Developments in offshore wind industry highlighted

The energy output from offshore wind power has increased dramatically in recent years, and the costs of wind power are expected to fall, according to a recent analysis. The study reviews the global offshore wind sector, outlining the market's current situation, costs and technology.

Newly installed offshore wind farms in 2011 accounted for 715 megawatts (MW) of power, calculates the study, taking global offshore wind capacity to nearly 3.9 gigawatts (GW). A total of 405 MW of power were newly connected from EU offshore wind farms last year, confirming Europe’s place as the world leader in the offshore wind power sector. This figure takes into account only commissioned and fully connected offshore wind farms, and is based on information taken from wind farm databases and the main wind farm operators' websites.

Offshore wind power has been led by the UK and Denmark in the past decade, and now Germany, Sweden and China are also becoming major players in the field. Investment and employment in the EU’s wind power sector are expected to grow considerably and continuously, with projections for its total installed wind power, both onshore and offshore, ranging between 199 GW and 230 GW by the end of 2020, according to the International Energy Association and European Wind Energy Association, respectively.

The study presents a comprehensive overview of investment in offshore wind power. Offshore wind farms require considerably more capital investment than their onshore equivalents, averaging close to €3000 per kilowatt (kW) in recent years, compared to €1250/kW for onshore wind farms. Logistical, operational and management costs are identified as the main reasons behind these higher costs. Different parties involved in offshore wind are determined to push down these costs to about €1500/kW by 2020 through a number of means, for example, European states are forcing the industry to reduce their costs by proposing lower energy pricing ceilings when tendering for offshore wind zones, and component suppliers are working on delivering more efficient parts and supply chains. However, presently it is not clear how close the sector can get to the target cost.

Investment in offshore wind demands appropriate policy support that considers the general volatility of wind power and the higher cost of renewable sources of electricity, compared with conventional sources. The 2009 EU Directive on the promotion of the use of energy from renewable sources saw each EU Member State develop their own National Renewable Energy Action Plans, which define policies and measures to meet established targets. Support schemes vary from tradeable green certificates in Belgium, Italy, Sweden and the UK, to feed-in tariffs in Denmark, France, Germany and the Netherlands.

The study also presents an analysis of technical characteristics of the electrical subsystems for all OWFs operating worldwide at the end of 2011, with direct comparisons to onshore technology. These include wind energy conversion systems, collector systems (to collect electrical power from turbines and deliver to a central point) and transmission systems. There is a long way to go until technologies which optimise costs, yield and maintenance requirements are available for offshore wind. However, fast progress is being made with leading manufacturers offering tested products close to industrial requirements, which operate under certain conditions of seabed depth and distance from the shore.


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