

Dramatic price drops

Words: Steve Sawyer, secretary general at GWEC

The dramatic drop in price of solar and wind generated electricity, for solar in particular, has grabbed a lot of attention lately. Prices in the range of \$US 0.03-0.04/kWh have come through in tenders from Peru to Mexico and Morocco to South Africa. It is almost to the point where in the big picture, price doesn't matter so much anymore. As penetration levels begin to increase, the emphasis will be much more on how to integrate them into the power system, or rather to transform the power system to work with wind and solar's particular characteristics. But when people are talking about wind, they are increasingly adding 'onshore', to distinguish it from its large, slow and expensive cousin, offshore wind. But maybe not for much longer.

There has been a lot of positive news from the increasingly dynamic offshore sector of late. Until recently the best prices we had heard of for offshore was €103/MWh for the Horns Rev extension in early 2015, which was considered a very positive sign of things to come.

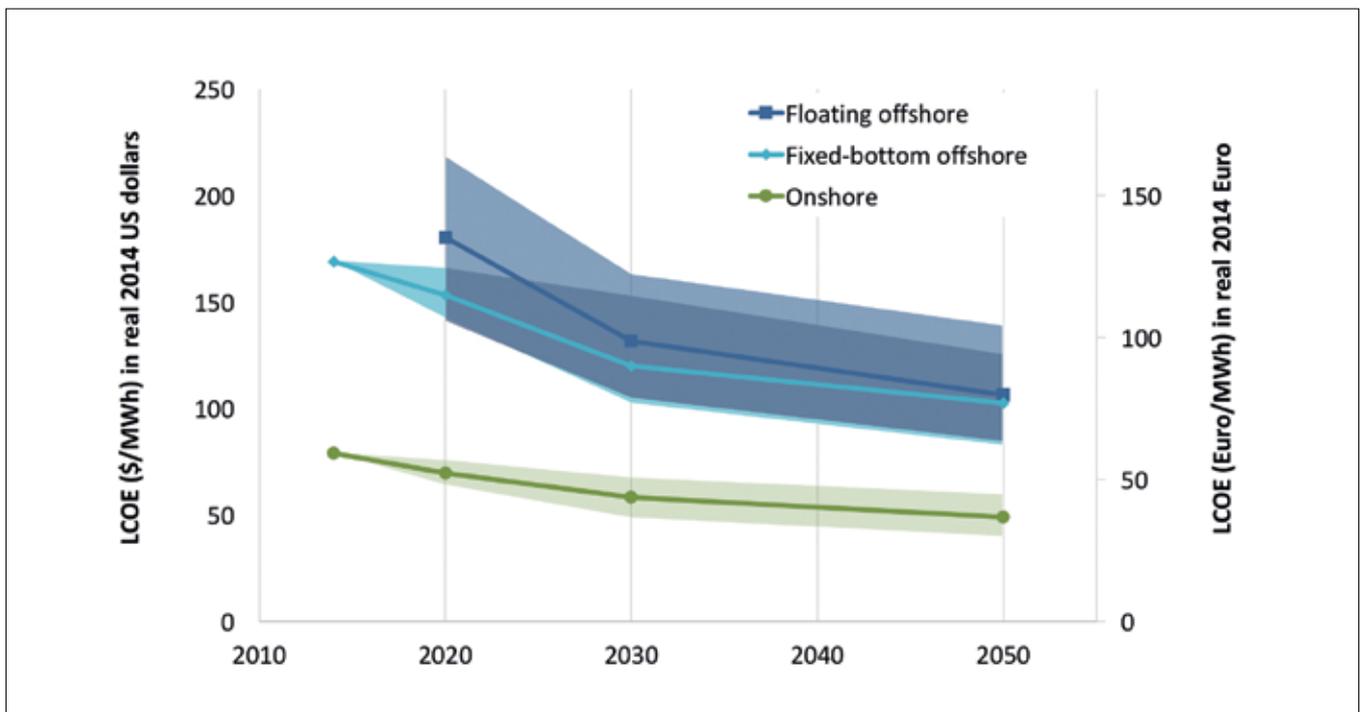
However, just about everyone was surprised by the record low prices in the Dutch auction for 700 MW at the Borssele offshore site near the Belgian border in the beginning of July - less than €73/MWh; which, if you add the cost of transmission would be somewhere in the low to mid-80s, another record. The next tender for another 700 MW is now open for bids which will close on 29 September and be awarded around the end of this year, where similar or perhaps even lower prices are expected. The Dutch plan to tender another 700 MW per year in 2017, 2018 and 2019.

