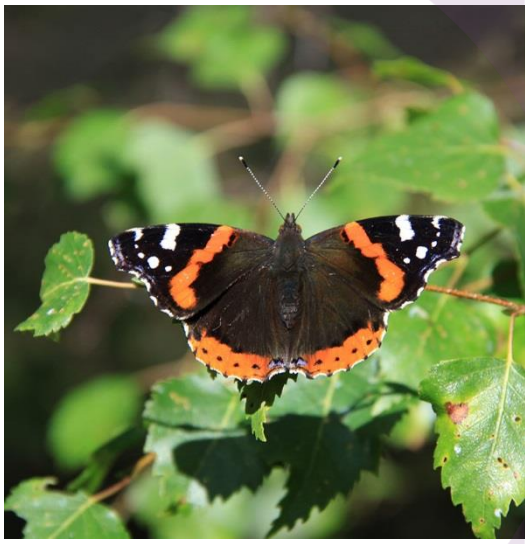
ScottishPower Renewables UK Limited

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

Environmental Impact Assessment Report – Vol 1 Non Technical Summary



Wood Group UK Limited – March 2021

Report for

Jamie Gilliland
Project Manager
ScottishPower Renewables
320 St Vincent Street
Glasgow
G2 5AD

Main contributors

Chris Pepper
Neil Marlborough

Issued by

Chris Pepper

Digitally signed by Chris Pepper
Date: 2021.04.01 18:07:38 +01'00'

Chris Pepper

Approved by

Neil.Marlborough

Digitally signed by Neil.Marlborough
Date: 2021.04.01 18:10:00 +01'00'

Neil Marlborough

Wood Group UK Limited

Second Floor
St Vincent Plaza
St Vincent Street
Glasgow G2 5LP
United Kingdom
Tel +44 (0) 141 420 3414

Doc Ref. 43122-WOOD-XX-XX-RP-OE-0001_S0_P01.1

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by Wood (© Wood Group UK Limited 2021) save to the extent that copyright has been legally assigned by us to another party or is used by Wood under licence. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of Wood. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Wood at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. Wood excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

Management systems

This document has been produced by Wood Group UK Limited in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

Document revisions

No.	Details	Date
1	Draft for Review	08.02.2021
2	Finalised Draft	11.03.2021
3	Final	31.03.2021

Executive summary

Purpose of this report

1.1.1 This document is a Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIA Report) the has been undertaken on behalf of ScottishPower Renewables UK Limited (SPR/the applicant) to accompany a proposed renewable energy Project on land adjacent to Whitelee Windfarm at Eaglesham Moor and wholly within the administrative boundary of East Ayrshire Council (EAC).

1.1.2 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.

1.1.3 It has been determined that given the inter-relationship between those components which form the Section 36 application and those which form the Full Planning application that in order to appropriately assess the potential environmental impacts which may arise, that both applications should be treated as a single EIA development and single Project. The EIA Report therefore considers all components (at a Project level) irrespective of the consenting regime and both applications (S36 and Full PP) are supported by the EIA Report.

1.1.4 The EIA Report comprises the following documents:

- Volume 1 – EIA Report, NTS (this document).
- Volume 2 – EIA Report, comprising 9 chapters with Technical Assessments.
- Volume 3 – EIA Report, ecology and ornithology technical appendices and figures.
- Volume 4 – EIA Report, landscape and visual technical appendices and figures.
- Volume 5 – EIA Report, geology, hydrology and hydrogeology technical appendices and figures.
- Volume 6 – EIA Report, traffic and transport technical appendices and figures.

- Volume 7 – EIA Report, general figures and appendices.

1.1.5 In addition to the above, the S36 application is accompanied by a Supporting Statement, Glint and Glare Report and non-statutory Consultation Report and the Full Planning application is accompanied by a Planning Statement, non-statutory Design Statement and non-statutory Consultation Report.

1.1.6 For the avoidance of doubt, and based on the information outlined above, the applicant is applying for Full Planning Permission under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended to construct a green hydrogen production facility as well as a separate application under S36 consent and deemed planning consent, under the terms of the Electricity Act 1989, to construct and operate the solar PV farm, BESS and associated ancillary and high voltage (HV) cabling elements.

1.1.7 The relevant EIA Regulations require the EIA Report to be made available for public viewing; however, as a result of the ongoing COVID-19 global pandemic, this requirement is not presently in line with current public health guidance from the Scottish Government. Consequently, the Coronavirus Regulations provides a temporary modification which amends the requirement of the EIA Regulations during the emergency period; the amended regulations therefore require that the Applicant must:

"state that the EIA report is available for inspection free of charge and the means by which, the EIA report is available for inspection;"

Consequently, the EIA Report in full and the supporting documentation submitted for both the S36 and Full planning applications can be viewed via the applicant's website at: https://www.scottishpowerrenewables.com/pages/whitelee_solar_hydrogen_bess.aspx

1.1.8 Digital copies of complete application submissions are available free of charge on CD. Hard copies of the application may be obtained at a reasonable charge reflecting the cost of making the application(s) available.

To request a copy of the application submissions please contact:

Jamie Gilliland

ScottishPower Renewables UK Limited

320 St Vincent Street

Glasgow

G2 5AD

Contents

1. Purpose of the Project EIA Report

1.1 Introduction

1.1.1 Wood Group UK Limited (Wood) were appointed by the applicant to assess the environmental impacts of the Project in accordance with The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.

1.1.2 The EIA process is reported in an Environmental Impact Assessment Report (EIA Report), which describes the methods used to assess the beneficial and adverse environmental impacts predicted to result from the construction and operation of the Project. Where appropriate, it also sets out mitigation measures designed to prevent, reduce and, if possible, offset any significant adverse environmental impacts. An assessment of residual effects, those expected to remain following implementation of mitigation measures, is also presented. This document is intended to present a summary of the findings of the EIA Report in non-technical language.

1.2 EIA Screening and the scope of the EIA

Screening

1.2.1 The applicant submitted a request for a Screening Opinion (document reference 43122-QOO-XX-02-CO-T-0002_S3_R1) to Scottish Ministers on 14th October 2020. Following statutory consultation with East Ayrshire Council (EAC), East Renfrewshire Council (ERC) and South Lanarkshire Council (SLC), the Scottish Ministers provided a Screening Opinion to the applicant on 12th February 2021 setting out their position that the Project was an EIA development and that the application for the solar PV farm, BESS, HV cable and supporting infrastructure would require to be supported by an accompanying EIA Report.

