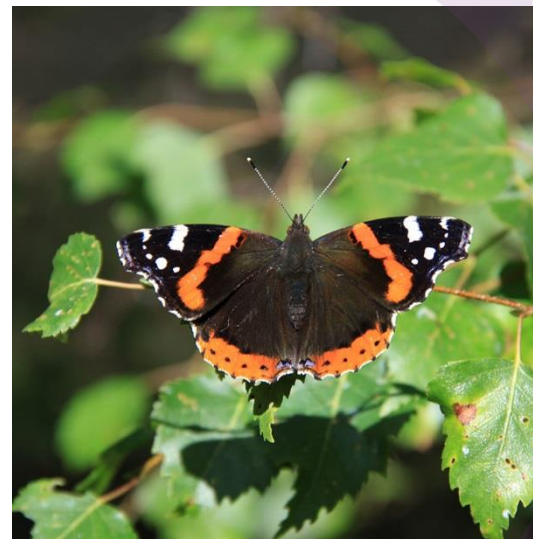


ScottishPower Renewables

# **Land Adjacent to Whitelee Windfarm – Solar PV, Green Hydrogen Production and Battery Storage Facilities**

Consultation Report



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## Report for

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## Document revisions

No.	Details	Date
4	Final	31.03.2021

# Executive Summary

## Purpose of this Report

This Consultation Report has been produced for the purpose of providing a summary of the consultation activities relating to the Section 36 application for a proposed solar photovoltaic (PV) farm, Battery Energy Storage System (BESS), associated infrastructure including an access road and high voltage (HV) cable on land to the west of Whitelee Windfarm within the administrative boundary of East Ayrshire. This Consultation Report also provides a summary of consultation activities relating to the planning application made to East Ayrshire Council regarding the construction and operation of a green hydrogen production facility.

The solar PV farm, BESS and HV cable components of the Project would be submitted under Section 36 of the Electricity Act 1989 ('the Electricity Act'), and the green hydrogen production facility component would be submitted under the Town and Country Planning (Scotland) Act 1997 ('the Planning Act'). The "Project" is therefore these two applications and this Consultation Report outlines how all the components (taken in their entirety) have been consulted on to some degree.

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# 1. Introduction

- 1.1.1 This Consultation Report has been produced by Wood Group UK Limited (Wood) in support of the proposed solar PV farm, green hydrogen production facility, BESS and HV cable ('the Project') on land to the west of Whitelee Windfarm within the administrative boundary of East Ayrshire. The applicant is ScottishPower Renewables (UK) Limited ('the Applicant/SPR'). The purpose of this Consultation Report is to provide information on the consultation process and feedback comments received as part of the pre-application process undertaken in relation to two applications, one submitted under Section 36 of the Electricity Act 1989 ('the Electricity Act') and one submitted under the Town and Country Planning (Scotland) Act 1997 ('the Planning Act').
- 1.1.2 This report outlines the efforts undertaken by SPR to ensure that an inclusive and comprehensive range of engagement has been undertaken to inform the local community and key stakeholders of the emerging proposals and that this engagement complies with all relevant requirements, even where those requirements are non-statutory (please see **Section 2.2** below for further information).

## What Was Consulted On

- 1.1.3 The Section 36 application contains the solar PV farm, BESS and HV cable components of the Project. The Town and Country Planning application contains the green hydrogen production facility component of the Project. All components that comprise the Project and have been consulted upon. A brief summary of the Projects components is provided in **Section 1.2** of this document.
- 1.1.4 A more detailed description of the solar PV farm and BESS components has been provided in **Section 3** of the Section 36 application Supporting Statement (doc. reference 43122-WOOD-XX-XX-RP-T-0003\_S0\_P01.1).
- 1.1.5 A more detailed description of the green hydrogen production facility component has been provided in **Section 3** of the Town and Country Planning application Planning Statement (doc. reference 43122-WOOD-XX-XX-RP-T-0001\_S0\_P01.1).

## 1.1 Consultation Report Outline

- 1.1.1 This report provides a contextual background on the Project and the Site, an outline of the consultation methodology, a summary of the pre application engagement undertaken, and the feedback received.
- 1.1.2 In addition, this report provides further clarification on the following topics:
- Identification of the groups, individuals and key stakeholders consulted during the consultation process.
  - Identification of the types of consultation that have been undertaken.
  - Details relating to the location (virtual), date and duration of the engagement exercise.
  - Details highlighting attendance levels and any feedback received.
  - Conclusions on how the feedback has been considered by SPR in their preparation of the Section 36 application.



## 1.2 Background Information

- 1.2.1 SPR 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 proposed solar PV farm adjacent to Whitelee Windfarm is an example of SPR's commitment to investing in large scale solar, with the aim of creating a diverse portfolio not only upon new sites, but further expanding the infrastructure upon operational windfarms such as Whitelee. In addition to the solar PV farm, the Project will also include a green hydrogen production facility and a BESS. All components will connect into the nearby the Whitelee Windfarm Extension substation. Connecting into Whitelee Windfarm Extension substation is required in order to effectively manage under or oversupply of electricity production from the solar PV farm to the hydrogen facility, depending on differing efficiencies at differing seasons.

### Brief Summary of Proposals

- 1.2.2 The Project is submitted under two separate consenting regimes with elements being considered by the Scottish Ministers under Section 36 of the Electricity Act 1989 and elements being considered under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended (an application for Full Planning Permission). For ease of understanding, the following bullet point list identifies each of the primary components under the relevant consenting regimes:
- A green hydrogen production facility which will produce up to 10,000kg per day of green hydrogen and its associated access(es), infrastructure and a temporary laydown area – submitted to EAC (the local planning authority) under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended.
  - A solar photovoltaic (PV) farm with a predicted rated output of up to 40 megawatts (MW) with its associated access(es), link/haul road, infrastructure and temporary laydown area – submitted to the Scottish Ministers under Section 36 of the Electricity Act 1989.
  - A Battery Energy Storage System (BESS) with a storage capacity of up to 100 megawatt hours (MWh) and a maximum discharge capability of 50 MW with its associated access(es), infrastructure and temporary laydown area – submitted to the Scottish Ministers under Section 36 of the Electricity Act 1989.
  - A high-voltage (HV) electrical cable connecting the solar PV farm to/from the BESS with associated maintenance tracks and infrastructure – submitted to the Scottish Ministers under Section 36 of the Electricity Act 1989.

### Brief Summary of the Project Site

- 1.2.3 The Project Site boundary is located immediately adjacent to Whitelee Windfarm and is wholly contained within the local authority area of East Ayrshire. Overall, it encompasses a total area of approximately 1,000+ hectares. Of this area it is anticipated that between 40 and 50 hectares would be considered net developable area for the Project, with an additional c. 8km cable route connecting between the green hydrogen production facility, the BESS, and the existing Whitelee Windfarm Extension substation. Of the total cable route, 4.4km comprises new cable and 3.6km is existing cable between wind turbines to which the route will tie in.
- 1.2.4 The Project Site boundary is located approximately c. 6.8km (4.25 miles) from the nearest settlements of Eaglesham (East Renfrewshire, to north east), c. 7.4km (4.6 miles) from Fenwick (East

Ayrshire, to south west), c. 5.8km (3.6 miles) from Waterside (East Ayrshire, to south west) and c. 8km (5 miles) from Moscow (East Ayrshire, to south).

- 1.2.5 The Project Site boundary is located within a highly accessible area adjacent to the B764 which is located to the north of the Site boundary with access to the strategic motorway network from the M77 within c. 800m to the west of the proposed Site access.

## Project component locations

- 1.2.6 The main components of the Project considered within the EIA Report are located as shown in **Table 1.1** below.

Table 1.1 Component locations

Component	Consenting Regime	UK Grid Reference (centred location)
Primary site access	S36, to ECU	NS 49870 47450
Solar PV farm (inc. haul/link road)	S36, to ECU	NS 50631 47244
BESS (inc. Cable)	S36, to ECU	NS 54619 44999
Green hydrogen production facility	Full PP, to EAC	NS 51284 47199

## Brief Summary of Application Types

- 1.2.7 **Table 1.2** provides a summary of the components of the Project and their proposed consenting route.

Table 1.2 Project Summary by Component

Component	Summary	Consenting Route	Determining Authority
<b>Green hydrogen production facility</b>	A green hydrogen production facility including accesses, a temporary construction laydown area and associated infrastructure	<p>Application for Full Planning Permission submitted under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended.</p> <p>Green hydrogen production facility is a consumer of electricity but does not act as an Electricity Generating Station, nor is it deemed ancillary to the other components of the project.</p>	EAC
<b>Solar PV farm</b>	A up to 40MW solar PV farm including temporary construction laydown area, a 1.5km link road to/from the B764, a substation compound (embedded within the same stone platform as the green hydrogen production facility), an 8km HV cable linking this to the existing substation at Whitelee Windfarm Extension and associated infrastructure.	<p>Application submitted under Section 36 of the 1989 Act. A request is also being made that a direction be issued under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997 that planning permission be deemed to be granted.</p> <p>Components submitted under Section 36 are due to classification as Electricity Generating Stations.</p>	ECU



Component	Summary	Consenting Route	Determining Authority
<b>BESS</b>	c. 50MW BESS including an associated HV cable linking the BESS with the existing substation at Whitelee Windfarm Extension, a temporary construction laydown area and associated infrastructure	<p>Application submitted under Section 36 of the 1989 Act. A request is also being made that a direction be issued under Section 57 (2) of the Town and Country Planning (Scotland) Act 1997 that planning permission be deemed to be granted.</p> <p>Components submitted under Section 36 are due to classification as Electricity Generating Stations.</p>	ECU

## Additional Pre-Application Engagement Undertaken to date

- 1.2.8 In addition to the consultation requirements undertaken by the Applicant in line with the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013, direct engagement has been undertaken between Wood, SPR, the Energy Consents Unit (ECU), NatureScot (previously Scottish Natural Heritage) ('NS') and East Ayrshire Council ('EAC'). **Table 1.3** below outlines the consultation undertaken to date:

