

Infrastructure – updated design

Wind turbines

Since the scoping design, which was presented at the March 2023 public exhibitions, the number of wind turbines has been reduced from 19 to 18. The proposed wind turbine tip height of up to 180m remains the same.

Furthermore, each wind turbine location has moved to varying degrees to refine the design and minimise impacts wherever possible.

The total installed generating capacity has also reduced slightly since the previous proposal from around 114MW to 108MW due to the reduction in wind turbine numbers.

Tracks

Tracks have been aligned to avoid, as much as possible, crossing of watercourses, services and areas of deeper peat.

Grid connection

RES has been advised by the Transmission Owner (TO) that the proposed wind farm will connect to the National Grid via a 132kV connection into Gala North, a new substation near Galashiels.

The grid network operators are currently upgrading the grid infrastructure in the country and RES will be required to pay transmission connection charges to National Grid during operation of the wind farm for the grid connection. We have accepted a grid offer from the TO, in this case Scottish Power Transmission (SPT).



SPT, as the TO, is responsible for maintaining and investing in the grid in the south of Scotland. This includes designing connections for transmission grid applications, such as that for the Torfichen Wind Farm, and submitting the planning applications for these connections. As such, the grid route is subject to a separate planning application from the wind farm – and will be submitted as a separate Section 37 planning application under the Electricity Act by the TO once they have finalised their design.

Once the planning application for the grid route is submitted, there will be a consultation period undertaken by the TO during which details of the grid route and method will be available for the public to provide comment to the TO as part of the planning process.

Indicative details of the anticipated route of the grid connection for the proposal will also be included by RES within the Proposed Development Description chapter of the Environmental Impact Assessment Report (EIAR) which will accompany the planning application for Torfichen Wind Farm.

Battery Energy Storage System (BESS)

The battery energy storage system (BESS) is anticipated to have a storage capacity akin to the wind farm i.e., a power output capacity of 100MW and a storage energy capacity of around 200MWh (megawatt hours).

The maximum size of the BESS compound would be up to 100m by 150m. Full details of the scale and dimensions, minimum and maximum export capacity of megawatts and megawatt hours of electricity, and a full assessment of the impacts and effects and all proposed mitigation will be included in the Environmental Impact Assessment Report (EIAR) which will accompany the planning application.

The BESS location can be seen on the Infrastructure map on the 'Infrastructure and constraints maps' exhibition board.

The risk of fire at a BESS is low but will be considered and mitigated in the design of the storage general arrangement and consideration of the monitoring and fire suppression system. The BESS is optimised with appropriate container spacing to minimise the risk of propagation across the facility in the unlikely event of a fire. Additionally, fire breaks or spacing from forestry is designed again to minimise fire propagation.

A battery management system is also implemented for continuous monitoring of the BESS through its lifetime. The containers housing the batteries typically include dry aerosol fire suppression solutions, favoured over water suppression, as they are successful at reaching all areas within containers and don't require a dedicated water supply.



On-site substation

The proposal will also include an on-site substation. The electricity generated from each turbine is low voltage and needs to be converted into a higher voltage to be exported onto the National Grid.

Underground cables organised into arrays transport the electricity generated to the on-site substation whereupon it is converted into a higher voltage (132kV in the case of Torfichen Wind Farm). This electricity is then transported via a 'grid connection' (a 132kV overhead wood pole line is expected for Torfichen Wind Farm) onto the National Grid.

The on-site substation location can be seen on the Infrastructure map on the 'Infrastructure and constraints maps' exhibition board.