1.2.2 In addition, the applicant has incorporated the green hydrogen production facility within the EIA Report in order to give a full assessment of the Project's environmental impact and consequently the EIA Report is also submitted in support of the green hydrogen production facility submitted to EAC under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended.

1.2.3 Copies of both the EIA Screening Request and the ECU's Screening Opinion are contained as appendices within Volume 7 of the EIA Report.

Scope of the EIA Report

1.2.4 **Table 1.1** provides a summary of the conclusions within Scottish Minister's written statement contained within Screening Opinion as well as details of how these topic areas have been addressed within the EIA Report:

Table 1.1 Summary of written statement by topic

Topic	Summary from Written Statement	Cross-Reference with EIA Report
Natural Resources	The ECU consider that there would be some significant use of natural resources during construction and operation and note site restoration upon decommissioning.	Scoped into EIA Report. Consideration of the impact of waste water on the water

Topic	Summary from Written Statement	Cross-Reference with EIA Report
	The primary natural resource of high use is water and consequently the ECU note the potential impact of the discharge of waste water.	environment is provided within Volume 2, Chapter 8 of the EIA Report. A summary of these findings is outlined below under Section 11.3.
Waste General	The ECU consider that during construction and operation waste is expected to be minimal across all components. It notes however that potentially hazardous waste (citing Li-ion batteries of the BESS) may arise at the end of their economic life.	Scoped out of EIA Report. Consideration, separate to that of the EIA Report, is provided within the corresponding Planning and Supporting (S36) Statements.
Fire Control Plans	Further information on Li-ion battery management and on fire control plans will be required to support the Section 36 application, but not within the EIA Report.	Scoped out of EIA Report. Consideration, separate to that of the EIA Report, is provided within the corresponding Planning and Supporting (S36) Statements.
Pollution	The ECU consider the risks arising from pollution and nuisances during operation to be low. There is no specific consideration given to noise impact contained within the Screening Opinion.	Scoped out of EIA Report. Consideration, separate to that of the EIA Report, is provided within the corresponding Planning and Supporting (S36) Statements.
Accidents and Major Hazards	The ECU consider that risks to human health are low, provided there is a buffer between residential properties and the Project components.	Scoped out of EIA Report. Consideration, separate to that of the EIA Report, is provided within the corresponding Planning and Supporting (S36) Statements.
Ecology	It is advised that detailed consideration must be given to peatland restoration and in particular focus should be given to peat integrity and carbon release. The EcIA should consider the impact of PV panels on habitats, including how rainwater dependent wetland habitats are impacted from PV panel shedding as well as the potential impact on bryophytes and other plants which rely on seed dispersal by wind. Further impacts may also include: • Shading (light and temperature). • Rainfall runoff. • Drainage. • Chemical leaching from piling materials. • Chemical impact from cleaning materials. • Fencing in relation to excluded herbivores. • Fencing in relation to deer management. • Fencing in relation to badger migration across the solar site. • Fencing in relation to bird strike risk. • Animal welfare in relation to grazing by domestic livestock. • Indirect impact on birds of prey through moorland structure change.	Scoped into EIA Report. Consideration is provided within Volume 2, Chapter 6 of the EIA Report. A summary of these findings is outlined below under Section 11.1.

Topic	Summary from Written Statement	Cross-Reference with EIA Report
	• Wildfire management. The ECU consider that a Peat Landslide Hazard Risk Assessment (PLHRA) be undertaken.	
Peat	The Screening Opinion identifies the need for a Peat Landslide Hazard Risk Assessment (PLHRA) to be undertaken due to the potential for peat landslide within an upland peatland environment.	Scoped out of EIA Report. The applicant is currently undertaking necessary site survey works associated with the production of a PLHRA which will be submitted as further environmental information (FEI) during the consenting process. Consideration of impact on peatland habitats and GWDTEs is addressed within Chapters 6 and 8 of the EIA Report respectively.
Hydrology	Groundwater Dependent Terrestrial Ecosystems (GWDTEs): The ECU note the proximity of GWDTEs as well as areas with medium to high flood risk within 1km of the Site and specifically 1 instance adjacent to the solar PV farm and green hydrogen production plant. Private Water Supplies (PWS): The ECU state that where PWS sources may be within a 2km buffer, that this will require inclusion within the Hydrological Impact Assessment (HIA) of the EIA Report with included recommendations for mitigation.	Scoped into EIA Report. Consideration of GWDTEs and PWS is provided within Volume 2, Chapter 8 of the EIA Report. A summary of these findings is outlined below under Section 11.3.
Landscape and Visual	The Screening Opinion notes limited sensitive receptors with the main adverse effect cited at Cauldstanes. It recommends the production of a Landscape and Visual Impact Assessment (LVIA) addressing the following: • Residential Visual Amenity Effects. • The impact of commercial forestry operations and felling on screening of landscape and visual effects from receptors. • The potential water vapour plume arising from the green hydrogen production facility. • Lighting requirements for any component but most likely the green hydrogen production facility (including any potential night time effects). • Glint and glare.	Scoped into EIA Report. Consideration of landscape and visual impact alongside a Residential Visual Amenity Assessment (RVAA) comprise the overall LVIA which is provided within Volume 2, Chapter 7 of the EIA Report. A summary of these findings is outlined below under Section 11.2.
Traffic and Transport	The Screening Opinion provides no detail on Traffic and Transport considerations, beyond the limited comments provided by consultees.	Scoped into EIA Report. Consideration is provided within Volume 2, Chapter 9 of the EIA Report. A summary of these findings is outlined below under Section 11.4.

Topic	Summary from Written Statement	Cross-Reference with EIA Report
Archaeology	WoSAS have provided comment to the ECU on archaeological matters. The view presented within the Screening Opinion is that these can be addressed via planning condition(s).	Scoped out of EIA Report.
Glint and Glare	The ECU note that the inclusion of a standalone Glint and Glare Assessment would be supported but no specific requirement is made for glint and glare to be considered within the EIA Report. The ECU advise that the LVIA should include consideration of potential glint and glare effects on nearby roads and properties (citing Cauldstanes), within the EIA Report.	Scoped out of EIA Report. A separate standalone Glint and Glare Report (document reference 43122-WOOD-ZZ-XX-RP-OP-0001_S0_P01.1) has been prepared in respect of the potential impact arising from the solar PV farm and has been submitted in support of the S36 application.