**Table 1.3 Summary of Additional Pre-Application Engagement with Determining Authorities**

Date	Consultee	Attendees	Summary
<b>18.08.2020</b>	ECU	Ruth Findlay (ECU) James McKenzie (ECU) Dan Ferrier (SPR) Jamie Gilliland (SPR) Lewis Monaghan (SPR) Chris Pepper (Wood) Fergus Tickell (Wood)	Initial pre-application discussion and introduction to the Project by the Applicant and Wood.
<b>10.09.2020</b>	ECU & EAC	Alan Brogan (ECU) James McKenzie (ECU) David Wilson (EAC) Dan Ferrier (SPR) Jamie Gilliland (SPR) Lewis Monaghan (SPR) Chris Pepper (Wood) Fergus Tickell (Wood)	Project introduction to EAC, high level discussion on principles of development within the Site and detailed discussion submission and appropriate determination routes.
<b>18.11.2020</b>	ECU & EAC	James McKenzie (ECU) David Wilson (EAC) Dan Ferrier (SPR) Jamie Gilliland (SPR) Lewis Monaghan (SPR) Chris Pepper (Wood) Alastair Evans (Wood) Fergus Tickell (Wood)	Post-EIA Screening Request meeting to discuss Screening Request submission, content and findings. Discussion with all parties on scope and nature of public engagement requirements.
<b>10.12.2020</b>	NS & ECU	Lyndsey Kinnes (NS) Andrew Coupar (NS) Amee Hood (NS) Kenny Taylor (NS) Danielle Thomson (NS) Dave Lang (NS) James McKenzie (ECU) Dan Ferrier (SPR) Jamie Gilliland (SPR)	Pre-Application meeting to discuss implications of construction and operation of solar PV infrastructure on peatland and peatland habitats, including introduction of NS to Project.

Date	Consultee	Attendees	Summary
		Lewis Monaghan (SPR) Coni Caskie (SPR) Pete Robson (SPR) Chris Pepper (Wood) Alastair Evans (Wood) Alastair Miller (Wood)	
11.01.2020	EAC	David Wilson (EAC) Dan Ferrier (SPR) Jamie Gilliland (SPR) Lewis Monaghan (SPR) Chris Pepper (Wood) Alastair Evans (Wood)	Pre-Application meeting with EAC planning officer to discuss evolution of Project. Discussion centred around requirement to show an access where it was agreed that an access was not necessary to support the application on the basis that it is being applied for under the corresponding Section 36 application being made to the ECU and that sufficient detail is made within the Planning Statement of the Full Planning Application to address this matter.

## EIA Screening

- 1.2.9 On 15<sup>th</sup> October 2020, Wood submitted a copy of a Request for a Screening Opinion to the ECU behalf of SPR. This request was made under Regulation 8 of the EIA Regulations. Its purpose was to establish the likelihood of the requirement for an Environmental Impact Assessment (EIA) for the Project. A response to this request was received on 12 February 2021 from the ECU on behalf of the Scottish Ministers. This response confirmed that EIA **was** required, following consultation between the ECU, East Ayrshire Council, East Renfrewshire Council (ERC) and South Lanarkshire Council (SLC).

## 2. Consultation Methodology

- 2.1.1 This Section of the report outlines the methodology undertaken for the public consultation in respect of the Project. It outlines SPR's approach to consultation activities, considers the requirement to undertake such activities and provides information on the effects of the current COVID-19 restrictions.

### 2.1 Approach to Pre-Application Consultation

#### Requirements for Pre-Application Consultation

- 2.1.1 SPR is committed to engaging with local communities and key stakeholder in the production of the development proposals. As this Project requires to be split across two different consenting regimes (i.e., an application made under Section 36 of the Electricity Act for the solar PV farm, BESS and HV cable components, and a separate *local* Full Planning application under the Town and Country Planning (Scotland) Act 1997), there is no statutory requirement to complete pre-application consultation. This notwithstanding, SPR is keen to engage with the local community and interested third parties in a meaningful way and has therefore applied the general principles of the consultation process required for *major* planning applications as set out in the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013<sup>1</sup> and Circular 3/2013 (Development Management Procedures)<sup>2</sup>. This provides the local community and all those with an interest in the proposals with an opportunity to provide comment and feedback.
- 2.1.2 In aligning to the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013, the following minimum requirements for pre-application consultation are noted:
- i. The prospective applicant must consult every community council any part of whose area is within or adjoins the land on which the proposed development is situated. This may include community councils in a neighbouring planning authority. The prospective applicant must also serve on these community councils the proposal of application notice.
  - ii. The prospective applicant is required to hold at least one event for members of the public where they can make comments to the prospective applicant on the proposals. Notice of this 'public event' must be published at least 7 days in advance in a newspaper circulating in the locality of the proposed development.
- 2.1.3 In respect of i. above, it is advised that SPR has undertaken a thorough review of key stakeholders and engagement has taken place with relevant elected officials and community councils (see **Section 3.2** below). A Proposal of Application Notice (PAN) notification was not submitted as per para 2.1.5 below.
- 2.1.4 In respect of ii. above, it is advised that full details of a virtual public event and its publication are provided later in this report (see **Section 3** below).
- 2.1.5 It should be noted that as per para 2.1.1 above, pre-application consultation is non-statutory in respect of both Section 36 applications and *local* scale planning applications and therefore a PAN was not prepared and submitted to either the ECU or to EAC in respect of the Project.

<sup>1</sup> <https://www.legislation.gov.uk/ssi/2013/155/contents/made>

<sup>2</sup> <https://www.gov.scot/publications/planning-series-circular-3-2013-development-management-procedures/pages/5/>

## 2.2 Adhering to Scottish Government Advice

- 2.2.1 SPR's programme of engagement for the Project was prepared in line with the guidance provided within Scottish Government Planning Advice, such as Planning Advice Note 3/2010 (Community Engagement)<sup>3</sup>, which highlights that:
- *"Improved trust and open, positive working relationships from the earliest stages in the planning process and to provide, where possible, an early opportunity for community views to be reflected in proposals"* (paragraph 2.1).
  - Community Engagement must be meaningful and proportionate.
  - Community Engagement must happen at an early stage to influence the shape of plans and proposals.
  - The term 'consultation' is used to mean the dynamic process of dialogue between individuals or groups, based on a genuine exchange of views.
  - Effective engagement with the public and key stakeholders can lead to better proposals, better decisions and more satisfactory outcomes.
- 2.2.2 In addition to Planning Advice Note 3/2010, the public consultation methodology also took consideration of changes which had implications of public consultation arising from the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020<sup>4</sup>, and Scottish Government Guidance titled Coronavirus (Covid-19): Planning Guidance on Pre-Application Consultations for Public Events<sup>5</sup>.

### Covid-19 Implications

- 2.2.3 Since March 2020, the onset of the Covid-19 global pandemic has brought about many changes in the day-to-day life and business activities of the population. Not least, it has significantly changed the face of community engagement and the methods which were previously relied upon have had to be re-evaluated and altered to maintain compliance with both national and local restrictions on public gatherings and physical distancing. The measures in place at the time of consultation may vary from the time of submission of the application, however it should be noted that great care was taken to ensure compliance with all relevant guidance at the time consultation on this project commenced.
- 2.2.4 As a result of national and local restrictions at the time of consultation, it was not possible to undertake a physical public event. The expectations of undertaking a public event have, themselves, changed and in this regard the Scottish Government notes within the Coronavirus (Covid-19): Planning Guidance on Pre-Application Consultations for Public Events that:
- "The COVID-19 emergency means it is not currently possible to hold public meetings without unacceptably posing a significant risk to public health. So that the development management system can continue to function and that planning application can continue to be submitted, we have put in*

<sup>3</sup> <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2010/08/pan-3-2010-community-engagement/documents/pan-3-2010-pdf/pan-3-2010-pdf/govscot%3Adocument/pan%2B3%2B2010.pdf>

<sup>4</sup> <https://www.legislation.gov.uk/ssi/2020/124/contents/made>

<sup>5</sup> <https://www.gov.scot/publications/coronavirus-covid-19-planning-guidance-on-pre-application-consultations-for-public-events/>

*place legislation to temporarily suspend the requirement for a public event in relation to Pre-Application Consultation”*

- 2.2.5 Officially, the suspension of public events for pre-application consultation was enacted through the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020, enacted 24<sup>th</sup> April 2020.
- 2.2.6 In essence, the suspension of public events via the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 has consequentially meant that instead of details of a public event, an applicant shall give an indication within their notice of the alternative consultation arrangements and how and when they will operate.
- 2.2.7 Principally, this has meant that the accepted alternative method of public consultation has followed online means. In the case of this Project, the alternative method was via a virtual 7-day online event which was publicised on 7<sup>th</sup> December 2020 and took place between 8<sup>th</sup> and 15<sup>th</sup> December 2020. The website used for the consultation was ‘live’ for 7-days during which time, members of the public and interested 3<sup>rd</sup> parties could review the project information at their leisure and provide feedback via a response form. Following the 7-day duration of the virtual event, the consultation feedback option was closed (at 17:00, 14<sup>th</sup> December 2020) however the content of the virtual event remained online for viewing and reference only.
- 2.2.8 It is reiterated however, that there is no statutory requirement to undertake pre-application consultation in respect of an application submitted under Section 36 of the Electricity Act or a *local* planning application and also that the provisions of the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 do not apply to the Electricity Act. Therefore, all pre-application consultation conducted in respect of this application – while aligned to the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 – have been undertaken at the Applicant’s discretion and in the interests of best practice.