In September Vattenfall won the bid for 350 MW of Danish nearshore projects at a price just over €60/MWh. Granted, these projects are close to shore - and it should also be noted they are mired in controversy due to the current Danish government's messing about with policy, but still it's a positive sign. In fact, although the long term uncertainty still haunts the European

offshore sector, in the short to medium term the spate of upcoming tenders is such that there are the first signs of worry about turbine supply timetables. We haven't had that problem for quite a while.

The installation of the turbines for the first commercial offshore plant in US, the 30 MW Block Island project, was completed in August, and the project is expected to be feeding electricity to the island community as well as the mainland by the end of the year; and just last week the US Departments of Energy and Interior released their National Offshore Wind Strategy: Facilitating the Development of the Offshore Wind Industry in the United States. Citing US offshore potential in excess of 2 terawatts with existing technology - roughly double the US's total existing generation capacity, the roadmap outlines a plan to install 86 GW of offshore projects by 2050, with a goal of getting prices down below \$100/MWh by 2025.

It's a very ambitious plan and in the medium term we will probably see a substantial build-out in the US. But in the short term, the price gap between what early projects in the US will cost and what the market will bear is very substantial. Without a federal support system for



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offshore, and with the PTC phasing out over the next five years, it's not yet clear how that gap is going to be made up.

For despite the cost reductions seen in Europe, the US faces an even greater challenge, as it has very little in the way of existing supply chain and/or infrastructure for offshore wind, and it is competing in a market where electricity prices are in general considerably lower than in Europe. Block Island was easy in one sense, as the competition is with diesel gen-sets on the island; but for large scale commercial developments, costs need to come down dramatically. But without the volume, pipeline and infrastructure, that's not going to happen - hence the National Strategy.

Can the US industry learn from the European experience? There is certainly a very healthy line-up of investors who are counting on that - but it will take time and there has to be market demand. Nevertheless, the interest is there and the

trends are positive, but how the chicken-and-egg question in relation to supply chain, infrastructure and demand pipeline is going to be solved is not yet clear.

Just last week, our friends at the Lawrence Berkeley National Lab, NREL and others published an Expert elicitation survey on future wind energy costs in Nature, under the auspices of IEA Wind. Although the data for the study was collected prior to the record low auction results in both the onshore and offshore sectors in the last couple of months (and much of it before the dollar dramatically increased in value against the Euro 18 months ago), the study reinforces the trends that we are experiencing and that we expect to see as the industry matures.

The study identified five main drivers for cost reductions: CapEx, OpEx, cost of financing, turbine performance and project design life. Larger turbine size, larger rotor diameters and higher hub heights are

obviously key factors, but improved operation, siting and improved financial conditions for wind projects also pay a role. The study is well worth a look and I hope they revisit it in a couple of years as I imagine reality will overtake even the most optimistic projections once again; as indeed, they seem to be doing already in Europe; if indeed the pricing trends that we are seeing now for offshore wind hold up for the next couple of years.

The question, as always, is whether the policy makers will establish functional and stable frameworks within which the industry can develop long term plans, automate processes, cut costs and work in the context of a stable pipeline within a framework it can trust. Technology improvement and improved siting and management will play their roles, but without a long term commitment to the sector, it's going to be tough. Policymakers in Japan, India, Korea, China and Southeast Asia looking at offshore would do well to take note. ■

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