

Repowering

JUNE 2016

INTRODUCTION

Over the past 15 years, wind energy experienced a remarkable growth in the European Union. Installed capacity has increased tenfold from 12.9 GW in 2000 to 141.6 GW in 2015¹. A strong home market, based on a reliable long-term project pipeline, was key to building a world-leading industry that currently holds 39% of the global market share for wind turbines.

Moreover, wind energy has emerged as a competitive alternative to conventional generation – in terms of LCOE, onshore wind is currently the cheapest power generation technology in Europe². Wind energy is today a mainstream power source covering 11% of the EU electricity demand and providing reliable energy supply to European businesses and citizens.

The European wind industry is committed to build upon this successful track-record and to keep maximising the economic benefits of wind deployment beyond 2020. In this context, managing wind assets at the end of their operational life should be considered as part of the regulatory frameworks for renewable energy at EU and national levels.

WindEurope estimates that up to 76 GW of the EU's onshore and offshore wind energy capacity will come to the end of their operational life between 2020 and 2030. Decommissioning should be managed through the development of new and repowered sites alike driving the development of a vibrant domestic market and consequently helping maintain the EU's global leadership position in wind energy.

BENEFITS OF REPOWERING

Repowering of wind assets in the post-2020 period presents a clear opportunity for modernising the European wind fleet with the newest technology available. The provision of appropriate market arrangements and stable regulatory frameworks for repowering will unlock further cost reductions in wind generation by 2030 and will deliver the EU decarbonisation objectives at the least cost for society.

In comparison with greenfield sites, projects that are envisaged for repowering already have long-term wind resource data available which facilitates the tailoring of turbine size to local wind conditions and optimises power output. Replacing aging assets with fewer, modern ones is likely to harness higher amount of power with comparatively less land use and improves the visual impact for local residents, in particular in densely populated areas.

¹ EWEA, [Wind in power – 2015 European statistics](#), February 2016

² BNEF, [Levelised Cost of Electricity Update – H2 2015](#)

Furthermore, local communities are already used to the presence of wind farms which means that on average repowered projects may be more easily accepted by local communities. In contrast to the full decommissioning of wind farms, repowering preserves local job creation and provides municipalities with continuous revenues in the form of local taxes from operating wind farms.

Replacing old turbines with state-of-the-art units, able to provide grid support services, will ensure the better integration of the variable wind resource into electricity grids compared to first or second generation machines. Repowered projects contribute to system stability in line with the ongoing EU power market design reform.

By harnessing higher shares of wind energy at existing and often high-yield wind sites, repowering will help optimise the use of the EU wind resources in the post-2020 period. Through higher output and improved grid-compliance characteristics, repowering, alongside greenfield projects, will play a crucial role in fulfilling, and exceeding, the EU 2030 renewables target cost-effectively.

POLICY RECOMMENDATIONS

The European wind industry believes that a pro-active and industry-friendly approach to repowering will help make the EU an example for successful management of the energy transition and will support the EU ambition of being the world number one in renewables.

Public authorities should therefore plan for the decommissioning of wind assets at the end of their operational lifetime in a timely manner if the EU and Member States are to meet the 2030 renewable energy targets.

An enabling framework for repowering should remove unnecessary barriers to wind deployment and also grant wind asset owners sufficient flexibility in deciding to repower in line with the site- and project-specific economic case.

To reach these objectives, the industry has identified three recommendations for public authorities to incorporate in the legislative frameworks for repowering at EU and national level.

- The post-2020 Renewable Energy Directive should require Member States to provide in their 2030 national plans an indication of wind energy capacity that will come to the end of its operational lifetime and outline policy measures, including regulation where appropriate, to unlock repowering potential;
- Member States' 2030 national contributions to the EU-wide renewables target should factor in repowering capacity; and
- Member States should ensure that repowering projects are provided with a clear path-to-market and a regulatory framework that puts them on a par with new projects.