



## How the UK and Europe can set examples for the US offshore wind industry

*Europe's offshore wind industry is no longer something new and experimental and, now, a European industry is growing up to develop, install and operate wave and tidal energy devices. The experience learned here ought to be valuable in efforts to establish an offshore renewable industry around North America, writes Joel Whitman.*

**T**he US coastline holds great potential for developments in offshore wind. Just last month the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) stating that 4,150 gigawatts (GW) of potential offshore wind turbine nameplate capacity (maximum turbine capacity) are available off of U.S. coastlines, which, according to the U.S. Energy Information Administration, far exceeds the 1,010 GW which was the nation's total electricity-generating capacity in 2008.

Yet according to a recent New York Times editorial, between 2005 & Sept 2010, The U.S. federal government had approved only 1 offshore wind farm while at the same time approving over 73,000 oil/gas leases. In a word, things have been...slow. However there are signs that things in North American are picking up.

Projects in Massachusetts, Rhode Island, New York, New Jersey, Delaware, and Ohio are all moving through the permitting process. In Maine a center of excellence for floating turbines is well on its way to being established. In Canada, the province of Ontario has a feed-in-tariff in place which has resulted in a set of viable projects in the Great Lakes which are also moving forward.

With Google recently announcing plans to participate in the development of an undersea power cable network along the mid-Atlantic coast that will cover 350 miles from New Jersey to Virginia, and deliver the capacity to connect 6000 MW of offshore wind turbines, it would seem that the US renewables market is showing some signs of real progress.

The US Department of Energy seems confident that an offshore wind renewables market will develop, estimating that 54 GW of offshore wind could be included in the 300 GW required to meet 20 percent of US electricity needs by 2030.

From policy and permitting, to financing, supply chain and public acceptance, in the U.S. each State is pushing forward, learning as they go. U.S. Government Agencies at the Federal and State levels, Canadian Provincial Governments, utilities, project developers, consultants, turbine manufacturers, cable manufacturers, vessel operators, ports authorities and potential investors are all at the beginning stages of grappling with the issue of setting up a viable industry in North America, challenges which the European markets have a decade's worth of head start on solving.

As a British company, Global Marine Systems believes there is a significant and timely opportunity for companies with first hand offshore wind development in Europe, to export our experience to North America and participate in getting the industry off of the ground over there.

Policy, Expertise and Equipment are all potential ways for UK companies to get involved now.

### **Policy:**

Over the past 10 to 15 years Governments in the UK, Denmark, Germany, the Netherlands and others have collectively put together some of the most advanced government policy on how to encourage and ultimately require, the migration away from Energy production which is almost entirely dependant on fossil fuels. In each country the motivation for doing this may differ, and the resulting policy methods may reflect the political climate and habits common to that specific country, but the but the result is the beginnings of the creation of a common market. The idea that developers, suppliers and installers, essentially everyone involved in the supply chain can consider a regional market which surrounds the North Sea is core to the current and future success of offshore wind.



Europe's offshore marine renewables industry is well-established, compared to that for North America

The policy models are an important asset which Europe has and with the exception of Ontario, Canada, North America does not. The know-how to politically accomplish this feat is a real asset created by Europeans and could and should be exported west. If you think about it, it wouldn't be the first time exported European legal structures and tax policies played an important role in how North American went about its business.

Consider cable installation, an important component to all offshore transmission. It costs something in the region of £100 million to build an installation vessel. When build an argument for investment in such assets being able to point to a regional North Sea market, rather than the market of one country or another, decreases risk, and encourages investment. Common policy as an expression of Government commitment is the foundation of this.

Now consider the North American Eastern Seaboard, or the Great Lakes. These are also regions with multiple governing bodies. In the case of the Great lakes there are seven States on the US side, and one Province on the Canadian side. On the Atlantic, there are up to 15 interested States and 3 Canadian Provinces. In each case these entities have authority over their territorial waters (up to 3 miles out in the US). The complexity, not to mention the politics is mind boggling, but it is easy to see – no regional policy and approach = fragmented market and no industry. However, learn from the European regional model = common market, and the seeds of a new industry are sown.

### Expertise:

Whether you are for or against offshore wind, facts are facts and the Europeans have environmental studies, project management, construction methods, offshore transmission design, operational methods and long term maintenance planning. With somewhere between 3 and 4Gw in the water currently and another 20-30 Gw already permitted and anticipated by 2020 there is a significant amount of unique experience which the European have and the world wants. Finding ways to package that know-how is an excellent way to profitably leverage something which will never command a higher premium than it does today.

While this may seem obvious if you are a big turbine manufacturer or an established multi-national corporation, the object here of course, is to think beyond the obvious, to dream up unique possibilities.

An interesting example which comes to mind is EMEC and the wave and tidal policy in the Scottish territorial waters. Located in Orkney, Scotland, the European Marine Energy Centre, or EMEC, is an operation test facility for all kinds of innovative devices. Due to the commitment to wave and tidal development, in particular, by the Scottish Government, once these devices are proven, there is an existing, local market ready to accept the power they produce. If you are engineering for this market, large or small, anywhere in the world, it seems only logical to have a footprint in Scotland, given this combination of market testing and future market availability.

### Equipment

Along the same lines as expertise, equipment used to install offshore wind farms is unique. The necessary vessels, barges, cables, turbines, substations and all of the bits in between are largely custom built for this market. The engineering knowledge and manufacturing experience to produce this equipment is, at this time, European.

Yes, American law such as the Jones Act prevents European vessels from working on American projects, which means that the European naval engineering needed to build such vessels will be in demand. Also, the spreads of equipment, in our case, things like purpose-built ROV's, ploughs and trenching equipment all are built on largely European specifications.

In the case of marine power cable, it is a well known fact that there is little if any North American manufacturing capacity for this product. Where will it come from? Well the majority of the world's marine power cable manufacturers are today, European.

There is a real opportunity today for anyone involved in offshore transmission and offshore wind development to take the North Sea experience and apply its real, practical lessons learnt to the developing North American markets. These lessons, as illustrated in Policy, Experience and Equipment, have been learnt the hard way, through trial and error. Exporting and applying them will allow for future projects, wherever they may be, to be built on time, on budget with decreased risk and satisfied investors.

To date, the North Sea has been the epicentre of offshore activity, by understanding European best practice experience for tax policy, project finance, design, engineering and materials, and ultimately operations & maintenance models, the North American market might avoid many pitfalls and as importantly, accelerate its growth to a market large enough to cost effectively provide a significant amount of carbon-neutral energy for its customers.

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