15/06/2021

To Whom it May Concern,

Hibernian Wind Power own and operate Carnsore Wind Farm at Carnsore Point Co. Wexford. The wind farm reaches end of design life in December 2022 when it is 20 years in operation. The wind turbines are V52 850 kW machines. ESB currently have 104 of these machines in operation in the fleet and have long term service agreements in place with the Original Equipment Manufacturer (OEM) Vestas.

The area of life extension is relatively new to the industry in Ireland and ESB Wind Operations are currently working with Wind Energy Ireland on a guideline document for the industry. Carnsore Point Windfarm is accredited to the ESB Asset Management system ISO55001.

As part of the asset management process the life of the windfarm at Carnsore Point was examined. The current performance was analysed by performance engineers and an expected performance for the next 15 years was produced; it was determined that the site could be operated successfully for 15 years. The site has stayed under the operation and maintenance of the turbine OEM Vestas for its lifetime with a full service contract. Therefore, the wind turbines have been serviced to the highest standard. Vestas have a strong presence in the Republic of Ireland with over 600 wind turbines installed and worldwide they have over 50,000 wind turbines under service.

In October 2020 ESB Wind Operations engaged DNV GL to carry out an analytical assessment of the remaining life of the turbines at Carnsore Point Wind farm. DNV GL have 40 years' experience in the wind power industry and provide a range of services including type certification of turbine designs which they are recognised globally for and have produced standards on type and component certification of wind turbines. They have also produced their own standard for Lifetime extension DNVGL-ST-0262.

DNV GL conducted a numerical analysis for all turbine locations using the Site Suitability Tool (SST) which accesses databases of fatigue loads generated using generic turbine bladed models built by DNV GL. The fatigue load analysis methods employed within the SST are based on the IEC 61400-1 edition 3 standard. DNV GL has derived expected nominal fatigue driven lifetimes from site specific and type class load results. The summary in report No: L2C192866-UKBR-R-01 Rev A identified remaining life of the structural components of the wind turbines at Carnsore Wind Farm. The results showed the turbines have up to 15 years remaining useful life and have identified components that require replacement which have been accounted for in the financial model.

Further practical assessments to refine the life extension plan are being carried out in the summer of 2021. This will enhance the results of the analytical assessment and provide a basis for the maintenance plan for the wind farm for the next 15 years.

Hibernian Wind Power are satisfied based on the analysis by DNV GL and Wind Operations internal review of performance that the windfarm has the ability to operate for more than 15 years.

Kind Regards

Eadaoin Farrell

Renewable Operations Asset Manager