



REPOWERING ONSHORE WIND SITES



What is it?

On shore wind farms are typically consented for 25 years. Repowering is the process of replacing the original turbines with new ones, and reconfiguring the layout. It may mean fewer, but larger or more efficient turbines.

Example – Delabole wind farm, Cornwall

Delabole was the first commercial wind farm in the U.K. It opened in 1991 with 10 turbines of 400kw each. In 2011 those turbines were replaced with four turbines totalling 10MW. A project where we advised a funder.

Why is repowering important?

Planning permissions for onshore wind farms in the UK generally require decommissioning and restoration after 25 years.

The early wind farms in the UK came into operation in the mid/late 1990s. Between 2020 and 2025, those early wind farms will reach their 25th anniversary. From 2025 onwards, the number of 'maturing' wind farms will increase.

Turbine performance has also increased during this period. Just over 15 years ago the first 1+MW turbines were installed in the UK; 5 years later 2+MW turbines were common; and in 2006 the first 3MW turbine was installed.

If renewable energy targets continue to be part of government policy, it is important to consider repowering existing wind farm sites, otherwise decommissioning will reduce the amount of renewable energy, which will need to be replaced by developing new sites.

This is recognised by Scottish Planning Policy:

Proposals to repower existing wind farms which are already in suitable sites where environmental and other impacts have been shown to be capable of mitigation can help to maintain or enhance installed capacity, underpinning renewable energy generation targets. The current use of the site as a wind farm will be a material consideration in any such proposals.



Why repower?

Repowering is an opportunity to make better use of good wind sites:

- O+M issues with ageing turbines
- Improved performance of new turbines
- Potential to improve the quality and reliability of exported power
- Re-using proven sites with existing infrastructure

When to repower?

Repowering may occur before 25 years. The decision to repower depends on financial performance of the existing wind farm (output of existing turbines; subsidies; maintenance costs; expiring warranties), weighed against what could be achieved using new turbines, and the cost of removing the old turbines and erecting the new ones. This in turn will depend upon repowering policy and what will be permitted – e.g. with a hub height of 135m, rotor diameter of 126m and a total height of 198m, the Enercon E-126 can generate up to 7.58MW.

Impact on decarbonisation effort

A large part of the decarbonisation of our electricity system which we have already achieved has been due to the development of onshore wind. The temporary life and consents for windfarms means of course that this generating capacity will disappear gradually over the next 25 years unless it is replaced. If the decarbonisation effort is to continue, it will need to be replaced by low carbon generation, and at this moment in time, it is difficult to see what alternative technologies could replace onshore wind at the scale needed to maintain low carbon generating capacity.

In other words, repowering policy is not just about increasing the deployment of onshore wind but maintaining the country's current stock of low carbon generating capacity. Given the time it takes to consent an onshore windfarm, a growing number of operators of ageing windfarms will need to consider life extension, replacement and repowering options during the lifetime of this parliament, even if repowered windfarms will not be widely commissioned until the 2020s. The current UK Government shows no inclination to tackle this policy issue, but it is not one which can be ignored for much longer.



What needs to be done to repower a windfarm?

Not only do most consents expire at 25 years, many land leases will also expire at this time. Some may contain an extension option, but generally speaking even in those leases, consent to redevelopment of the site will require landowner approval. The first thing to do therefore is to negotiate a new option to lease with the landowner. This sounds straightforward, but is likely to be quite complicated. Most operators will want to maintain production of the existing windfarm as much as possible. At the same time, the repowered windfarm will be likely to be developed and owned by legal entities separate from the existing operator, and the developer will almost certainly require rights to the existing lease area. The new developer will probably also want to reconsider the decommissioning obligations in the lease so that they accommodate the proposed re-powering plan. As a result, the existing lease will need to be amended at the same time as the new option agreement is negotiated.

The re-powered windfarm will need to be consented. EIA is likely to be required. Since the existing consent will expire, regulators are likely to request that the baseline for the environmental impact assessment is an imagined greenfield site. Since there is no actual greenfield evidence base which can be monitored and reported on, quite a few areas will need to be discussed and agreed with the regulators.

Then there is the grid connection. What happens if a new windfarm is in the queue waiting to be connected? How will that be dealt with if an existing windfarm proposes to be re-powered? This will depend upon the terms of the connection agreement – that is, can you re-power and continue to comply with your undertakings? In today's standard terms contract, there is a provision which requires and permits a generator to make a modification application where any equipment replacement is made, which appears wide enough to include a re-powering (although it does not we think permit additional capacity). However, many of the early windfarms will have connection agreements on different terms, before the standard terms were introduced, and therefore those agreements will need to be examined. If capacity is to be increased, it is likely that an application for additional capacity will be needed. This is another part of the re-powering jigsaw which operators considering re-powering will need to examine at the preparatory stage.



Key issues:

- Availability of infrastructure for increased output – e.g. maintain grid connection or apply to expand?
- Requirement for planning permission – possible opposition to another 25 years but repowering is likely to face less opposition
- Current planning policies, especially local development plans
- Scottish Government support for community and locally-owned renewable energy generation
- Environmental considerations may limit scope for new layout or taller turbines
- Environmental impact assessment – potential for inconsistent approach by regulators to methodologies, especially baseline
- Any changes in local circumstances, including development of other wind farms – e.g. how does cumulative impact apply when the new turbines are fewer but taller?
- Transport routes for delivery of taller turbines
- Negotiating a new option with the landowner(s) pre new planning application

To come:

- The Scottish Government will look to develop a policy statement on repowering which will take into account wider energy policy drivers and planning policy (2020 Routemap for Renewable Energy in Scotland – Update, 17 September 2015).
- Changes in EIA regulations are due to be implemented before May 2017 including accreditation of consultants and addition of topics to the screening process.

If you have any questions or would like to discuss this topic further please get in touch with Neil Collar, Keith Patterson or your usual Brodies contact.



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