## 3. Summary of Pre-Application Consultation

### 3.1 Identification of Stakeholders

- 3.1.1 Prior to undertaking the public consultation exercise, a comprehensive stakeholder list identifying the local MP and MSPs, East Ayrshire Council local ward councillors, local community councils and community groups was drawn up.
- 3.1.2 Notification was then sent to these stakeholder groups on 7th December 2020 where they were invited to attend the virtual public event in their stakeholder capacity. The notification sent, provided the web address by which to access the event's information page.
- 3.1.3 A list of the key stakeholders identified during this process is shown in **Table 3.1** below:

Table 3.1 Stakeholder List

Stakeholder Type	Name	Note
<b>Elected Official</b>	Alan Brown MP	MP for Kilmarnock and Loudoun constituency
<b>Elected Official</b>	Willie Coffey MSP	MSP for Kilmarnock and Irvine Valley
<b>Elected Official</b>	Kirsten Oswald MP	MP for East Renfrewshire constituency
<b>Elected Official</b>	Jackson Carlaw MSP	MSP for Eastwood constituency
<b>Elected Official</b>	Ellen Freel	Locally elected member (EAC Ward 1, Annick)
<b>Elected Official</b>	Gordon Jenkins	Locally elected member (EAC Ward 1, Annick)
<b>Elected Official</b>	John McFadzean	Locally elected member (EAC Ward 1, Annick)
<b>Elected Official</b>	John McGhee	Locally elected member (EAC Ward 1, Annick)
<b>Elected Official</b>	Caroline Bamforth	Locally elected member (ERC Ward 5, Newton Mearns South and Eaglesham)
<b>Elected Official</b>	Barbara Grant	Locally elected member (ERC Ward 5, Newton Mearns South and Eaglesham)
<b>Elected Official</b>	Jim McLean	Locally elected member (ERC Ward 5, Newton Mearns South and Eaglesham)
<b>Elected Official</b>	Jim Swift	Locally elected member (ERC Ward 5, Newton Mearns South and Eaglesham)
<b>Community Council</b>	Fenwick Community Council	-
<b>Community Council</b>	Moscow & Waterside Community Council	-
<b>Community Council</b>	Eaglesham & Waterfoot Community Council	-
<b>Stakeholder</b>	Whitelee Access Planning Group	Whitelee Access Planning Group was directly engaged separate to the above stakeholders through SPR's community liaison team

## Postal Notification

- 3.1.4 Alongside the stakeholder notification above, a postal notification (mail shot) was undertaken in order to publicise the virtual public information event directly to local properties where there may be a perceived impact from the Project. To identify these properties, a 5km buffer was applied to the Site boundary and all properties within the buffer zone were notified by members of the SPR Project Team through hand delivery or postal delivery. Properties to the north east of the Site that were over 3km and could not draw a direct line of Site to the Project were discounted due to the intervening topography. **Table 3.2** below provides a summary of how many properties were consulted in the relevant administrative area.

Table 3.2 List of Postal Notifications

Administrative Area	Date Notice Served	No. of Properties
Kilmarnock	08/12/2020	4
Fenwick	08/12/2020	12
Waterside	08/12/2020	2
Eaglesham Moor	08/12/2020	3
Newton Mearns	08/12/2020	1

## Raising Public Awareness

- 3.1.5 The virtual public information event was held online at [https://www.scottishpowerrenewables.com/pages/whitelee\\_solar\\_pv\\_green\\_hydrogen\\_and\\_bess\\_development\\_public\\_information\\_event.aspx](https://www.scottishpowerrenewables.com/pages/whitelee_solar_pv_green_hydrogen_and_bess_development_public_information_event.aspx) between 8<sup>th</sup> and 18<sup>th</sup> December 2020. The event website was live for eleven days and provided an option to make comment on the proposals via an online form/email. The feedback window extended for a further week beyond the event in order to give attendees the opportunity to make considered comments on the proposals.
- 3.1.6 The virtual public consultation event was advertised in a variety of ways:
- Letters to elected representatives, community councils and stakeholders.
  - Invitation letters to members of the public with property local to the application Site, which were hand delivered by the SPR Project Team.
  - Via SPR's website.
- 3.1.7 Copies of example letters are provided below within Appendix A.

## 3.2 Engagement

- 3.2.1 The virtual public information event included the following information contained within **Table 3.3** below. **Appendix C** contains in detail all the information presented at the virtual public information event as the web versions are no longer available.



Table 3.3 Summary of Public Information Event Web Content

Webpage	Content
Home Page	Whitelee Public Information Event home page.
Introduction	Project introduction page providing consultation background, COVID-19 regulations, and implications, SPR background and project background information.
Site Overview, Key Facts and Development Process	Site overview page providing a site location plan and details on site location, a site layout plan and key project details, a summary of work undertaken to date, a summary of the three core components (solar PV farm, green hydrogen production facility and BESS), a summary of site design considerations and details of proposed temporary construction laydown areas.
Environmental Considerations	<p>Detailed information page providing the methodology of addressing key environmental topics relevant to the proposals.</p> <p>The primary topics included:</p> <ul style="list-style-type: none"> <li>• What will it look like? (a summary of landscape and visual considerations and proposals).</li> <li>• A summary of ecology, ornithology and nature considerations and proposals.</li> <li>• A summary of geology, hydrology and hydrogeology considerations and proposals.</li> <li>• A summary of transport and access considerations and proposals.</li> </ul> <p>The secondary topics included:</p> <ul style="list-style-type: none"> <li>• Emissions, air quality and climate change.</li> <li>• Noise and vibration.</li> <li>• Health and safety.</li> <li>• Waste.</li> <li>• Glint and glare.</li> <li>• Historic environment.</li> <li>• Resource and socio-economics.</li> </ul>
FAQs	A list of Frequently Asked Questions with responses. For further information please see <b>Table 3.5</b> below.
Feedback	A feedback form – available only during the initial 7-day duration of the event – providing an option for visitors to leave comments or seek further information from the Project Team. For further information please see <i>Gathering Feedback</i> Section below ( <b>paragraphs 3.2.3 and 3.2.4</b> ).

## FAQs

- 3.2.2 Contained within the virtual public information event were a series of Frequently Asked Questions and responses produced by SPR. These were provided to address common queries which were anticipated to be raised on a project of this type. The FAQs, as written on the website, are contained within **Table 3.4**:

Table 3.4 FAQs

FAQ	Response
<b>General</b>	
<b>Will this affect public access to Whitelee?</b>	<p>We don't expect the development to affect the public access arrangements for Whitelee.</p> <p>During construction there may be some access restrictions in the immediate vicinity of the proposed sites, but as the sites are</p>

FAQ	Response
	located away from main paths this should not significantly affect public access.
<b>When do you expect to begin construction?</b>	We intend to submit our Planning application to the Scottish Government Energy Consents Unit by the end of 2020. Assuming that full planning consent is obtained by August 2021, we expect to begin construction in Q4 2021/Q1 2022. The Hydrogen Production site is expected to be fully operational by Q4 2023, with the Solar and BESS sites completing a little before this.
<b>How will the development affect local roads?</b>	<p>We don't expect there to be any significant adverse impacts or changes to traffic flow on the local road network as a result of this development, either during construction or operation. The operational entrance to the Solar and BESS sites will likely be via the existing Whitelee Windfarm entrance to the east of the proposed Green Hydrogen Production Facility. The link road runs south from the B764 and is designated as a private access road. Entrance to the Green Hydrogen Production Facility will be via a new private access road to join the B764 at Kinsgwell, which we expect to build in early 2022.</p> <p>During construction, there will be an increase in HGV and heavy plant traffic to and from the Site.</p> <p>We expect there to be 4-5 HGVs accessing the Green Hydrogen Production facility per day once it is operational. The other sites will not be regularly accessed, and we expect around 1-2 cars or small vans a week at the Site for maintenance purposes.</p>
<b>How do you plan to construct on peat?</b>	Currently, we plan to use standard piles to support the foundations of any proposed structures. We will use adapted piling rigs and construction equipment which can traverse the bog safely to provide the initial foundations. Temporary access roads may be built across the bog to allow access to the development during construction.
<b>How do you intend to mitigate the environmental impact of the development?</b>	<p>We have taken care to avoid the most environmentally sensitive areas and deepest peat when planning this development where possible, but the proposal for the Green Hydrogen Production Facility does require construction in an area that is currently subject to a Habitat Management Plan (HMP). As part of SPR's ongoing commitment to protecting the sensitive peatland at Whitelee, we will propose a new HMP that will protect a different area of peatland near the Hydrogen/Solar development. The new HMP will allow us to mitigate the potential impact of the development and will provide an opportunity to improve the conservation and condition of the designated area beyond this. Final details of the proposal are yet to be confirmed, but our intention is that the new managed habitat will be of greater conservation interest than the land being developed.</p> <p>We don't expect there to be any additional impact on local wildlife, as per the environmental surveying undertaken as part of our Environmental Statement and Planning Submission for this Site.</p> <p>We consider the development to be a net benefit for the environment overall – creating green hydrogen from renewable electricity will allow large numbers of old diesel vehicles to be</p>

