

## London Array signs contracts worth almost €2bn for work on world's largest offsh

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DONG Energy, E.ON and Masdar have today (MON) announced that six major supply and installation contracts for London Array have now been signed, paving the way for construction of the world's largest offshore wind farm. Contracts totalling almost €2bn have been agreed with seven European suppliers, which will be responsible for providing the components and expertise needed to construct the first 630MW phase of the project. Offshore work is scheduled to start early in 2011 with phase one construction finished by the end of 2012.

Once complete, the scheme will be the world's largest, and the first 1GW, offshore wind farm. Sited in the Thames Estuary, the project will supply enough power for around 750,000 homes - or a quarter of Greater London homes - and displace the emission of 1.9m tonnes of CO<sub>2</sub> every year. The largest contract, worth around €1bn, was signed in May 2009 with Siemens Wind Power, who will be supplying 175 turbines for the first phase of the project. Each will be rated at 3.6MW, be fitted with the new Siemens 120m rotor and have a hub height of 87m above sea level. Siemens Wind Power has also entered into a warranty and five year turbine servicing contract.

The Joint Venture between Per Aarsleff A/S and Bilfinger Berger Ingeniuerbeau GmbH has been awarded the foundations contract. As well as supplying and installing the 177 monopiles - including one for each of the two offshore substations - the joint venture will install the wind turbines. The contract to design, fabricate and install the two offshore substations required for phase one has gone to Future Energy, a joint venture between Fabricom, Iemants and Geosea. Each offshore substation is identical and will be built on three levels, with each deck level being 20m in plan area.

Nexans Norway AS has been awarded the contract to supply the 220km of 150kV subsea export cable connecting the offshore substations to the shore. JDR Cable Systems will supply the 210km of 33kV array cables that will link the turbines to each other and to the offshore substations. Visser & Smit Marine Contracting and Global Marine Systems Limited have been selected to carry out the installation of the export and array cables. The two offshore substations electrical systems and onshore substation work will be undertaken by Siemens Transmission and Distribution Ltd, which has already begun work building the onshore substation at Graveney in Kent.

Anders Eldrup, CEO of DONG Energy, said: "We look forward to working together with this experienced team of partners. Together we will achieve the goal of constructing the world's largest offshore wind farm." Dr Frank Mastiaux, Chief Executive of E.ON Climate & Renewables, said: "Signing these contracts is a significant milestone for the London Array project, which will be a vital scheme as we look to take renewables from being a niche power player to being a significant, vital part of the UK's energy landscape."

Dr. Sultan Al Jaber, CEO of Masdar, said: "The London Array is a landmark project not only for the UK energy sector but for the global renewable energy industry; the completion of these contract awards marks a major step toward making the project a reality and establishing offshore wind as a viable electricity supply option." London Array will be built around 20km off the coasts of Kent and Essex. The wind farm will be installed on a 245km<sup>2</sup> site and will be built in two phases. In May this year, following the increased support announced in the budget for offshore wind, DONG Energy, E.ON and Masdar announced they would be investing €2.2bn in the first phase of London Array. This will cover 100km<sup>2</sup> and include 175 turbines with a combined capacity of 630MW.

The consortium plans to complete the first phase in 2012. If approved, the second phase will add enough capacity to bring the total to 1,000MW. The project consortium partners have the following shareholdings: DONG Energy owns 50%, E.ON has 30% and Masdar has a 20% stake.

**Wind Turbine Contract** Siemens Wind Power will provide the wind turbines. The contract is integrated into a wider master agreement with Dong Energy for supply of up to 500 offshore wind turbines. Siemens Wind Power will be supplying 175 of their 3.6MW machines; these will be fitted with the new 120m rotor and will have a hub height of 87m above sea level. Siemens Wind Power will also be contracted to provide a warranty and turbine servicing for five years. The turbines will be transported to site from Denmark.

**Foundations Contract** The project will use monopile foundations and these will be supplied by a joint venture between, Per Aarsleff A/S and Bilfinger Berger Ingeniuerbeau GmbH, which specialises in supplying monopile and transition pieces to the offshore wind energy sector. 177 monopiles will be supplied in total, including those needed for the two offshore substations. The contract also includes the installation of the foundations and wind turbines.

**Offshore Sub Station Contract** Phase 1 will require two offshore substations to be installed within the middle of the wind farm. Future Energy, a joint venture between Fabricom, Lemants and Geosea of Belgium, has been awarded the contract to design the substation superstructures as well as design, fabricate and install the offshore substation structures. Before the structures are transported offshore the electrical hardware will be installed and tested by the Electrical Systems contractor. Each offshore substation is identical. They will be built on three levels, with a floor area of approximately 20m by 20m. A heavy lift vessel has been committed for the installation as each assembled substation will weigh around 1400 tonnes.

**Export Cables Contract** Each offshore substation will be connected to the shore by two cables. Nexans Norway AS from Norway has been awarded the contract to supply a total of 222km of undersea cable. The cable will be designed to operate at 150 kV, and will also include fibre optic cores to enable data transmission from the wind turbines and electrical system to shore. Installation will be carried out in both 2011 and 2012.

**Array Cables Contract** There will need to be in total 209km of various lengths of cables to connect the wind turbines to the offshore substations. JDR Cable Systems of Hartlepool in the UK has been awarded the contract to supply these cables. The cables will be designed to operate at 33kV, and like the export cable will also include fibre optic cores for data transmission.

**Offshore Cable Installation Contract** Installation of the export and array cables will be carried out under a contract with Visser & Smit Marine Contracting and Global Marine Systems Limited. The contract will cover connection from the onshore substation to the offshore substations, between the turbines and the offshore substations. Work on the installation is scheduled to start in 2011 and will continue through 2012."

**Offshore Substations Electrical Systems and Onshore Substation Contract** Siemens Transmission and Distribution Ltd of Manchester in the UK have been awarded the contract to supply, install and commission the electrical systems for Phase 1 of London Array. Siemens Transmission and Distribution Ltd are already working onshore at Graveney in Kent building the onshore substation. The footprint of the substation covers 20 acres and is being built to a novel design resulting from a design competition that was undertaken in the planning process. Work is at present on schedule. In February 2010 National Grid will also come on site to start construction of its section of the substation. A connection to the National Grid is scheduled to be completed in October 2011. In addition to building the onshore substation, Siemens Transmission and Distribution Ltd will be supplying, installing and commissioning the electrical equipment on the offshore substations.

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