1.3 Availability of the Project EIA Report

Requirement for physical distribution of EIA Report

1.3.1 In accordance with The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 and the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 (the Coronavirus Regulations), there is presently a suspension on the requirement to make available physical copies of EIA Reports for public inspection at a named place during the "emergency period".

1.3.2 Instead, these interim regulations replace the requirements of Regulations 4(2) and 5(2) of The Electricity (Applications for Consent) (Scotland) Regulations 1990 which require that, in relation to applications under S36 of the Electricity Act 1989, an applicant must in a public notice name a place in the locality where a map of the proposed development may be inspected. Regulations 7 and 10 of these Regulations provide that objections may be made and notices served in physical form.

1.3.3 Regulation 2 of The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 amends the aforementioned Regulations of The Electricity (Applications for Consent) (Scotland) Regulations 1990, suspending the requirement for a map to be made available by the applicant in physical form in a public place and replacing this with the requirement for a map to be published by the applicant on a website during the emergency period. The amending regulation provides that objections may be made electronically during this period.

1.3.4 Likewise, Regulation 4 of the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 amends Regulation 7(2) and Regulation 7 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and allows for the same temporary modifications as outlined in paragraph 1.3.3 above (however under the Planning Regulations).

Requirement for notices

1.3.5 Regulations 14 and 20 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 require that an application for consent under S36 of the Electricity Act 1989 must include publication of a notice stating the times and places at which either an EIA Report or additional information to be included in an EIA Report may be inspected by members of the public.

1.3.6 Regulation 4 of The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 amends these requirements such that it is not necessary for any applicant to name a place where such information may be inspected during the emergency period.

1.3.7 Regulation 21 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 requires that an application for consent under S32 of the Planning Act 1997 must include publication of a notice stating the times and places at which either an EIA Report or additional information to be included in an EIA Report may be inspected by members of the public.

1.3.8 Regulation 4 of the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 amends these requirements such that it is not necessary for any applicant to name a place where such information may be inspected during the emergency period.

Requirement for submission of hard copies of EIA Report to Scottish Ministers

1.3.9 Regulation 17 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 requires the developer to submit hard copies of an EIA Report to the Scottish Ministers.

1.3.10 Regulation 4 of The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 provides that this requirement is suspended during the emergency period, and that a hard copy shall be made available to the Scottish Ministers following the "emergency period".

1.3.11 Regulation 18 of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 places a requirement upon a developer to make available an EIA Report, on submission of an EIA application, for physical inspection at a named place.

1.3.12 Regulation 4 of The Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 suspends this requirement during the emergency period.

Requirement for submission of hard copies of the EIA Report to the local planning authority

1.3.13 Regulation 21 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 requires that the developer must submit hard copies of an EIA report to the local planning authority so that it may be made physically available at an office of the planning authority where it may be expected.

1.3.14 Regulation 4 of the Town and Country Planning (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 suspends this requirement during the emergency period.

Alternative arrangements by the applicant

1.3.15 Notwithstanding the above changes arising from The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, the applicant recognises the need to present the findings of the EIA Report as a matter of public record and in the interests of public engagement and transparency has sought to make the EIA Report available in digital format at the following web address:

https://www.scottishpowerrenewables.com/pages/whitelee_solar_hydrogen_bess.aspx

Request for physical copies of EIA Report

1.3.16 Digital copies of complete application submissions are available free of charge on CD. Hard copies of the application may be obtained at a reasonable charge reflecting the cost of making the application(s) available.

To request a copy of the application submissions please contact:

Jamie Gilliland

ScottishPower Renewables UK Limited

320 St Vincent Street

Glasgow

G2 5AD

2. Representations

S36, to ECU

2.1.1 Any representations on the S36 application should be made directly to the Scottish Government Energy Consents Unit via:

Energy Consents Unit

Scottish Government

4th Floor

5 Atlantic Quay

150 Broomielaw

Glasgow

G2 8LU

Email – representations@gov.scot

Website – www.energyconsents.scot

Full planning permission, to EAC

2.1.2 Any representation on the Full planning application should be made directly to East Ayrshire Council via:

Planning and Economic Development

Opera House

8 John Finnie Street

Kilmarnock

KA1 1DD

Email – submittoplanning@east-ayrshire.gov.uk

Website - https://eplanning.east-ayrshire.gov.uk/online/

3. Site location and description

3.1 Site location

3.1.1 The EIA 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.

3.1.2 The EIA 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).

3.1.3 The EIA 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.

3.1.4 The red line EIA site boundary associated with this EIA Report is included within **Appendix A** of this document as **Figure 1.5**.

Project component locations

3.1.5 The main components of the Project considered within the EIA Report are located as shown in **Table 3.1** below.

Table 3.1 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

Site characteristics

3.1.6 To the immediate north of the Site between the Site and the B764 is a coniferous forestry plantation. The area of land identified for the solar PV farm comprises plateau moorland and felled coniferous plantation, and to the immediate east of this area is the Eaglesham Moor part of the existing Whitelee Windfarm, which is nearby the Lochgoin circuit, Lochgoin reservoir, Lochgoin farmhouse and monument. Peat bog underlies a significant proportion of the northern part of the Site at varying depths. The layout of the solar PV farm (and the location of the green hydrogen production facility) have been selected to avoid areas of deeper peat and concentrate development in areas where peat bog has been identified as being 1m or less in depth.

3.1.7 The southern part of the Site comprises sections of commercial forestry to the north, west and south, interspersed with areas of moorland combined with existing access tracks between the existing wind turbines of the Whitelee Windfarm Extension. To the east is situated the existing Whitelee Windfarm Extension substation (c. 800m). To the distant northwest is Craigendunton Reservoir (2km).

4. Site selection

4.1.1 The applicant's site selection process is designed to identify sites which provide the most financially and technically viable option whilst being the least environmentally impactful and thereby standing the best opportunity to gain consent. The applicant has selected this Site principally as it allows for the best opportunity to make a meaningful contribution to Scotland's national targets for renewable energy generation and further Whitelee's position as centre for green energy in Scotland.

