

# Floating gravity foundations for offshore wind turbines

Fighting climate change is now a major concern for all European countries. France is targeting a 23% share of renewable energy in the country's end consumption of primary energy by 2020. It is therefore counting on the installation of 6,000 megawatts of offshore wind power. The future Fécamp offshore wind farm, developed by the teams at EDF Énergies Nouvelles, will contribute in part to achieving this target. It will be one of France's first offshore wind farms, despite there already being 74 farms of this type in Europe at the end of 2014.



As well as the maritime resources needed, offshore wind power demands technical resources over and above those required for onshore wind farms. Turbine foundations are generally built onshore and then barged to their installation location. This is a complex operation, especially when the farm is far off the coast. Consequently, for the preliminary installation of a measurement mast, EDF Énergies Nouvelles innovated in February 2015 by testing a gravity foundation floated into position. The reinforced concrete structure weighing 1,800 tonnes was towed to the installation site, filled with ballast, and simply sunk to rest on the seabed. The structure's weight ensures the required stability. The advantage lies in the transport method, as heavy lifting equipment is no longer required for the final installation. For the Fécamp project, the structure was towed by three tugs to its destination some 50 km from the port of Le Havre. By reducing installation costs, this innovation is smoothing the way for the ongoing development of offshore wind farms.

## KEY FIGURES

**83** Alstom Haliade™ 150 wind turbines each with a rated power of 6 MW

**13 to 22** km off the coast of Fécamp

**2020:** scheduled commissioning

Will generate enough electricity to cover the needs of **770,000** people, i.e. 60% of the population of the Seine-Maritime administrative department where the wind farm is located

## INTERESTING FACTS



## Job creation

The development of offshore wind farms points to the creation of a new industry in France, especially since the new-generation Alstom offshore turbine will be manufactured there. This, together with the construction of the three offshore farms (Saint-Nazaire, Courseulles-sur-Mer and Fécamp) included in the first call for tenders issued by the government, along with their operation and maintenance, will lead to the creation of around 7,000 jobs.

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