FAQ	Response
	replaced, which will reduce pollution and improve air quality as well as significantly reducing the carbon footprint of the vehicles.
<b>Hydrogen</b>	
<b>What is hydrogen fuel?</b>	<p>Hydrogen is the lightest known gas and is naturally found in small quantities in air. When hydrogen is burned as fuel it produces only water, unlike petrol and diesel which also create carbon dioxide, soot, and other chemicals and particulates which have a negative impact on the environment.</p> <p>Compressed hydrogen is an extremely dense energy source; a hydrogen tank can contain much more energy than an electric battery of the same size. This makes hydrogen a good 'green' fuel for large vehicles with high energy needs or which need to cover long distances, which would require prohibitively large and heavy batteries to run on electricity. Adapting heavy vehicle fleets to use hydrogen fuel instead of diesel is a critical part of decarbonising transport and reaching Net Zero by 2045.</p>
<b>What is 'Green' Hydrogen?</b>	<p>'Green' hydrogen is hydrogen that is produced without creating carbon dioxide as a by-product and using entirely renewable resources - water is split in an electrolyser which is powered by renewable energy. At Whitelee, green hydrogen will be produced using the electricity generated on-site by the solar panels and water from a dedicated supply.</p> <p>Other types of hydrogen are produced by Steam Methane Reformation (SMR), which heats steam and natural gas from fossil fuel together to produce hydrogen and carbon dioxide. Most hydrogen produced today is 'grey' hydrogen, where the waste carbon dioxide is vented directly to the atmosphere. There is also 'blue' hydrogen, which is also produced using SMR but which uses Carbon Capture and Storage (CCS) technology to capture the carbon dioxide created rather than emit it. Blue hydrogen is less environmentally damaging than grey hydrogen, but it is not carbon-free as it uses fossil fuel and the carbon dioxide it creates must be stored and managed indefinitely.</p>
<b>Why Hydrogen in this location?</b>	<p>As announced in September 2020, ScottishPower Renewables is proud to be a partner in 'Green Hydrogen for Scotland' a pioneering partnership to create new green hydrogen production facilities with clusters of refuelling stations across Scotland, supporting the country's efforts to achieve net zero by 2045.</p> <p>'Green Hydrogen for Glasgow' is the first project being brought forward by the partnership designed to provide carbon-free transport and clean air for communities across the city, which wants to become the first net-zero city in the UK by 2030. It also supports the Scottish Government's decarbonisation targets and Glasgow City Council's commitment to creating a zero-emissions vehicle fleet, using only electric and hydrogen powered vehicles by the end of 2029.</p> <p>The Development's location on the outskirts of Glasgow means it is perfectly situated to support this goal, and help deliver clean, green hydrogen, utilising both existing and new renewable assets.</p>
<b>How will it be produced at the site?</b>	<p>The Green Hydrogen Production facility will contain an electrolyser, which uses electricity to split water into hydrogen and oxygen in a process known as electrolysis. Powering the</p>

FAQ	Response
	<p>electrolyser from renewable sources such as solar and wind power means the process is completed without any carbon emissions – resulting in 'green' hydrogen.</p> <p>Electrolysis using renewable energy is currently the only way in which zero-carbon hydrogen can be produced. Other methods involve using natural gas or oil as a hydrogen source, which produces carbon dioxide as a by-product.</p> <p>We initially plan to produce 6.6 tonnes of hydrogen per day, with the potential to increase this to 10 tonnes per day as demand increases.</p>
<p><b>Will there be any emissions or pollution from the site?</b></p>	<p>As the hydrolysers use renewable electricity to separate water into oxygen and hydrogen, no chemical or carbon emissions are produced at any stage.</p> <p>Oxygen is produced as a by-product and will be vented to the outside of the facility, along with some water vapour. On cold days, a plume of steam may be visible as a result.</p>
<p><b>How is the hydrogen stored and transported?</b></p>	<p>After production, hydrogen is pressurised to 500bar (c. 7252psi) and stored in pressurised tanks. Current plans are for about 8,700kg of potential hydrogen storage across 8 tanks, although we expect that regular deliveries leaving the Site will mean that the actual amount of hydrogen stored at any one time will be lower.</p> <p>The hydrogen will be transferred into pressurised tubes, which will be picked up by specialised HGVs (known as Tube Trailers) and transported to local filling stations. Hydrogen powered vehicles will be able to fill their tanks at these filling stations.</p>
<p><b>Is hydrogen safe?</b></p>	<p>Hydrogen is naturally found in small quantities in air and is very light. If it leaks, it evaporates immediately and does not produce any contaminants or pollution. If hydrogen ignites it quickly burns out and produces no harmful by-products and no residual heat or reignition hazard, unlike conventional fuels such as petrol or diesel. Hydrogen storage and transport is covered by existing fuel gas safety legislation, and the Site is subject to the same regulatory and safety requirements as a natural gas or fuel storage facility.</p>
<b>Solar</b>	
<p><b>What is Solar PV Technology?</b></p>	<p>Photovoltaic cells directly convert sunlight into electricity. The term 'PV' comes from the process of converting light (photons) to electricity (voltage). Solar panels are typically made from solar cells that, once combined, create a single system referred to as a solar array.</p>
<p><b>Why have we chosen this layout?</b></p>	<p>We have surveyed the entire Site extensively over more than a decade and have decided on the proposed layout after detailed analysis of these survey results.</p> <p>The proposal:</p> <ul style="list-style-type: none"> <li>• Avoids the deepest areas of peat at Whitelee.</li> <li>• Provides a good solar yield.</li> <li>• Avoids any tree-felling or other forestry.</li> <li>• Is near to an existing access road, which is important for the co-located hydrogen facility.</li> <li>• Can be reasonably connected to the electrical Grid based on the infrastructure nearby.</li> </ul>

FAQ	Response
<b>How big is the development?</b>	We plan to install c. 62,000 individual solar panels across 7.5 hectares (c. 18.5 acres). Each individual panel will be no more than 3m tall and will be angled to catch sunlight effectively. During peak operation, this should produce up to 40MW of electricity, which will be used to power the Green Hydrogen Production Facility.
<b>Don't the solar panels require constant sunlight/heat to produce energy?</b>	Solar panels harness the energy in sunlight to produce electricity, and even on cloudy days there is enough light present to allow some electricity to be produced. Direct, intense sunlight will increase the output of the solar panels but is not needed for them to produce electricity. Solar schemes currently operate across the UK all year round, even in areas like Whitelee where weather conditions are very variable.  We have carried out extensive energy yield assessments at the proposed Site, which shows that a up to 40MW Solar development at Whitelee would produce the electricity required to operate the hydrolysers at the Green Hydrogen Production Facility.
<b>How long do solar panels operate for?</b>	PV arrays and systems have a typical lifespan of 30-40 years. Once operational, they require very little maintenance. They do require occasional washing to remove dirt and grime build-up on the photovoltaic surface of the panel, as this reduces their efficiency.
<b>BESS</b>	
<b>Why Battery Storage Technology?</b>	Renewable energy production is very dependent on weather conditions - for example, wind speed at a wind farm, or cloud density over a solar site. There are times where renewable generation might be high but demand for that electricity is low, and vice versa. As we move away from consistent but carbon-intensive sources of generation (like coal burning) and towards more variable renewable sources, we need a way to smooth that variance out and ensure that the supply of electricity always matches the demand.  Battery Energy Storage Systems (BESS) allow excess generation to be stored when demand is low and used later, rather than that electricity being wasted. Batteries are Green technology and produce no emissions or pollution during normal operation. As Battery Storage technology can react to changes on the network very quickly it can also provide Stability services to the Grid during generation/demand fluctuations, which will reduce the incidence of power cuts and ensure that electricity supplies remain stable.
<b>Why here?</b>	The location of the BESS site has been strategically chosen as it is within the Whitelee Windfarm boundary, within an existing construction compound used during previous extension works at Whitelee. This will minimise any additional environmental and visual impact.  The compound is near the existing Whitelee Windfarm Extension substation, providing an existing point of connection to the electrical Grid. This will reduce the need for large sections of

FAQ	Response
	<p>cable to be laid and will allow us to connect to the Grid without constructing a new substation, which in turn will reduce the potential environmental and visual impact of the Project.</p>
<p><b>How will the batteries work?</b></p>	<p>Approximately 100 individual Lithium-Ion cells will be housed inside the building at the battery site in banks of 10 cells. Taken together, this array provides 50MW of usable storage capacity.</p> <p>When Whitelee is generating more electricity than is required by the Grid, excess power will be diverted to the battery and stored until needed. When demand is higher than generation, or when the Grid requires additional support, the batteries will discharge their stored electricity. The batteries can respond very quickly to changes on the network so are ideal for providing support services, unlike most other types of renewable generation which take time to power up.</p> <p>The batteries will be regularly maintained and constantly monitored to ensure that they remain efficient and that any battery degradation is captured as quickly as possible. Assuming heavy use, each cell should last around 10 years before repair or replacement is required.</p>
<p><b>Are batteries noisy?</b></p>	<p>We have found that these types of sites, once constructed, do not disturb the surrounding area with noise. A noise assessment has been carried out to confirm whether there are any special requirements at this Site for noise mitigation, as part of the planning application.</p> <p>Although the batteries and associated equipment can produce noise during their normal operations, they will be housed inside a building, which will mitigate the impact of any noise outside the building and around the Site.</p>
<p><b>Are batteries safe?</b></p>	<p>We currently plan to install Lithium Ion ("Li-Ion") batteries, along with associated inverters and transformers. Battery technology is well established in the UK, and safety requirements for equipment are well tested and robust. The batteries will be installed with the same electrical and thermal protective equipment and be subject to the same inspection, testing, and maintenance regime as other battery storage or generation sites. The battery storage building will have a dedicated HVAC (Heating, Ventilation &amp; Air Conditioning) system to ensure that the building temperature remains within operational limits.</p> <p>Research shows that the risk of fire or fault is low, but we have taken steps to ensure that the Site is safe and well-protected. The battery storage building will house a gas detection and venting system, as well as a fire detection and suppression system supplied from a dedicated on-site water tank.</p>

## Gathering Feedback

- 3.2.3 Attendees were encouraged to provide their views via an online feedback form contained within the website. The online feedback form could be completed and submitted during the event and a request could be made to follow up with a member of the Project Team. The questions contained within the website feedback section were:
- Name, address, email and telephone contact information of respondents.

- Confirmation of community interest (community council representative, local resident, local business or other – if other, please specify).
- Has the level of information provided on the exhibition website been sufficient? (Y/N).
- Are you supportive of increasing renewable energy development in Scotland? (Y/N/Don't Know).
- Are you supportive of the proposed Whitelee Solar PV, Green Hydrogen and BESS development? (Y/N).
- Do you have further questions or concerns that you would like to discuss in detail with the Project Team directly? (Y/N) (included text box with option for further comment).

