

Is the possibility of offshore gas an economic windfall for the Isle of Man?

The current debate about whether exploration for natural gas should continue in Manx offshore Block 112/25 ought to be based on realistic numbers says Dr Dave Quirk of the Manx Geological Survey. Irrespective of the ethical issues around fossil fuels, “the chances of there being an economic gas resource is small, probably no better than 1 in 6. Even if a new borehole confirmed the presence of gas, the size of the accumulation is likely to be fairly modest and worth a lot less than has been quoted in the press. Offshore wind power is certainly a more secure investment!”.

The story starts in 1982 when BP drilled a borehole on Block 112/25 off the east coast of the Isle of Man, in what was then UK territorial waters. The name of the well is 112/25-1 – the first well in Block 112/25. BP was hoping to find an accumulation similar to one of the Morecambe Bay gas fields, in Triassic-age rocks. They did not find gas at the expected level but there were some indications of gas at greater depth in Permian-age rocks, around 2000 metres below the seabed. These rocks have some similarities with the Peel Sandstone but they have never produced gas in the Irish Sea. Despite their best efforts, BP was unsuccessful in getting gas to flow to surface in 112/25-1 so they declared that the well had failed to discover hydrocarbons.

In 1991 the Isle of Man extended its territorial sea to 12 miles by purchasing the sea bed from the UK Government and consequently Block 112/25 became Manx. In a subsequent Isle of Man licence round held in 2017-2018, local company Crogga Limited bid for an exploration licence and was awarded the block based on a proposal to carry out evaluation work, including a seismic survey. The seismic survey has yet to be acquired and the licence is now up for renegotiation.

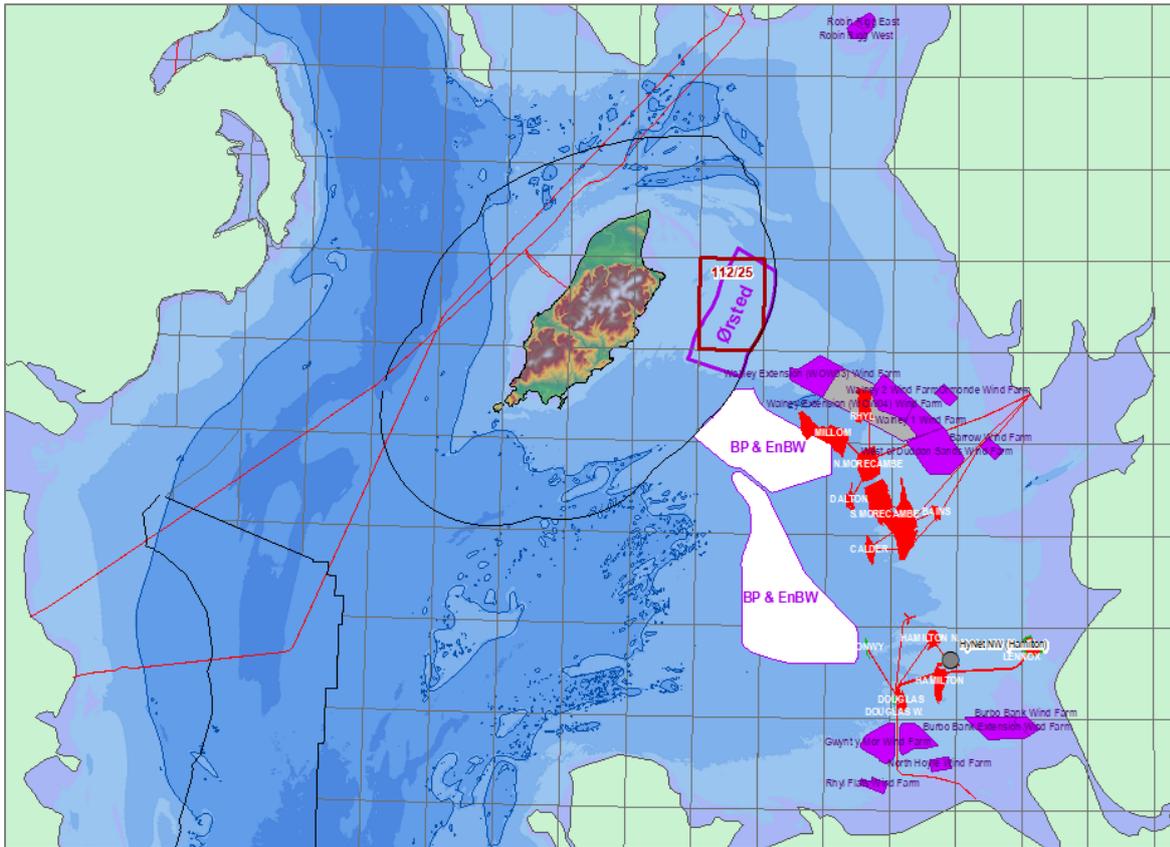
So what if there is a significant gas accumulation? “First it will require more exploration – a 3D seismic survey, then one or probably two exploration wells to test whether there is enough gas and whether it will flow to surface at the rate required to be a commercial proposition. In the case where the results are positive, it will then take several years to develop the field by drilling boreholes and building production facilities such as a platform and pipelines. This takes us to around 2030, by which time it is hard to predict how carbon taxes on fossil fuels will affect the economics.”

