

Infrastructure – updated design

Turbines

Since the scoping design, which was presented at the October 2022 public exhibitions, turbine numbers have been reduced from 17 turbines to 16 turbines and tip heights reduced from 250m to a mix of 180m and 200m turbines. Furthermore, each turbine location has moved to varying degrees to refine the design and minimise impacts wherever possible. The total installed site generating capacity has also reduced slightly since the scoping design from around 122MW (megawatts) to 105.6MW due to the reduction in turbine numbers as well as the candidate turbine model changing from a 6MW machine to a 6.6MW machine.

Tracks

The site boundary has been extended to include the access route from the east of the site. One of the key benefits of the Hill of Fare site is its extensive network of existing tracks which will be utilised within the design wherever possible. Whilst there will be a need to widen and re-grade some of the existing tracks, this will significantly reduce the extent of new tracks required.

In areas where new ground requires to be broken best practice will be followed to minimise and mitigate any potential impacts – and reinstatement work undertaken in a way that helps encourage disturbed ground to recover well.

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 trident overhead wood pole line into Fetteresso substation to the south east of the site.

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 are currently considering a grid offer and consulting with the TO, in this case Scottish and Southern Electricity Networks (SSEN) Transmission.

SSEN, as the TO, is responsible for maintaining and investing in the grid in the north of Scotland. This includes designing connections for transmission grid applications, such as that for the Hill of Fare proposal, and submitting the grid route 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 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 project will also be included by RES within the Project Description chapter of the Environmental Impact Assessment Report (EIAR) which will accompany the Hill of Fare Wind Farm proposal planning application.

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 site boundary has been extended (since the scoping design) to include an area to the south of the site for the location of the BESS. 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 the Hill of Fare Wind Farm). This electricity is then transported via a 'grid connection' (a 132kV trident overhead wood pole line is expected for the Hill of Fare Wind Farm) onto the National Grid.

The site boundary has been extended (since the scoping design) to include an area to the south of the site for the location of the on-site substation. The onsite substation location can be seen on the Infrastructure map on the 'Infrastructure and constraints maps' exhibition board.