4.1.2 The applicant is committed to avoiding the development of renewable energy infrastructure in areas where there would be an unacceptable effect on designated sites and where suitable mitigation cannot be achieved. The applicant is also committed to not considering sites that have an unacceptable effect on landscape character or amenity of National Parks and National Scenic Areas, and special consideration is attributed to internationally and nationally important species and habitats in the wider area.

4.1.3 The following factors have led to the selection of this Site for the Project:

- Acceptable solar resource during peak months.
- Good levels of Site accessibility and access from the motorway network.
- The lack of statutory nature conservation designations on the Site.
- The close proximity to potential grid connection points.
- The relatively sparse population of the surrounding area.
- A good landscape fit.
- A good opportunity to extend the green energy infrastructure for which the wider Whitelee Windfarm is associated with and the ability to provide connection to the windfarm – increasing operating efficiency.
- Past knowledge of the Site gained from the previous Whitelee Windfarm applications, including the ability to use previously gathered baseline data to inform design principles.
- Designated as an area with potential for Wind Energy Development within the East Ayrshire Local Development Plan 2017 (LDP2017) which sets a policy context for renewable/green energy.

5. The Project

5.1 Proposals

5.1.1 This Section of the NTS provides a brief outline of each of the components which form the Project and that are the subject of this EIA. It is not designed to offer a technical explanation of the Project and its components. For further detailed information on these components and their locations please refer to the associated Supporting Statement for the S36 application (doc. reference 43122-WOOD-XX-XX-RP-T-0003_S0_P01.1) and the Planning Statement for the Full PP application (doc. reference 43122-WOOD-XX-XX-RP-T-0001_S0_P01.1).

Access

5.1.2 The Site would eventually be accessed via a proposed new vehicular junction to/from the B764 which leads to a proposed internal 1.5km link/haul road travelling east/west between the junction and terminating at the site of the proposed green hydrogen production facility. This access would be designed and built to a suitable standard for the use of two-way travel of tube trailers which are required for the export of hydrogen from the green hydrogen production facility as well as for required access of maintenance vehicles for the proposed solar PV farm.

5.1.3 The proposed new site access and link/haul road is being applied for under the S36 application to the ECU as identified in **Table 3.1** above.

5.1.4 The layout of the proposed new site access can be viewed on **Figure 9.1** contained within Volume 6C of the EIA Report.

5.1.5 Additional to the new Site access, additional Site access can be taken via the existing Whitelee Windfarm link road via the B764 (grid reference NS 51762 48585). This existing access currently serves as the operational access to the applicant's Control Centre for Whitelee Windfarm and is a controlled access managed by the applicant. From this existing link road, direct access can be taken through the Whitelee Windfarm Extension access tracks directly to the substation and BESS at the south of the Site.

Solar PV farm

5.1.6 It is anticipated that the solar PV farm will comprise c. 62,000 solar panels, each with height less than 3m at the frame's highest point, constructed as a series of arrays (also known as banks). The panels will connect via HV and low voltage (LV) cabling to a proposed substation building located within the green hydrogen production facility. From this substation, HV cabling provides further direct connection between the green hydrogen production facility and the existing Whitelee Extension windfarm substation (grid reference NS 55256 45401) and to the proposed BESS.

5.1.7 It is proposed to locate the solar PV farm within a section of the Site contained to north west of the Site boundary and centred on grid reference NS 50955 47366. This area of the Site sits south of Kingswell and Tent Knowe and east of Cauldstanes at Collory Bog and extends to approximately 12.5 hectares. This area allows the solar PV arrays to be located in such a way whereby they can be optimally integrated into the landscape with minimal regrading of the land or changes to its natural topography while taking advantage of optimal solar resource.

Solar PV ancillary infrastructure

5.1.8 The solar PV farm will include several centre inverter stations (approximately 10 of), Site tracks, HV and LV cabling, perimeter wire and post security fencing and CCTV cameras. The final detail of these layouts will be informed by further post-consent survey works, and the applicant would seek to agree the finalised designs and locations of all ancillary infrastructure through conditions.

Solar PV temporary construction laydown area

5.1.9 For the purposes of construction, a temporary construction laydown area is required. This area, located at grid reference NS 49974 47276, would measure approximately 0.8 hectares and would be formed of a hardstanding with perimeter security fencing, details of which will be agreed prior to construction activities taking place. The temporary construction laydown area is required throughout the duration of construction activities on site and would be removed prior to operation.

5.1.10 The layout of the solar PV farm and typical solar details can be viewed on **Figures 1.6** and **1.7** within Volume 7C of the EIA Report.

BESS

5.1.11 The BESS will have a storage capacity of up to 100 megawatt hours (MWh) and a maximum discharge capability of 50 megawatts (MW). It is constructed as a portal frame building of approximate dimensions 70m x 62.5m x 6.8m (to apex).

5.1.12 The BESS design is based on that of the Whitelee BESS located adjacent to the Ardochrig electrical substation, which was consented by the ECU (ref. ECU00000729) in June 2019 and which is under construction at the time of writing.

5.1.13 It is proposed that the BESS compound would be situated at the location of the former construction compound for the Whitelee Windfarm Extension, on a platform which extends to c. 1.1 hectares (100m x 110m footprint), and which would be within the southern part of the Site. This area of land is located at Rough Hill approx. 2.18 km south west of Craigendunton Reservoir. The Site is c. 800m west of the Whitelee Windfarm Extension substation where it will connect via buried HV cables.

BESS construction laydown area

5.1.14 For the purposes of construction, a temporary construction laydown area is required. This area, located at grid reference NS 54678 45042, would measure approximately 0.3 hectares and would be formed of a hardstanding with perimeter security fencing, details of which will be agreed prior to construction activities taking place. The temporary construction laydown area is required throughout the duration of construction activities on site and would be removed prior to operation.

5.1.15 The layout of the BESS can be viewed on **Figure 1.8** within Volume 7C of the EIA Report.

HV cable

5.1.16 The route of the proposed HV cable is shown on **Figure 1.4** within Volume 7C of the EIA Report. It is requested that the precise location of the cable route may be micro-sited in order to provide flexibility for the construction of this component. It is anticipated that should any changes to the cable route shown be made prior to construction, these details will be submitted for the written approval of EAC.

5.1.17 The HV cable comprises a mix of new cable and tie ins to existing HV cable apparatus at Whitelee Windfarm Extension.