3.2.4 No feedback forms were submitted by attendees during or after the virtual event. However, two responses were received by e-mail. A summary of these responses is provided below in **Section 3.3**:

### Follow Up from the Virtual Public Exhibition

3.2.5 Most of the attendees were able to find out the information they required through attendance at the virtual event, however all of those who requested more information provided with a response. The responses provided by the Project Team sought to address specific points raised, or questions where it was deemed appropriate to do so and within the limits of data protection principles.

### Monitoring Website Activity

3.2.6 To support the pre-application consultation activity, a dedicated website [https://www.scottishpowerrenewables.com/pages/whitelee\\_solar\\_pv\\_green\\_hydrogen\\_and\\_bess\\_development\\_public\\_information\\_event.aspxht](https://www.scottishpowerrenewables.com/pages/whitelee_solar_pv_green_hydrogen_and_bess_development_public_information_event.aspxht) was launched in December 2020. Regular scrutiny of website analytics has provided valuable information to evaluate consultation activity. The website has received over 323 visits and 221 unique visits since it was launched, with the busiest period(s) being around 8<sup>th</sup> December 2020 almost reaching 100 visitors to the Site, with the 10<sup>th</sup> & 11<sup>th</sup> December 2020 receiving above 50 visitors to the Site.

## 3.3 Summary of Feedback Received

### Feedback from Key Stakeholders

- 3.3.1 One response was received from an MP, who asked the following questions:
- For the green hydrogen facility, is funding in place or is any Govt type support required?
  - What will be the use for the hydrogen?
  - Planned timescales for the batteries to be online and hydrogen production to begin?
  - Are there any community benefit funding monies similar to onshore wind funds?

3.3.2 A response was issued to this consultation response and details of the response is available in **Section 4** below.

### Feedback from Members of the Public

3.3.3 One response was gained from a member of the public whose property borders the Site. The consultee expressed concern with how close the Project would be to their land and property. A



response to this consultation response was issued and details of the response is available in **Section 4** below.

## 4. Responding to Feedback

4.1.1

SPR issued feedback to the two consultation responses through the use of e-mail. SPR also would have conducted further feedback through the use of telephone if consultees requested it in order to ensure consultee questions were answered.

- The MP consultee response raised several questions and a summary of SPR's response to these questions is available below: For the green hydrogen facility, is funding in place or is any Govt type support required?
  - ▶ The green hydrogen production and storage facility does not require any Government funding as funding is entirely from traditional capital investment, with that investment being recouped over time.
- What will be the use for the hydrogen?
  - ▶ The hydrogen will be used to fuel a new fleet of hydrogen-powered buses that will service Greater Glasgow, with potential for the plant to serve other hydrogen-powered vehicles and industry.
- Planned timescales for the batteries to be online and hydrogen production to begin?
  - ▶ The Project would likely be fully operational at the end of 2023.
- Are there any community benefit funding monies similar to onshore wind funds?
  - ▶ There is currently no additional community benefit arrangement planned for the Project but consultation responses requesting such arrangements would be considered as the Project develops.

# Appendix A

## Copies of Example Consultation Letters and Notifications



**Our ref**

Whitelee EXT

Solar/1000/

**Date**

10 December 2020

**Contact**

WHITEEESOLARHYDROGENBESS@  
SCOTTISHPOWER.COM

Dear Willie Coffey MSP

**ScottishPower Renewables: Whitelee Solar PV, Green Hydrogen Production and Battery Storage development proposal**

I am writing on behalf of ScottishPower Renewables (UK) Limited (SPR), to inform you of the planned proposal to develop a combined Solar PV, Green Hydrogen Production Facility and Battery Energy Storage System (BESS) development upon land adjacent to Whitelee Windfarm Extension at Eaglesham Moor, East Ayrshire. We are currently in the process of developing a planning application for the development of the Site and will be holding a week long online public information exercise from 8<sup>th</sup> to 15<sup>th</sup> December at:

**[www.scottishpowerrenewables.com/WhiteleeSolarGreenHydrogenBESS\\_PIE](http://www.scottishpowerrenewables.com/WhiteleeSolarGreenHydrogenBESS_PIE)** where you will be able to find out information and submit any questions on the proposed plans.

The proposed solar PV and Green Hydrogen Production Facility is located at East Kingswell, immediately to the west of the operational Whitelee Site, to the south of the B764 Eaglesham Road and northeast of Kilmarnock on Eaglesham Moor. The M77 and A77 corridor is located approximately 775 metres to the north-west. The proposed BESS facility is located approximately 800 metres west of the Whitelee Windfarm Extension substation, on the former construction compound for the now operational windfarm.

All components will connect into the Whitelee Windfarm Extension substation, to utilise the existing grid connection that is already in place and the intention is that the hydrogen generated from this scheme will be used to de-carbonise the local transportation network.

Please take some time to view the project details online and you can also contact the project team directly at **WHITEEESOLARHYDROGENBESS@SCOTTISHPOWER.COM** or in writing to:

FAO Whitelee Solar/Hydrogen/BESS Project Team  
9th Floor  
ScottishPower House  
320 St.Vincent Street  
Glasgow  
G2 5AD

Yours sincerely

Jamie Gilliland  
Project Manager

**From:** WhiteleeSolarHydrogenBESS  
**Sent:** 11 December 2020 09:33  
**To:** [jim.swift@eastrenfrewshire.gov.uk](mailto:jim.swift@eastrenfrewshire.gov.uk)  
**Subject:** Whitelee Development (SPR) - Public Consultation

Dear Jim;

ScottishPower Renewables are publicly consulting on a new development at Whitelee, which will use Renewable Electricity to produce Green Hydrogen and increase the stability of the electrical grid. The consultation is non-statutory, but we're keen to ensure that all of our stakeholders are aware of the development and able to engage with us productively during the pre-development phase. As you are a key stakeholder and you may field queries from members of the public regarding the development, we want to ensure that you have project information and contact details for the project team.

A link to our online PIE can be found here – [WHITELEE SOLAR PV, GREEN HYDROGEN AND BESS DEVELOPMENT - PUBLIC INFORMATION EVENT](#)

If you have any queries, please let us know – my contact details are below if you have any specific concerns, and the project mailbox ([WhiteleeSolarHydrogenBESS@ScottishPower.com](mailto:WhiteleeSolarHydrogenBESS@ScottishPower.com)) is open for public inquiries.

Thank you, and best regards,

Constance Caskie



Assistant Project Manager  
New Technology Delivery



9th Floor, Scottish Power House, 320 St. Vincent Street, Glasgow, G2 5AD  
[CCaskie@ScottishPower.com](mailto:CCaskie@ScottishPower.com)  
+44 (0) 7595 432 896



# Appendix B

## Copies of Feedback Received

FW: Whitelee consultation

 WhiteleeSolarHydrogenBESS <[whitelesolarhydrogenbess@scottishpower.com](mailto:whitelesolarhydrogenbess@scottishpower.com)>  
To  Mealing, Adam

 Reply  Reply All  Forward 

Wed 10/02/2021 11:

**From:** Cullis, Michelle <[mcullis@scottishpower.com](mailto:mcullis@scottishpower.com)>  
**Sent:** 15 December 2020 16:02  
**To:** Caskie, Constance <[ccaskie@scottishpower.com](mailto:ccaskie@scottishpower.com)>  
**Cc:** GILLILAND, JAMIE <[jgilliland@scottishpower.com](mailto:jgilliland@scottishpower.com)>; Henderson, Phil <[Phil.Henderson@ScottishPower.com](mailto:Phil.Henderson@ScottishPower.com)>  
**Subject:** RE: Whitelee consultation

Hi Constance

We have had one MP come back to us with some questions relating to the development:

- For the green hydrogen facility, is funding in place or is any Govt type support required?
- What will be the use for the hydrogen?
- Planned timescales for the batteries to be online and hydrogen production to begin?
- Are there any community benefit funding monies similar to onshore wind funds?

If you are able to get answers to these questions we can go back to the MP with a response.

Many thanks

Michelle



**From:** Caskie, Constance  
**Sent:** 15 December 2020 16:48  
**To:** Cullis, Michelle <[mcullis@scottishpower.com](mailto:mcullis@scottishpower.com)>  
**Cc:** GILLILAND, JAMIE <[jgilliland@scottishpower.com](mailto:jgilliland@scottishpower.com)>; Henderson, Phil <[Phil.Henderson@ScottishPower.com](mailto:Phil.Henderson@ScottishPower.com)>  
**Subject:** RE: Whitelee consultation

Hello Michelle;

- For the green hydrogen facility, is funding in place or is any Govt type support required?
  - The Green Hydrogen Production and Storage Facility does not require any subsidy or Govt funding. The funding model is traditional – an initial capital investment recouped over time by selling the hydrogen. The reduced energy costs from the co-located solar panels and battery also boost the commercial proposition for the Facility.
- What will be the use for the hydrogen?
  - Current plans are for the hydrogen to be used to fuel a new fleet of hydrogen-powered buses servicing Greater Glasgow, with the potential for future growth. We expect more large transport/freight vehicles to be replaced with hydrogen ones as the technology becomes more widespread and as fossil-fuel powered vehicles are phased out.
- Planned timescales for the batteries to be online and hydrogen production to begin?
  - We currently plan for the Development to be fully operational by the end of 2023.
- Are there any community benefit funding monies similar to onshore wind funds?
  - There is currently no additional community benefit arrangement planned for this Development; it will be an extension to the existing Whitelee Windfarm, and we will incorporate it into any arrangements currently in place for the wider site. We are currently liaising with local community councils and residents as part of the public consultation for this Development and will ensure that any feedback is taken into consideration when the scheme is progressed.

**From:** Tim Harrison <[tim@cauldstances.co.uk](mailto:tim@cauldstances.co.uk)>  
**Sent:** 30 November 2020 13:11  
**To:** WhiteleeSolarHydrogenBESS <[whiteleesolarhydrogenbess@scottishpower.com](mailto:whiteleesolarhydrogenbess@scottishpower.com)>  
**Subject:** EXTERNAL: Letter re: Development Proposal

Dear Mr Gilliland,

I received your letter, dated 20<sup>th</sup> November, 2020, late last week, thank you for the notification.

