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# Project Overview

East Ballochy Solar PV Scheme, near Montrose, Angus

The proposed Development comprises solar photovoltaic (PV) panels that will provide up to 39.9 MW of power and a battery storage system of up to 10MW, which will be able to provide grid flexibility services, with an approximately 7.5 km power export connection.



## Introduction

ScottishPower Renewables Limited is consulting on our proposal to develop a solar PV and battery storage project located in Montrose, Angus. The scheme is developed in partnership with the principal landowner, Stracathro Estates. The initial planning and design information currently presented are the first steps towards the submission of a formal planning application, and will provide an opportunity for discussion and feedback to inform the Pre-Application Consultation Report.

The proposed site is a sustainable location for a solar and battery development and will meet national,

strategic and local planning objectives, and be in compliance with the Angus Local Development Plan. The development can also bring a range of environmental and economic benefits to Montrose and assist in meeting electricity demands.

## Site Description

The proposed solar PV and battery storage site is located on farmland at East Ballochy, near Mill of Dun, Dun, Angus. SPR intend to establish a point of connection to export the energy generated from the site in the vicinity of Montrose Harbour. This point of connection will require a cable route of 7.5km which will be buried along the entire route.

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# Solar Development



Typical Panel Details



Typical Mounting Structure



Typical Fencing Details



Typical Site Substation



Typical Inverter

## Solar Photovoltaic Panels

The solar panels will be approximately 2m x 1m and 50mm thick, depending on the optimum technology available, and use photovoltaic cells to convert sunlight into electricity. The panels will be installed onto mounting structures which will orientate them at the optimum location for renewable energy generation

## Mounting system

The mounting system comprises of two separate elements: upright galvanised posts, which are mechanically screwed or pushed into the ground; and a support frame, which is bolted together. The complete assembly, including the modules, will be angled to face south (which is the optimum direction for renewable energy generation). The lower front part of the assembly will be approximately 0.6m off the ground, whilst the rear of the assembly will be between 2.5m and 3m above the ground, depending on topography. The full system is designed to be 'reversible' which means that all the site infrastructure can be fully removed without permanent impact when the project reaches the end of its operational life.

## Inverters & Transformers

Inverters are required to convert the direct current (DC) generated by the photovoltaic modules to alternating current (AC) which is compatible with the UK grid network. Transformers are then typically required to "step-up" the voltage at which the panels generate to a higher voltage, which allows it to be transmitted effectively with minimal losses.

## Fencing

The proposed scheme will be fenced around its perimeter with agricultural mesh fencing, with additional security fencing required around high voltage compounds such as electrical transformers, the battery storage compound or site substation

## Substation

An electricity substation will be installed on site that will be close to a possible point of connection to existing overhead power lines.

Buried cabling from the panels / inverters will be routed to the substation to allow the renewable energy generated to be exported.

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# Battery Storage Development



Typical Battery Storage Container



Typical Battery Storage Fence

## **Purpose of Battery Storage Technology**

Battery Storage technology allows energy to be stored efficiently which may otherwise have been lost or unused on the electricity network. Additionally, since battery storage technology can react very quickly, this can also be used to provide grid stability services to the network, which can help prevent issues such as electricity black-outs.

## **Battery Storage**

The battery system itself is anticipated to be Lithium-Ion technology and will be located within standard shipping containers, which contain fire suppression systems and power electronics as well as the battery modules themselves.

The location of the Battery Storage compound is strategically placed to minimise any environmental impact including, in particular, any significant visual impacts to local residents.

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# Construction and Operation



## **Construction**

Construction works will take approximately 6-9 months to complete (once all relevant approvals are in place) and will be carried out in a phased manner, to minimise any local disruption. The main site equipment is relatively small, and so does not require specialist vehicles or road closures to allow deliveries to site.

## **Site Preparation**

These initial works will be of short duration and will involve the preparation of the site to receive the delivery of equipment. To undertake these works, an area of the site will be used as temporary construction compound, which will then be restored once construction is complete.

## **Site Layout**

The site layout has been designed to minimise any environmental impact and the final location for the panel support structures will be identified using GPS to ensure accuracy. These structures will be screwed or driven into the ground to avoid the use of concrete foundations, except where required to avoid site constraints such as archaeology. The mounting framework will then be assembled by hand following which the solar PV panels will also be fixed by hand. Shallow trenches will be excavated between the panels, the inverters and the substation position to allow electrical cables to be buried to

minimise any ongoing health and safety risk.

## **Construction traffic**

All construction traffic is proposed to access the site via an existing site access off the existing public road network. Construction vehicle types and delivery routes will be selected to minimise disruption to users of the local road network as well as local residents.

## **Operation & Maintenance**

Once the site is constructed and commissioned, the solar installation will then begin to generate electricity. The photovoltaic panels will continue to generate electricity every day of the year for a project lifespan of up to 35 years.

The site will be monitored remotely and will not require any permanent staff to be located on site. The proposed development requires low maintenance and as such there will be very low levels of operational traffic, other than site visits required to service the installation.

## **Ongoing Land Use**

During the operational life of the project ongoing sheep grazing will be permitted unless there are any restrictions required in order to meet the objectives of and Habitat Management Plan, which will ensure the ecological benefits of the scheme are realised.

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# About ScottishPower Renewables (UK) Limited

ScottishPower Renewables is part of the ScottishPower group of companies operating in the UK under the Iberdrola Group, one of the world's largest integrated utility companies and a world leader in wind energy. ScottishPower now only produces 100% green electricity – focusing on wind energy, smart grids and driving the change to a cleaner, electric future. The company is investing over £4m every working day in 2019 to make this happen and is committed to speeding up the transition to cleaner electric transport, improving air quality and over time, driving down bills to deliver a better future, quicker for everyone.

ScottishPower Renewables is at the forefront of the development of the renewables industry through pioneering ideas, forward thinking and outstanding innovation. Its ambitious growth plans include expansion of its existing onshore wind portfolio, investment in new large scale solar deployment and innovative grid storage systems including batteries. The company is also delivering the Iberdrola Group's offshore windfarms in the Southern North Sea off East Anglia as part of an international pipeline of projects across Europe and the USA.

With over 40 operational windfarms, ScottishPower Renewables manages all its sites through its world leading Control Centre at Whitelee Windfarm, near Glasgow.

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