Are fossil fuels bad *per se*? “There is no doubt that carbon dioxide produced from burning fossil fuels is causing a dangerous rise in global temperatures¹ but right now the Isle of Man is still totally dependent on them. We need to move as quickly as possible to sustainable alternatives for electricity, heating and transport. That being said, there is actually one way natural gas can be used to generate electricity without emitting carbon dioxide but it would add significantly to the cost of any development.”

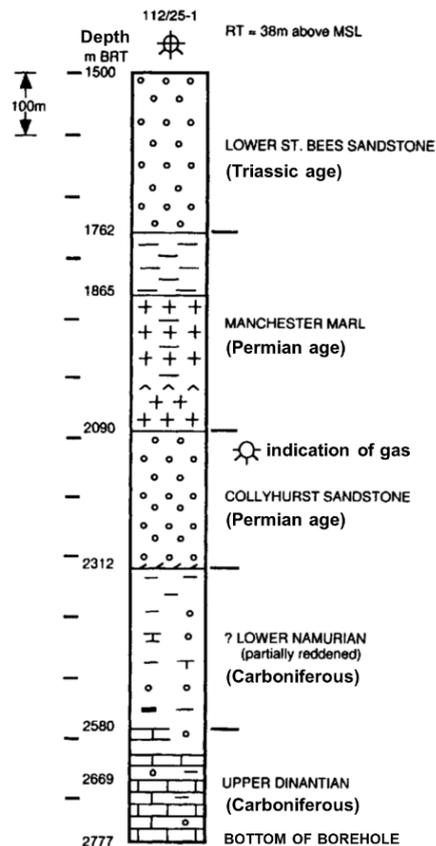
Taking everything into consideration, the chance that there is an economic gas field offshore Isle of Man is relatively small. Even though Crogga argue that it is worth exploring the opportunity further, it is certainly not a reason to hold off developing other Manx energy resources such as wind, solar and water in the meantime. “From the nation’s perspective, a spectrum of opportunities is not a bad position to be in but there is always a long lead in time with such projects, so decisions will have to be made now rather than later”.

¹ Information on climate change is available here - www.energysustainabilitycentre.im/knowledge-hub.

Location map showing loM Block 112/25, gas fields & pipelines (red), wind farm licences (purple) & carbon dioxide storage sites (grey). Manx territorial sea (black border) is mostly shallower than 50m (blue contour), the ideal water depth for siting wind turbines.



Summary of the rocks found in the deeper part of borehole 112/25-1. m BRT = metres below rotary table (drilling platform); MSL = mean sea-level; water depth is 15m. Source: Quirk & Kimbell 1997.



Readers who are interested in learning more about assessing the size of petroleum resources are referred to a paper by Quirk and Schmid which is available here - www.researchgate.net/publication/347976679_The_Prospect_Area_Yield_PAY_method_a_remedy_for_over-optimistic_volumetric_estimations_in_conventional_petroleum_exploration. The same authors provide a free software tool for evaluating exploration prospects - <https://pay.bergwerk.com/>.

Other information about risk and uncertainty in oil and gas ventures or on the geology and energy resources of the Isle of Man can be requested from geologicalsurvey@manx.net.