On inspecting the location map included in the letter, I am extremely concerned at the close proximity of the proposed development to my property: Cauldstanes. It appears to be right at the boundary of my property, which would indicate a distance of less than twenty yards.

I would, respectfully, appreciate the opportunity to discuss this proposal with yourself, to better understand your intentions.

Thanking you in anticipation.

Kindest regards  
Tim Harrison

(Cauldstanes)

Sent from [Mail](#) for Windows 10

=====

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# Appendix C

## Public Information Event Summary



**SCOTTISHPOWER  
RENEWABLES**

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## **Whitelee Solar / Hydrogen / BESS**

**PIE Summary  
11-19 Dec 2020**



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# INTRODUCTION

ScottishPower Renewables (UK) Limited (SPR) is developing an exciting and highly innovative project directly adjacent to the UK's largest onshore windfarm at Whitelee, on the outskirts of Glasgow.

SPR's proposal is for the development of a combined solar PV farm, green hydrogen production facility and Battery Energy Storage System (BESS) (together the 'Development') located at East Kingswell, immediately to the northwest of Whitelee Windfarm (the 'Site'). The solar PV and green hydrogen production facility are located largely within the area previously considered for windfarm development as part of Whitelee Windfarm Extension Phase 3.

The solar PV farm will provide renewable electricity to the green hydrogen production facility, while the BESS will provide electrical stability for the Development and the wider electricity network.

---

## Key Development Details

Element	Size/Capacity	Output
<b>Solar PV</b>	62,000 solar PV panels	~ 20MW
<b>Green Hydrogen Production Facility</b>	100x120m compound	10,000kg/day
<b>BESS</b>	100MWh	50MW

# Project Background

As announced in September 2020, ScottishPower Renewables is part of a pioneering partnership to create new green hydrogen production facilities with clusters of refuelling stations across Scotland, supporting the country's efforts to achieve net zero by 2045.

'Green Hydrogen for Glasgow' is a partnership designed to provide carbon- free transport and clean air for communities across the city, which wants to become the first net-zero city in the UK by 2030. It also supports the Scottish Government's decarbonisation targets and Glasgow City Council's commitment to creating a zero-emissions vehicle fleet, using only electric and hydrogen powered vehicles by the end of 2029.

This project will use solar energy to power a green hydrogen production facility, which will create hydrogen fuel for zero-carbon vehicles as part of Green Hydrogen for Glasgow. The Development's location on the outskirts of Glasgow and close to the M77 means that it is perfectly situated to support this goal and help deliver clean, green hydrogen, utilising both existing and new renewable assets.

Renewable energy production is very dependent on weather conditions - for example, wind speed at a wind farm, or cloud density over a solar site. There are times where renewable generation might be high but demand for that electricity is low, and vice versa. As we move away from consistent but carbon-intensive sources of generation (like coal burning) and towards more variable renewable sources, we need a way to smooth that variance out and ensure that the supply of electricity always matches the demand.

Battery Energy Storage Systems (BESS) allow excess generation to be stored when demand is low and used later, rather than that electricity being wasted. Batteries are green technology and produce no emissions or pollution during normal operation. As battery storage technology can react to changes on the network very quickly it can also provide stability services to the Grid during generation/demand fluctuations, which will reduce the incidence of power cuts and ensure that electricity supplies remain stable.



# Site Selection

The following factors fed in to the selection of this site to host the Development:

- Acceptable solar yield during peak months
- Excellent site accessibility and access from the motorway network
- The lack of statutory nature conservation designations on the site
- Good ability to locate infrastructure away from local residents
- A good landscape fit
- Efficient use of existing infrastructure, including the existing grid connection point at Whitelee Extension Substation.

# DEVELOPMENT OVERVIEW

## Solar

The solar PV farm will comprise c. 65,000 solar panel arrays each with heights of up to 3m at the frame's highest point. The solar PV farm will include inverter stations, site tracks, perimeter fencing, CCTV cameras, a new access via the B764, and a substation building on the same platform as the green hydrogen production facility.

The area chosen for the solar PV farm will allow the solar PV arrays to be arranged in such a way that they are integrated into the landscape while still facing the sun at an optimal angle, providing maximum solar yield and requiring minimal changes to the existing topography of the site.

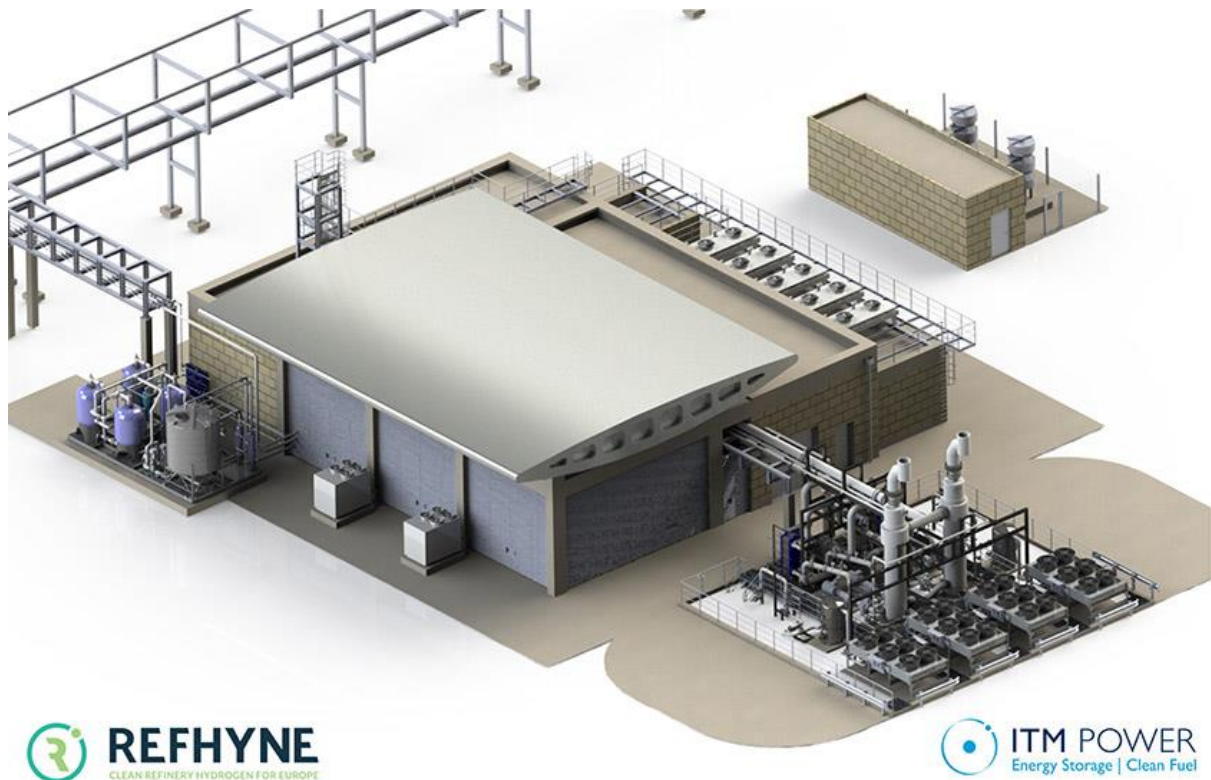


*Above: Typical solar panels and mounting*

# Green Hydrogen Production Facility

The green hydrogen production facility is embedded within the solar PV farm area and shares a platform with the substation building for the solar PV farm. The facility will be accessed via the solar PV farm's access tracks, with a secondary access proposed to the east of the site joining on to the existing Whitelee Extension link road. The facility will consist of multiple buildings, pressure vessels, pumps/compressors and storage tanks, all interconnected by a network of pipework and cabling.

The facility uses Polymer Electrolyte Membrane Electrolysis technology, and will be able to produce up to 10,000kg of green hydrogen per day based on a 20MW initial power demand. The facility requires 120,000 litres of water per day and will have a dedicated mains water supply.



*Above: Indicative image of the Refhyne project, a 10MW Hydrogen production and storage facility with similar technology, showing what the Facility could look like.*

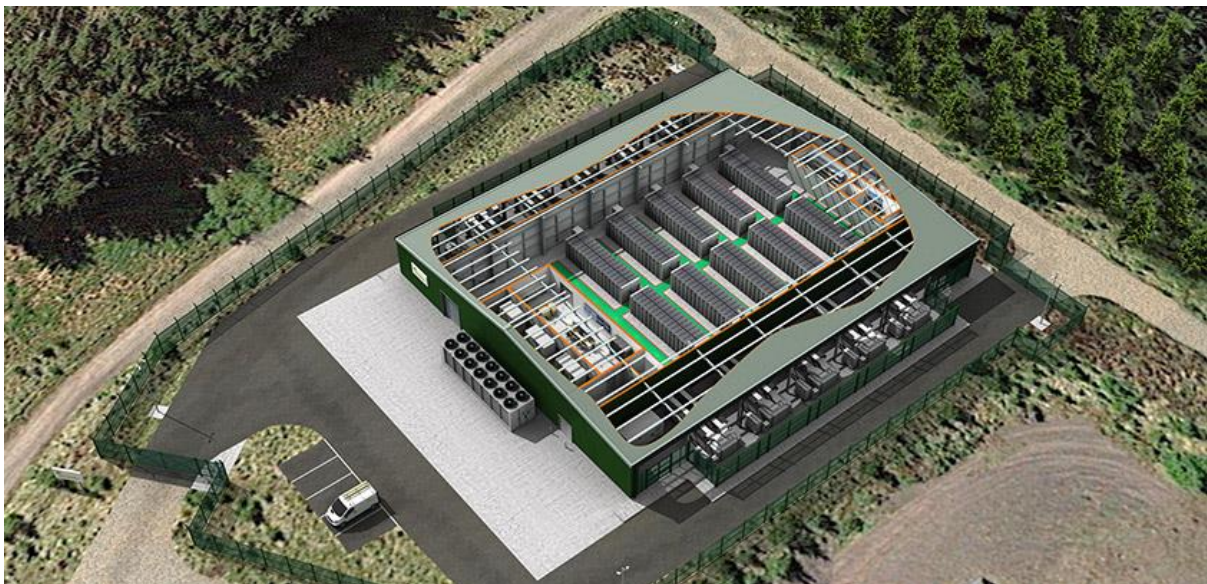
*Image courtesy of ITM Power.*



# BESS

The BESS uses established Lithium-Ion battery technology and will be housed in a single storey building approximately 70mx63m. Like the solar PV farm, the BESS compound will include associated infrastructure; inverters, fencing, CCTV, an auxiliary supply kiosk for the local LV supply, and fire suppression equipment.