5.1.18 Across its span, the proposed HV cable will be buried beneath ground.

New access tracks

5.1.19 The majority of the HV cable would make use of existing tracks within the Site. New lengths of track would be required for a section to the east of Flow Moss to Dunton Water. These new tracks would be retained following the completion of construction.

Green hydrogen production facility

5.1.20 The green hydrogen production facility is embedded within the solar PV layout and incorporates the substation building required for the solar PV farm and connection to/from the BESS via the proposed HV cable.

5.1.21 The extent of the green hydrogen production facility site measures 120m x 120m based on a site platform of 1.44 hectares. This is exclusive of the proposed temporary construction laydown area located along the span of the northern boundary of the Site which measures 0.36 hectares and is outlined further below.

5.1.22 The green hydrogen production facility operates based on Polymer Electrolyte Membrane Electrolysis (PEM) technology with a predicted capacity for supply up to 10,000kg of green hydrogen per day based on up to a maximum of 23MW power demand during the life of the project. The anticipated water demand for the facility is up to c. 480,000 litres per day and is anticipated to be supplied by mains water supply.

5.1.23 Operationally, the green hydrogen production facility will operate continuously over 24 hours. This is expected to require 8 full time equivalent (FTE) staff including the requirement for 24-hour on-site security. It is not anticipated that all staff will be in attending the site at the same time and therefore a parking provision based on 4 staff parking bays and 2 visitor parking bays is considered sufficient to meet the staffing requirements of the plant.

5.1.24 The layout of the proposed green hydrogen production facility can be viewed on **Figure 1.9** within Volume 7C of the EIA Report.

Access

5.1.25 Access to/from the green hydrogen production facility is taken via a new access at the B764 leading to a proposed 1.5km link/haul road which would serve the solar PV farm and which links to the north west of the Site. As the link/haul road is necessary to serve the solar PV farm and its ongoing maintenance and management, it has been considered that it is appropriate for it to be proposed within the S36 application.

5.1.26 Through the design evolution of the Project, it has been determined that the least environmentally impactful option is to utilise the haul/link road for the combined purpose both serving the solar PV farm and also to serve the green hydrogen production facility which is located within the wider solar PV farm site.

5.1.27 Operationally in respect of the Project, it is intended that tube-trailers would enter the site from the north west and be able to directly access four filling bays for their use only. These filling bays are located directly adjacent to the high-pressure green hydrogen storage vessels. General vehicles would use the same access route via the link/haul road and would access the green hydrogen production facility via a separate designed access point located at the south west corner of the site, leading to the site office and associated staff and visitor parking.

Green hydrogen production facility laydown area

5.1.28 Associated with the green hydrogen production facility is a temporary construction laydown area sited immediately north of the fence line. This area measures 120m x 30m spanning the north boundary of the Site and formed of temporary hardstanding. The compound will be enclosed by means of security fencing and details of on-site security during construction will be finalised prior to the commencement of construction activities.

5.1.29 In respect of plant construction, it is anticipated that modules will, where possible, be pre-fitted remotely for delivery to site to keep site installation to a minimum.

Ancillary infrastructure

5.1.30 In addition to the main temporary construction laydown areas, it is proposed that there will be several minor laydown areas located throughout the Site, which will be used in a temporary capacity for the duration of construction before being removed and the Site restored. The location of these areas would be confirmed post-consenting during pre-construction mobilisation activities. Their finalised locations would be included within a Construction Environmental Management Plan (CEMP), which forms part of the supporting information which the applicant anticipates submitting for the approval of EAC prior to the commencement of construction activities on site.

6. Project Programme

6.1.1 It is anticipated that construction activities associated with the Project would take approximately 53 weeks/12.25 months with a programme based on a predicted construction commencement date in April 2022 and a construction completion date of April 2023. The breakdown of construction activities within this 53-week programme and as currently anticipated is outlined below in **Table 6.1**.

Table 6.1 Summary construction programme

Activity	Projected Timeframe
Mobilisation – Civil Works	8 weeks
Site Access Construction	8 weeks
Haul/Link Road Construction	28 weeks
Green hydrogen production facility construction	43 weeks
Solar PV frame installation	11 weeks
Solar PV panel installation	12 weeks
Solar PV cabling	12 weeks
BESS Construction Operations	37 weeks
Grid Connection	16 weeks
Site Restoration and Reinstatement	4 weeks

6.1.2 The above programme is based on assumed construction activities taking place on an up to seven days per week basis. Programme may be subject to change post-planning. It would be the intention of the applicant to keep EAC informed of any alternations to the project programme.

Temporary works phase

Construction Traffic and Access

6.1.3 It is anticipated that the solar PV panels, plant and infrastructure will be primarily fabricated off-site and then transported to the Site via the motorway network, with access taken from the M77, junction 6. Upon arrival at the Site entrance, access will be taken to the northern part of the Site via the proposed new Site access and link road for works associated with the solar PV farm and the northern sections of the HV cable route. Similarly, plant and infrastructure required for the green hydrogen production facility will be primarily fabricated remotely with delivery to the site as per the solar PV.

6.1.4 It is not anticipated that a high degree of abnormal loads will be required to support the delivery of site infrastructure for the solar PV farm or green hydrogen production facility, and in most cases standard HGV movements can be predicted. Where abnormal loads may be required in limited circumstances, routing will be directly via the motorway network.

6.1.5 For the BESS and the southern sections of the HV cable route, access will be taken through either the new track that runs alongside the buried HV cable, that routes from the Solar PV substation (located on the same platform as the Green Hydrogen Production facility) to the existing Whitelee Windfarm Extension substation and/or the existing operational access track to Whitelee Windfarm. This access is proposed via the existing Whitelee Windfarm Control Centre access road located at the B764/Moor Road (NS 51764 48588) which runs north/south parallel to the Site's eastern boundary and allows for internal access routing to the existing Whitelee Extension substation and the BESS via existing access tracks.

Construction Environmental Management Plan

6.1.6 It is proposed that the management of all construction activities on site would be informed through the production of a CEMP which would be prepared and adopted prior to the onset of construction activities on site. The CEMP would be produced in line with best practice guidelines and in consultation with EAC and other identified stakeholders. As with the CTMP, it is anticipated that the requirement for a CEMP would form a condition of consent.

6.1.7 Combined, the CTMP and CEMP would form the primary management and reporting tools for all on-site construction activities.

