

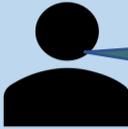


The global status of Offshore Wind

how to visualise the specifications of any Offshore Wind project



Mike Cooper answers all the questions you asked in our Offshore Wind webinar.



In your opinion, what is the most exciting area globally for offshore wind development?

Presently the North Sea is the most exciting region with numerous new projects and technologies being investigated (floating). Into the future, I think the area to watch is the East Coast of the USA. There are various proposals in place and just this week the Vineyard project was given the go ahead – under the Biden administration we can expect more projects to follow.

What factors typically control the cost/mwh?



Costs are reducing year on year. There are several reasons for this – the cost of manufacturing reduces as technologies become more common place. Also, once infrastructure is in place, such as substations, later developments have reduced CapEx. Distance offshore is a major control of cost/mwh, as you progress further from the shore, more cable needs to be laid and deeper water may also mean you incur greater costs. As far as individual turbines are concerned – the tower and rotor blades each account for roughly 1/4 of the costs.



When do you think the cost of floating wind will be competitive with fixed-bottom?

Equinor, with their Hywind floating wind farm offshore Scotland and Hywind Tampen in Norway, hope that by 2030 the costs should be comparable. If there are enough large projects over the next few years, we think this is achievable.

Does TROVE have contact info for individuals?



We have a separate product for the Offshore Wind market which details over 1000 companies operating within the Offshore Wind sector – this includes websites, emails and phone numbers, where available, for operators & service companies.



Are there any (what are the) issues with transportation and/or storage of the electricity produced? Which method is the most efficient? Is there any other method under development?

Offshore Wind farms are being constructed ever further from the coast, however there is a limit to this. As the source of energy moves further from the centres of use not only does the cost increase (CapEx) but the losses during transportation also increase. Whilst TROVE Renewables doesn't have an explicit product focussing on energy transportation, our TROVE Energy Storage KnowledgeBase can help us to understand the global picture for different energy storage schemes. We also have a TROVE Hydrogen KnowledgeBase. Hydrogen is quickly becoming the hottest topic in the renewable energy sphere and Green Hydrogen (hydrogen produced by electrolysis powered by Wind energy) is perhaps the most popular source of Hydrogen production. In reality, no single energy storage scheme has the answer – with every technology having different capabilities relating to capacity and discharge time, a diverse grid scale storage system is required.

Is it expected that offshore wind will employ power to x solutions (generating hydrogen etc.) more commonly in the near future? Or will simple electricity export continue to be dominant.



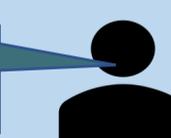
Absolutely, with the rise of energy such as wind and solar, we need to maintain a dynamic grid to prevent power outages – this means we need more energy storage systems. Hydrogen is likely to be a key energy storage technology and also opens up more options for green transport solutions. Offshore wind is likely to be increasingly used for power to x solutions instead of simple electricity export.



Are you able to overlay potential windfarm areas with other potential uses for the area (oil and gas facilities, CCUS, shipping lanes, dumped ordinance(!), etc)?

Dependant on the data publicly available in a given region, yes. We have created a map for NW Europe showing the interplay of various different sectors (oil & gas, wind, CCUS, geothermal, hydrogen, gas storage, wave & tidal).

How do offshore wind project returns/breakeven electricity price compare to other renewable sources?



It largely depends on location, in areas such as Iceland, geothermal has a substantially lower Levelized Cost of Energy than in say the UK. Solar has seen huge reductions in cost in the last decade and is now comparable to wind. Wind and solar can now also compete with fossil fuels on price and we will see costs continue to fall.

Contact info@troverenewables.com if you have any other questions