

2. SITE LOCATION AND LAYOUT

Site and Layout

The proposed development is located on land adjacent to the Southport Eco Centre that is owned by Sefton District Council. Zero Carbon Liverpool City Region Ltd (ZCLCR) are proposing to replace the defunct 20kW turbine at the site with a turbine of approximately 1MW scale. This turbine will supply electricity to the Dunes Splash World Leisure centre, with any excess generation exported to the grid. The turbine will be located adjacent to the coach car park to the south of the Eco Centre.

The development will comprise of the following;

- 1 No. turbine of c.1MW scale;
- A 14m x 14m turbine foundation that would be backfilled so only tower base visible;
- An area of hardstanding (40m x 20m) adjacent to the wind turbine;
- Transformer kiosk (max size 6m x 4m x 3m) located next to the turbine;
- Approximately 10m of new access road; and
- Approx 700m of underground HV electricity cable running from the turbine to Dunes Splash World.



The proposed location for development adjacent to the coach parking area at the Eco Centre means that much of the hardstanding areas required for construction will utilise existing site infrastructure, minimising build costs and the associated carbon emissions from having to build new roads and crane hardstanding.

During operation the existing coach park will still be able to be used as normal and it is likely that only a small area under the turbine will be fenced off for security purposes to avoid unwanted activity around the transformer kiosk or turbine base.

The planning permission would be requested for a period of 30 years. On reaching the end of its operational life, and if no other permissions are secured, the proposed turbine would be decommissioned, dismantled and removed leaving no visible trace of the development.

Alternative Technologies

Dunes Splash World already has around 100kW of Solar Photovoltaics (PV) systems installed on site. Initial modelling highlighted that, although there would be some benefit in increasing the PV capacity at the site to offset demand, wind was able to offset more of the site demand through the year round generation profile (wind generates electricity at night and also during the winter months when solar PV has limited generation.)

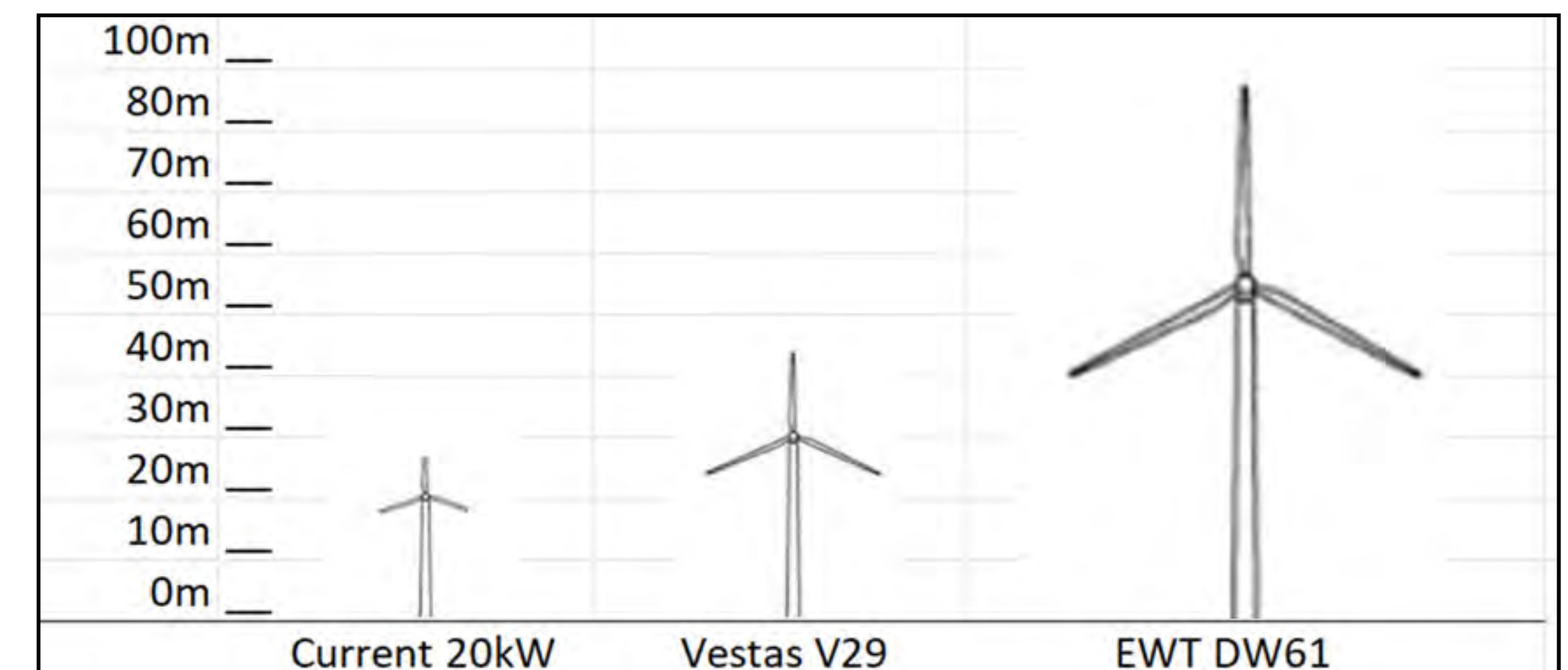
Currently there is a small, defunct 20kW wind turbine at the Eco Centre (see image to right). When considering options for development, replacing this existing wind turbine with another, relatively small turbine (Vestas V29) was also considered. This would not be a new turbine (turbines of this small scale not typically available as new) but rather a reconditioned older turbine. Whilst this may be a cheaper option the older technology would mean that it would be potentially noisier than the proposed turbine and there would be less modern controls available to ensure suitable shutdowns and operational safety measures. Also there would be limited operational comfort with limited warranties or long-term comfort on operation.



Overall, it was found that the larger turbine (EWT DW61) had the potential to:

- Offset 50% more of the Dunes Splash World's current demand than the Vestas V29;
- Generate 5 times more electricity than the Vestas V29; and
- Generate 8 times more surplus for the Community Fund than the Vestas V29

As a result, the larger turbine was determined to be the superior option in terms of the potential direct and indirect benefits of the project.



In order to combat the potential negative impacts that are associated with upscaling the scale of turbine, the proposed turbine has been located further away from the Eco Centre than the existing 20kW turbine. Multiple additional constraints were considered when selecting the location for the proposed development (including residential amenities, ecology, landscape and visual impacts, etc.) which are further detailed on board 3.