Operational phase

6.1.8 Consent is being sought for the Project in perpetuity as there is no need to limit the operational phase of the Project or its individual components. Increasing the operational period allows the costs of renewable energy to be reduced and maximises the contribution that the Project can make towards climate change and renewable energy targets. Furthermore, there are no current statutory or legislative limits to the duration of consent for renewable energy development proposals.

Decommissioning

6.1.9 Decommissioning of components will take account of the environmental legislation and technology available at the time of decommissioning. While it is noted that consent is sought in perpetuity and therefore decommissioning would only occur when a component, or section of, reaches the end of its operational lifespan it is anticipated that replacement works would occur on a like for like basis. Where necessary, notice will be given to EAC in advance of commencement of decommissioning works, with all necessary licenses or permits being acquired. This will be in line with the decommissioning plan to ensure any works are timed to minimise environmental impact.

7. Consultation

7.1.1 Prior to the submission of this application, consultation has been undertaken with both the ECU and EAC. **Table 7.1** lists the dates of all consultation between Wood, the applicant, the ECU, NatureScot (previously Scottish Natural Heritage) (NS) and EAC undertaken to date.

Table 7.1 Summary of Pre-application Engagement with Determining Authorities and Consultees

Date	Consultee	Summary
18.08.2020	ECU	Initial pre-application discussion and introduction to the Project by the applicant and Wood.
10.09.2020	ECU & EAC	Project introduction to EAC, high level discussion on principles of development within the Site and detailed discussion submission and appropriate determination routes.
18.11.2020	ECU & EAC	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.
10.12.2020	NS & ECU	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.
11.01.2021	EAC	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 S36 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.

8. Energy and planning policy

8.1.1 For the purposes of determination under the relevant statutory powers, the Project is split into 2 Proposed Developments which are identified at a component level within **Table 3.1** above. Those components which are deemed to consist of electricity generating stations and their ancillary infrastructure (i.e., the solar PV farm and BESS) and have an installed capacity exceeding 50 megawatts require consent from the Scottish Ministers under Electricity Act. Those components which do not consist of electricity generating stations and are not deemed to be ancillary to those components (i.e., the green hydrogen production facility) require consent from the local planning authority (EAC) under the Planning Act.

8.1.2 In the case of a S36 application to Scottish Ministers, the local planning authority is a statutory consultee in the development management process and procedures and the adopted Local Development Plan (in this case LDP2017) is not afforded primacy in the determination of the application, although it – alongside the local planning authority consultation response - remains a significant material consideration.

8.1.3 In the case of a planning application to the local planning authority, the Scottish Ministers are not a statutory consultee and the Local Development Plan is given primacy in the decision making process.

8.1.4 A summary of relevant international, UK-wide and Scottish energy policy has been referenced briefly in the EIA Report. The Project relates, in part, to the generation of electricity from renewable energy sources (in this case solar) and comes as a direct response to national planning and energy policy objectives. Furthermore, the Project would make a contribution to the attainment of emissions reduction (particularly regarding the green hydrogen production facility), renewable energy and electricity targets at both the Scottish and UK levels. Detailed reference to the energy policy context for both applications is provided in the corresponding Planning and Supporting Statements and has been tailored specifically to each.

8.1.5 National planning policy and guidance has been reviewed as part of the EIA process including the National Planning Framework, Scottish Planning Policy and relevant Circulars and Planning Advice Notes.

8.1.6 The statutory Local Development Plan relevant to the Project has also been taken into account. This comprises the following documents:

- The East Ayrshire Local Development Plan (2017)

8.1.7 Consideration has been given to the relevant policies contained within the Local Development Plan during the design of the Development. The policies most relevant to each of the Proposed Developments relate to renewable energy developments (S36) and industrial developments (Full PP), and they provide guidance on the main issues the Council will consider, both when acting as a statutory consultee for the S36 application and as the determining authority for the Full planning application.

9. EIA process and methodology

9.1.1 EIA is the process undertaken to identify and evaluate the likely significant effects of a proposed development on the environment and to identify measures to mitigate or manage any significant adverse effects. The assessment must be carried out following consultation with statutory consultees, other interested bodies and members of the public. The purpose of identifying significant effects is to ensure decision makers are able to make an informed judgement on a proposal. Where one or more significant effects are identified, it does not automatically follow that a proposal should be refused.

9.1.2 This EIA Report has been prepared following a systematic approach to EIA and project design.

9.1.3 The process of identifying environmental effects is both iterative and cyclical, running in tandem with the iterative design process. The key elements in EIA are:

- Screening in order to establish the requirement for EIA under the relevant EIA Regulations.
- Establishing the scope of the EIA and undertaking consultation, including consideration of responses and how these should be addressed.
- The undertaking of technical environmental assessments, including baseline studies, input to the design process and identification of potential significant environmental effects.
- Preparation of the EIA Report which presents the findings of the technical environmental assessments and draws conclusions as to the predicted environmental impact of the scheme factoring any mitigation measures required to offset or negate significant environmental effects.
- Submission of the applications alongside the EIA Report, including publicity of the submitted EIA findings.

Public consultation

9.1.4 The applicant consulted the members of the public, the local community, community councils and locally elected officials through a virtual public event held on their website during December 2020. This public exhibition was hosted online due to the Scottish Government's COVID-19 advice and guidelines at the time. Notably, the requirement to undertake public consultation in respect of both the S36 and the Full planning applications is non-statutory. A non-statutory consultation report (document reference 43122-WOOD-XX-01-RP-T-0001_S1_R1) which provides a summary of the public consultation activities has been prepared and can be viewed alongside both applications.

10. Summary of EIA Report technical assessments

10.1 Ecology and ornithology

10.1.1 Chapter 6 of Volume 2 of the EIA Report includes an assessment of the effects of the Project on ecological and ornithological receptors.

10.1.2 This Chapter of the EIA Report comprises an Ecological Impact Assessment (EcIA) that has been undertaken to identify the potential impact the Project on local biodiversity. This Chapter should be read in conjunction with the Supporting and Planning Statements and with respect to relevant parts of other technical assessments. This includes Volume 2, Chapter 8 of the EIA Report which considers geology, hydrology and hydrogeology from the perspective of a Hydrological Impact Assessment (HIA) where common receptors have been considered and where there is an overlap or relationship between the assessment of effects.