The BESS compound will be situated next to the existing Whitelee Extension Substation and will utilise existing access roads.



*Above: Representative image of the BESS currently under construction at Whitelee BESS, showing what the BESS in this Development could look like*

# ENVIRONMENTAL CONSIDERATIONS

## Ecology, Ornithology and Nature

Understanding the potential for a development to impact on habitats, birds and other species is an important part of scheme design.

### **We have...**

- Undertaken a series of desk-based studies to identify existing records of species and habitats;
- Undertaken baseline ecological surveys on site for protected species and habitats; and
- Undertaken baseline ornithological surveys.

### **We found...**

There are no nationally important sites of nature conservation value within or near the Development. Three non-statutory designated sites are located within 1km of the site:

- Fenwick Moor (Greenfield Burn) Provisional Wildlife Site is located within the site;
- Craigendunton Reservoir Provisional Wildlife Site is approximately 350m from the site; and
- Lochgoin Reservoir and Dunwan Dam Site of Importance for Nature Conservation (SINC), is approximately 1,300m from the site.

A large proportion of the Site comprises wet modified bog/blanket mire, coniferous plantation woodland, and areas of improved, semi-improved and marshy grassland. Recent surveys indicate that the blanket mire has been adversely impacted by commercial forestry plantation, grazing pressure, and drainage. The southern section of the Site comprises former coniferous plantation woodland, which was clear-felled in 2008 and has since been subject to phased restoration.

The following protected and priority species have been surveyed:

- No evidence of badger, water vole, or bat roosts have been identified within 100m of the Development;
- Otter activity has been recorded within localised areas including the presence of covered and uncovered temporary resting sites;
- Bird species of high conservation importance (hen harrier, merlin, peregrine, short-eared owl, barn owl and golden plover) are present in the wider area but do not appear to use the site for breeding. Small numbers of black grouse are present in the

wider vicinity, with two historic leks approximately 900m and 1,300m from the Development; and

- No migratory salmonids (sea trout or Atlantic salmon) are known to be present in the five minor watercourses that are located within the footprint of the Development; however, brown trout (non-migratory salmonids) are likely to be present in all of them.

### **What we propose to do...**

SPR will seek to mitigate impacts on ecology by:

- Avoiding construction during the bird breeding season where possible, or where not possible undertaking surveys to identify and protect any nesting birds;
- Avoiding watercourses and areas of sensitive blanket bog habitats identified;
- Adopting safe working buffers where protected species are found; and
- Adopting pollution control measures to prevent silt or dusts entering watercourses.

Any potential adverse effects for any species will be mitigated, with species-specific mitigation plans created where required.

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## **Geology, Hydrology and Hydrogeology**

Our understanding of the ground conditions and surface water network has informed the site design and layout. We want to ensure that the potential effects of the Development on hydrology and related habitats and species are considered holistically, and that negative impacts on ground and surface water are minimised.

### **We have...**

- Assessed watercourses on the Site and avoided them as far as possible in the design process;
- Investigated peat depths across the Site; and
- Identified the location of private water supplies near the Site and the potential for flooding from Site watercourses.

### **What we propose to do...**

Watercourse layout and runoff patterns have been considered during the design of the Development, and watercourses have been avoided as far as reasonably possible.

Peat surveys identified peat deposits of variable depth across the Site, including areas where there is no peat present. The designs for the solar PV farm and green hydrogen production facility avoid areas of deep peat and concentrate development on areas with little or no peat. Where peat cannot be avoided, mitigation measures have been set out as part of the planning application.

The design for the Development avoids works that could impact private water supplies in the area. Private water supplies will be monitored to ensure that the Development has no inadvertent impacts.

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## Transport and Access

### **We have...**

Undertaken an assessment of the potential impacts of the Development on access, traffic, and the local transport network, in relation to both the construction and the operation of the Development.

### **What we propose to do...**

A Traffic and Transport Assessment was included as part of our planning application for the Development. New access roads are required for the solar PV farm and green hydrogen production facility. We found that the road network surrounding the Development had sufficient capacity to support the vehicle and access requirements of the Development without impacting other traffic flows.

### **Protecting Road Users and Residents during Construction**

Traffic will increase during the construction of the Development. In order to minimise the impact on local residents and other road users, it is anticipated that a Construction Environmental Management Plan (CEMP) and a Traffic Management Plan (TMP) will be produced prior to construction. The following practices will be used:

- Erection of appropriate temporary signage in the vicinity of the Site warning of construction traffic and warning other users of abnormal load turbine movements;
- Ground preparation, including protection of services; and
- Arrangements for road maintenance, wheel washing and road sweeping where necessary.

## Other Characteristics

<b>Emissions, Air Quality and Climate Change</b>	<p>There are no adverse emissions to air or land associated with operation of any part of the Development.</p> <p>No chemicals or additives are introduced to the water used by the green hydrogen production facility. Suitable drainage systems will be implemented to manage this water.</p> <p>Water vapour is produced in limited amounts during hydrogen production and vented to the atmosphere. On cold days this may create visible plumes; however, these plumes are just water and have no impact on air quality.</p> <p>The Development will provide a secondary beneficial effect on air quality, by avoiding emissions which would otherwise be produced by other technologies (for example, allowing local transport to use hydrogen fuel rather than diesel).</p>
<b>Noise and Vibration</b>	<p>The Development is not considered to present a significant impact arising from noise and vibration.</p> <p>BESS and hydrogen production facilities of the type proposed do not generate significant noise during their operation. However, noise data for ancillary components at each compound (compressors, HVAC, etc.) will be analysed, and noise will be mitigated if required.</p>
<b>Health and Safety</b>	<p>There are no significant risks to human health identified in the context of the operation of the Development. Construction and operation will be compliant with all applicable Health and Safety Legislation (HSAWA1974, COSHH2012, CDM2015, etc.).</p> <p>The Development is not in a location which is susceptible to natural disasters or extreme weather.</p>



<b>Waste</b>	<p>The construction is unlikely to generate significant quantities of waste materials. The green hydrogen production facility will produce waste water, which can be drained to local sewers.</p> <p>Waste management will be further addressed within a future Construction Environmental Management Plan (CEMP) for the site.</p>
<b>Glint and Glare</b>	<p>A Glint and Glare Assessment was undertaken as part of the planning application to assess potential reflection from the solar PV farm, and the impact this could have on local users and aviation. No significant impact was found.</p>
<b>Historic Environment</b>	<p>There are several non-designated heritage assets located within 500m of the Development. Lochgoin Monument (Cat B Listed building) and Dunwan Hill Fort (Scheduled Ancient Monument) are within 5km of the Development.</p> <p>The Development's impact on local cultural heritage has been assessed as part of the planning application, and the Development will have no significant impact.</p>
<b>Resources and Socio-Economics</b>	<p>During construction 3 temporary construction compounds and several equipment laydown areas totalling c. 6,000 sq. m (0.6 hectares) will be required. During the operational phase of the development, most of the site will be returned to be used for grazing land.</p> <p>The Development will benefit local employment (particularly the green hydrogen production facility which requires dedicated staff) and will provide a wider service benefit to the local and wider economy by offering efficient green energy and fuel.</p>

# FAQS

## General

### 1. Will this affect public access to Whitelee?

We don't expect the development to affect the public access arrangements for Whitelee.

During construction there may be some access restrictions in the immediate vicinity of construction sites, but as the sites are located away from main paths this should not significantly affect public access.

### 2. When do you expect to begin construction?

We expect to begin construction in Q4 2021/Q1 2022. The green hydrogen production facility is expected to be fully operational by Q4 2023, with the solar PV farm and BESS completing a little before this.

### 3. How will the development affect local roads?

We don't expect there to be any significant adverse impacts or changes to traffic flow on the local road network as a result of this development, either during construction or operation. During construction, there will be an increase in HGV and heavy plant traffic to and from the site.

The operational entrance to the BESS will likely be via the existing Whitelee Windfarm and Extension entrance to the east of the proposed green hydrogen production facility. The link road runs south from the B764 and is designated as a private access road.

Entrance to the green hydrogen production facility and solar PV farm will be via a new private access road to join the B764 at Kingswell, which we expect to build in early 2022. A secondary access to the green hydrogen production facility is proposed to the east of the site, joining the existing Whitelee Windfarm and Extension link road.

We expect there to be 4-5 HGVs accessing the Green Hydrogen Production facility per day once it is operational. The other sites will not be regularly accessed, and we expect around 1-2 cars or small vans a week at each site for maintenance purposes.

**4. How do you plan to construct on peat?**

Currently, we plan to use standard piles to support the foundations of any proposed structures. We will use adapted piling rigs and construction equipment which can traverse the bog safely to provide the initial foundations.

Temporary access roads may be built across the bog to allow access to the development during construction.

