com/energy](http://www.siemens.com/energy)