10.1.3 The EcIA has been based on the results of field surveys and a desk study, relevant published information (for example on the status, distribution and sensitivity to environmental changes and ecology of the features scoped-in to the assessment), and professional knowledge of ecological processes and functions.

10.1.4 Ecological surveys have been undertaken across the Site, including a Phase 1 habitat survey, a National Vegetation Classification (NVC) survey and protected mammal surveys (including badger, otter and water vole); and a desk study comprising an extensive historical baseline for the Site and wider area (including protected mammal surveys, bat surveys, fish habitat surveys), as well as contemporary bird monitoring data for the adjacent and overlapping Whitelee Wind Farm Habitat Management Area (HMA).

10.1.5 The design layout has evolved through the iterative design process, taking consideration of sensitive ecological features including habitats and species present within the Site and appropriate buffers:

- Specifically, the layout has been designed to avoid deeper peat and more sensitive areas of bog habitat, non-statutory designated sites in close proximity to the Site (Fenwick Moor Provisional Wildlife Site), GWDTEs and watercourses.
- Haul road, access track and cable route layout have been designed as far as reasonably practicable to use the minimum land take; and cabling infrastructure will be installed alongside existing forestry tracks thus limiting loss of habitat to new tracks.
- The Solar array, Hydrogen storage, BESS Compound, and temporary storage/laydown areas have been sited to avoid sensitive vegetation communities where possible, targeting shallow peat, existing disturbed ground, grassland or clear-felled areas.
- Tight construction footprints would be adhered to in order to minimise damage to sensitive habitats, and consideration will be given to limiting passes of machinery over bog and use of low-pressure machines. The haul road and access tracks on peat depths exceeding 1m, where practical, would be of floating design, to minimise effects on peat.

10.1.6 For each scoped-in important ecological feature (IEF), effects were assessed against the current baseline conditions for that feature during construction and operation. IEFs included wet modified bog communities, otter, black grouse and curlew.

10.1.7 Working practices to minimise effects on terrestrial, ornithological and freshwater ecology during construction would be set out in a Construction Environmental Management Plan (CEMP) and

implemented under the direction/supervision of an Environmental Clerk of Works (ECOW) and would include:

- A Species Protection Plan (SPP) for otter would be prepared to ensure compliance with legislation. It would include details of pre-construction surveys to check on the presence of otters and the following suite of embedded measures that would be implemented across the Site to avoid causing harm to, or disturbing this species. Taking this and other mitigation measures into account, it was concluded that the Project would not have a significant effect on otter.
- Working practices to minimise effects on ornithological features during construction will be set out in a Bird Protection Plan (BPP). Taking this and other mitigation measures into account, it was concluded that the Project would not have a significant effect on birds.
- Similarly the iterative design process has incorporated embedded measures to minimise or 'design-out' the risk of significant effects on freshwater ecology has been considered: numbers of watercourse crossings have been restricted to a practical minimum; watercourse crossings have been designed in accordance with good practice, maintaining connectivity of watercourse habitat and avoiding impeding fish passage/migration; a minimum stand-off ('buffer') of 20m between site infrastructure (permanent and temporary) and watercourses / waterbodies (with the exception of watercourse crossings) has been incorporated into the design. Taking this and other mitigation measures into account, it was concluded that the Project would not have a significant effect on freshwater fish.

10.1.8 The combined loss and/or possible degradation of 19.74 ha of wet modified bog within the footprint of the solar PV farm and green hydrogen production facility is considered to be a significant effect. However, habitat management proposals will compensate for the loss of this area, which would reduce the residual effect on these habitats to not significant.

10.1.9 Proposals are likely to contribute a net positive balance to the blanket bog resource within the Site, including the restoration of a large extent of Fenwick Moor PWS, provide more favourable conditions for breeding waders and contribute an increase to the extent of the existing Whitelee HMA, which will help to safeguard peat bogs and wildlife species over the long term.

10.2 Landscape and visual

10.2.1 Chapter 7 of Volume 2 of the EIA Report includes an assessment of the effects of the Project on landscape and visual receptors, including a Residential Visual Amenity Assessment (RVAA).

10.2.2 The Site is located in an area where the existing landscape character and features act to reduce the site's sensitivity and limit both the visibility and numbers of people close to the Site who might otherwise view the components of the Project. The most visible components of the Project would be the solar PV farm and to a lesser extent, the green hydrogen production facility, whilst there would be very limited visibility of the BESS from the surrounding area.

Landscape effects

10.2.3 As with most built developments, the Project would generate localised significant landscape effects where construction activity and built components would affect landscape character and elements. Landscape Effects are concerned with how the Project would affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape, and its distinctive character. The local topological features and scale of the Project would be such that significant landscape effects would be limited to the Site and up to 0.2 - 0.3km on the host *Plateau Moorland with Windfarms* Landscape Character Type (LCT). In addition, the Project would be visible in the landscape in the

context of the turbines at Whitelee windfarm, a key feature of the LCT which present a noticeable manmade element introduced within the landscape, as well as the M77, a key linear feature in the *Plateau Moorland with Windfarms* LCT, along with coniferous forestry, dispersed farms and agricultural buildings. As such the Project would present as a 'new' element in the landscape, but in a part of the landscape which is already characterised by large scale man-made features. By comparison to these existing large scale man-made features, the Project would be perceived as a relatively small scale, mostly horizontal additional feature that would be less visible due to the surrounding undulating landform.

10.2.4 The Site is not located within any designated landscapes, neither are there any designated landscapes within the study area. As such, there are no statutory landscape designations affected by the Project.

Visual effects

10.2.5 Significant visual effects (identified as being of moderate significance) would be limited to the transient views from the private access track of the residential property at Cauldstanes to the southwest of the Site. This would be largely due to the solar PV farm component of the Project. However, there would be no significant visual effects experienced from the property itself and any other visual receptors within the study area. Views of the Project would be mostly limited to receptors within approximately 1km of the solar PV farm and green hydrogen production facility components of the Project, in particular to the west and southwest, with limited visual effects from other directions and beyond 1km. There would also be very limited views of the BESS from the surrounding area.

10.2.6 The greatest views of the Project would be residents at Cauldstanes, Best Friends and Drumtee, road users and cyclists of the A77 and B764 along short sections of these routes. Except for the views from the access track to Cauldstanes being significantly affected, none of these receptors would be significantly affected by the Project. None of the residential properties would be unacceptably affected by the Project in terms of their residential visual amenity.