**5. How do you intend to mitigate the environmental impact of the development?**

We have taken care to avoid the most environmentally sensitive areas and deepest peat when planning this development where possible, but the proposal for the green hydrogen production facility does require construction in an area that is currently subject to a Habitat Management Plan (HMP). As part of SPR's ongoing commitment to protecting the sensitive peatland at Whitelee, we have proposed a new HMP that will protect a different area of peatland near the Development of at least equivalent size to the area being developed. The new HMP will allow us to mitigate the potential impact of the Development and will provide an opportunity to improve the conservation and condition of the designated area beyond this. The proposed HMP is of greater conservation interest than the land being developed.

We don't expect there to be any additional impact on local wildlife, as detailed in the Environmental Impact Assessment and Planning Submission for this site.

We consider the development to be a net benefit for the environment overall – creating green hydrogen from renewable electricity will allow large numbers of old diesel vehicles to be replaced, which will reduce pollution and improve air quality as well as significantly reducing the carbon footprint of the vehicles.

# Hydrogen

## 1. What is hydrogen fuel?

Hydrogen is the lightest known gas and is naturally found in small quantities in air. When hydrogen is burned as fuel it produces only water, unlike petrol and diesel which also create carbon dioxide, soot, and other chemicals and particulates which have a negative impact on the environment.

Compressed hydrogen is an extremely dense energy source; a hydrogen tank can contain much more energy than an electric battery of the same size. This makes hydrogen a good 'green' fuel for large vehicles with high energy needs or which need to cover long distances, which would require prohibitively large and heavy batteries to run on electricity. Adapting heavy vehicle fleets to use hydrogen fuel instead of diesel is a critical part of decarbonising transport and reaching Net Zero by 2045.

## 2. What is Green Hydrogen?

Green hydrogen is hydrogen that is produced without creating carbon dioxide as a by-product and using entirely renewable resources - water is split in an electrolyser which is powered by renewable energy. At Whitelee, green hydrogen will be produced using the electricity generated on-site by the solar panels and water from a dedicated supply.

Other types of hydrogen are produced by Steam Methane Reformation (SMR), which heats steam and natural gas from fossil fuel together to produce hydrogen and carbon dioxide. Most hydrogen produced today is 'grey' hydrogen, where the waste carbon dioxide is vented directly to the atmosphere. There is also 'blue' hydrogen, which is also produced using SMR but which uses Carbon Capture and Storage (CCS) technology to capture the carbon dioxide created rather than emit it. Blue hydrogen is less environmentally damaging than grey hydrogen, but it is not carbon-free as it uses fossil fuel and the carbon dioxide it creates must be stored and managed indefinitely.

## 3. Why Hydrogen in this location?

As announced in September 2020, ScottishPower Renewables is proud to be a partner in 'Green Hydrogen for Scotland' a pioneering partnership to create new green hydrogen production facilities with clusters of refuelling stations across Scotland, supporting the country's efforts to achieve net zero by 2045.

'Green Hydrogen for Glasgow' is the first project being brought forward by the partnership designed to provide carbon-free transport and clean air for communities across the city, which wants to become the first net-zero city in the UK by 2030. It also supports the Scottish Government's decarbonisation targets and Glasgow City Council's commitment to creating a zero-emissions vehicle fleet, using only electric and hydrogen powered vehicles by the end of 2029.

The Development's location on the outskirts of Glasgow means it is perfectly situated to support this goal, and help deliver clean, green hydrogen, utilising both existing and new renewable assets.

#### **4. How will it be produced at the site?**

The Green Hydrogen Production facility will contain an electrolyser, which uses electricity to split water into hydrogen and oxygen in a process known as electrolysis. Powering the electrolyser from renewable sources such as solar and wind power means the process is completed without any carbon emissions – resulting in 'green' hydrogen.

Electrolysis using renewable energy is currently the only way in which zero-carbon hydrogen can be produced. Other methods involve using natural gas or oil as a hydrogen source, which produces carbon dioxide as a by-product.

We initially plan to produce 6.6 tonnes of hydrogen per day, with the potential to increase this to 10 tonnes per day as demand increases.

#### **5. Will there be any emissions or pollution from the site?**

As the hydrolysers use renewable electricity to separate water into oxygen and hydrogen, no chemical or carbon emissions are produced at any stage.

Oxygen is produced as a by-product and will be vented to the outside of the facility, along with some water vapour. On cold days, a plume of steam may be visible as a result.

#### **6. How is the hydrogen stored and transported?**

After production, hydrogen is pressurised to 500bar (c. 7252psi) and stored in pressurised tanks. Current plans are for about 8,700kg of potential hydrogen storage across 8 tanks, although we expect that regular deliveries leaving the site will mean that the actual amount of hydrogen stored at any one time will be lower.

The hydrogen will be transferred into pressurised tubes, which will be picked up by specialised HGVs (known as Tube Trailers) and transported to local filling stations. Hydrogen powered vehicles will be able to fill their tanks at these filling stations.

## **7. Is hydrogen safe?**

Hydrogen is naturally found in small quantities in air and is very light. If it leaks, it evaporates immediately and does not produce any contaminants or pollution. If hydrogen ignites it quickly burns out and produces no harmful by-products and no residual heat or reignition hazard, unlike conventional fuels such as petrol or diesel. Hydrogen storage and transport is covered by existing fuel gas safety legislation, and the site is subject to the same regulatory and safety requirements as a natural gas or fuel storage facility.

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# **Solar**

## **1. What is Solar PV Technology?**

Photovoltaic cells directly convert sunlight into electricity. The term 'PV' comes from the process of converting light (photons) to electricity (voltage). Solar panels are typically made from solar cells that, once combined, create a single system referred to as a solar array.

## **2. Why have we chosen this layout?**

We have surveyed the entire site extensively over more than a decade and have decided on the proposed layout after detailed analysis of these survey results.

The proposal:

- Avoids the deepest areas of peat at Whitelee;
- Provides a good solar yield;
- Avoids any tree-felling or other forestry;
- Is near to an existing access road, which is important for the co-located hydrogen facility; and
- Can be reasonably connected to the electrical Grid based on the infrastructure nearby.

### **3. How big is the development?**

We plan to install c. 62,000 individual solar panels across 7.5 hectares (c. 18.5 acres). Each individual panel will be no more than 3m tall and will be angled to catch sunlight effectively. During peak operation, this should produce around 20MW of electricity, which will be used to power the Green Hydrogen Production Facility.

### **4. Don't the solar panels require constant sunlight/heat to produce energy?**

Solar panels harness the energy in sunlight to produce electricity, and even on cloudy days there is enough light present to allow some electricity to be produced. Direct, intense sunlight will increase the output of the solar panels but is not needed for them to produce electricity. Solar schemes currently operate across the UK all year round, even in areas like Whitelee where weather conditions are very variable.

We have carried out extensive energy yield assessments at the proposed site, which show that a 15-20MW Solar development at Whitelee would produce the electricity required to operate the hydrolysers at the Green Hydrogen Production Facility.

### **5. How long do solar panels operate for?**

PV arrays and systems have a typical lifespan of 30-40 years. Once operational, they require very little maintenance. They do require occasional washing to remove dirt and grime build-up on the photovoltaic surface of the panel, as this reduces their efficiency.

# BESS

## 1. Why Battery Storage Technology?

Renewable energy production is very dependent on weather conditions - for example, wind speed at a wind farm, or cloud density over a solar site. There are times where renewable generation might be high but demand for that electricity is low, and vice versa. As we move away from consistent but carbon-intensive sources of generation (like coal burning) and towards more variable renewable sources, we need a way to smooth that variance out and ensure that the supply of electricity always matches the demand.

Battery Energy Storage Systems (BESS) allow excess generation to be stored when demand is low and used later, rather than that electricity being wasted. Batteries are Green technology and produce no emissions or pollution during normal operation. As Battery Storage technology can react to changes on the network very quickly it can also provide Stability services to the Grid during generation/demand fluctuations, which will reduce the incidence of power cuts and ensure that electricity supplies remain stable.

## 2. Why here?

The location of the BESS site has been strategically chosen as it is within the Whitelee Windfarm boundary, within an existing construction compound used during previous extension works at Whitelee. This will minimise any additional environmental and visual impact.

The compound is near the existing Whitelee Extension substation, providing an existing point of connection to the electrical Grid. This will reduce the need for large sections of cable to be laid and will allow us to connect to the Grid without constructing a new substation, which in turn will reduce the potential environmental and visual impact of the proposed development.

## 3. How will the batteries work?

Approximately 100 individual Lithium-Ion cells will be housed inside the building at the battery site in banks of 10 cells. Taken together, this array provides 50MW of usable storage capacity.

When Whitelee is generating more electricity than is required by the Grid, excess power will be diverted to the battery and stored until needed. When demand is higher than generation, or when the Grid requires additional support, the batteries will



discharge their stored electricity. The batteries can respond very quickly to changes on the network so are ideal for providing support services, unlike most other types of renewable generation which take time to power up.

The batteries will be regularly maintained and constantly monitored to ensure that they remain efficient and that any battery degradation is captured as quickly as possible. Assuming heavy use, each cell should last around 10 years before repair or replacement is required.

#### **4. Are batteries noisy?**

We have found that these types of sites, once constructed, do not disturb the surrounding area with noise. A noise assessment has been carried out to confirm whether there are any special requirements at this site for noise mitigation, as part of the planning application.

Although the batteries and associated equipment can produce noise during their normal operations, they will be housed inside a building, which will mitigate the impact of any noise outside the building and around the site.

#### **5. Are batteries safe?**

We currently plan to install Lithium Ion (“Li-Ion”) batteries, along with associated inverters and transformers. Battery technology is well established in the UK, and safety requirements for equipment are well tested and robust. The batteries will be installed with the same electrical and thermal protective equipment and be subject to the same inspection, testing, and maintenance regime as other battery storage or generation sites. The battery storage building will have a dedicated HVAC (Heating, Ventilation & Air Conditioning) system to ensure that the building temperature remains within operational limits.

Research shows that the risk of fire or fault is low, but we have taken steps to ensure that the site is safe and well-protected. The battery storage building will house a gas detection and venting system, as well as a fire detection and suppression system supplied from a dedicated on-site water tank.