10.2.7 Visual effects from the east and south including all the recreational routes would be limited and not significant due to the landform which slopes down to the west such that most views of the solar PV farm and green hydrogen production facility would be mid to long range. Where visible in these views, the components would be seen as low-lying features, beyond the prominent Whitelee wind turbines, backclothed by landform and forestry and would sit below the horizon line.

10.2.8 The overall effects of the Project on the landscape and visual resource are limited to a very small geographical area (within approximately 0.2-1km of the proposed structures) and a small number of receptors within this area would be affected. Significant landscape effects would only be limited to the Site and up to 0.2-0.3km of the host *Plateau Moorland with Windfarms* LCT and views from the access track at Cauldstanes. Furthermore, the Project would be seen and experienced in a contemporary landscape which has already been modified through existing windfarm development.

10.3 Geology, hydrology and hydrogeology

10.3.1 Chapter 8 of Volume 2 of the EIA Report includes an assessment of the effects of the Project on geological, hydrological and hydrogeological receptors, including flood risk.

10.3.2 A thorough appraisal of the current baseline environmental characteristics of the Development Site and a surrounding buffer area has been undertaken (1 km in the north, 250 m in the south), with reference to geology, hydrology (including flood risk) and hydrogeology.

10.3.3 The appraisal identified a number of water environment 'receptors' at potential significant risk from the Project (and its two constituent Proposed Developments) and therefore requiring assessment. These included groundwater (bedrock aquifer and associated Water Framework Directive (WFD) groundwater body), surface water (two watercourses and associated WFD surface water bodies and one reservoir), two licenced abstractions, three private water supplies (PWSs), two non-statutory conservation sites and a group of on-site GWDTEs.

10.3.4 Consideration has been given to the types of potential effects that could arise during the construction, operation and decommissioning phases of the Project. The main potential water effects associated with the Project relate to the construction phase, which would involve excavation and dewatering for building foundations; formation and upgrading of access tracks; the installation of trenches along cable routes; and formation and upgrading of watercourse crossings. Such activities could potentially result in, for instance, the interception of surface water and groundwater and the generation of additional, silt-laden runoff, and fuel, oil and chemical spillages, with resulting detrimental water quantity (including flooding) and quality effects on the above-named receptors.

10.3.5 Potential water effects from the Project would be more limited in the operational phase. Nevertheless, the constructed site and operational traffic and maintenance activities could still potentially result in the generation of additional, silt-laden runoff and fuel, oil and chemical spillages, with resulting detrimental water quantity (including flooding) and quality effects on the previously named receptors.

10.3.6 The potential water effects associated with the Project during the decommissioning phase would be similar to those incurred during the construction phase, albeit to a slightly lesser degree.

10.3.7 An assessment has been undertaken of the significance of these potential effects of the Project on a receptor group and individual receptor basis. With 'embedded' mitigation, it has been determined that there would be no likely significant adverse effects on the water environment related to the Project. Furthermore, additional mitigation is proposed comprising further micro-siting of Project infrastructure and an agreed water quality 'monitoring and respond' programme would be suitably precautionary.

10.3.8 On this basis, standalone effects of the Project (and its two constituent Proposed Developments in isolation) on all water receptors are not significant.

10.4 Traffic and transport

10.4.1 Chapter 9 of Volume 2 of the EIA Report includes an assessment of the effects of the Project on traffic and transport receptors.

10.4.2 Most traffic generated by the Project is associated with the construction phase which is anticipated to last up to 12 months. The approach considered in this assessment assumes that abnormal loads will not be required for the solar PV farm, green hydrogen production facility and other associated infrastructure and only the BESS would require the transport of abnormal loads which would be routed from the M77, via the A77 and B764 before utilising the existing Whitelee Extension spine road which has been designed to accommodate abnormal loads for the transport of wind turbine infrastructure.

10.4.3 Baseline traffic flow information was obtained from data published by the Department of Transport (DfT) located on the construction traffic route. It should be noted however that no data was sought for the M77 as the proportional increase in traffic because of the Project is insignificant.

10.4.4 It is assumed that most construction traffic will approach the Site from the north, via the M77, A77 and B764 as detailed above. The main potential transportation impacts would be associated with

the movement of abnormal loads, heavy goods vehicles (HGVs), light vehicles (cars and vans) (LVs), to and from the Site during the construction phase.

10.4.5 It is estimated that a total of up to 122 vehicle movements per day (at peak, week 10 2022) (where one movement equals one arrival or departure) would be associated with the construction phase of the Project, as a worst case scenario. This figure includes 64 HGV and abnormal load delivery movements and 58 LV movements.

10.4.6 Over the construction period, the total vehicle movement numbers per day peak during week 10 (2022) where a total of 122 two-way vehicles movements are predicted. This is principally due to the deliveries of concrete and stone for the access tracks, component base foundations.

10.4.7 The assessment of potentially significant environmental effects undertaken in the traffic and transport assessment utilised the Institute of Environmental Assessment (IEA) publication Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic (GEART). In applying the GEART, it has been concluded that:

- The increase in overall traffic flow and HGV flow was identified to have no potential significant effects.
- The consequential potential of driver delay due to increase in overall traffic flow was identified to have no potential significant effects.
- The residual effect on pedestrian amenity is considered not significant in terms of the EIA Regulations.
- The effect of the transportation of hazardous loads (in this case hydrogen) is negligible and does not require further assessment.

10.4.8 A Construction Traffic Management Plan (CTMP) will be developed in agreement with EAC (the Local Highways Authority) and Transport Scotland which will detail the exact measures to be implemented during construction of the Project.

10.4.9 Traffic generated during the operation and maintenance of the Project components would be less than the construction phase and this is expected to be not significant.

10.4.10 Cumulative effects were assessed and there is sufficient residual capacity on each of the roads within the study area to accommodate the predicted increase in traffic which may occur in the cumulative scenario.

11. Conclusions

11.1.1 The Site at Whitelee has been chosen for a number of reasons. It benefits from sufficient solar coverage, it is located adjacent to an existing centre of renewable (wind) energy generation in Scotland with pre-existing connections to the National Grid, it is free from any statutory designations, has few ecologically sensitive species present, and is within a sparsely settled area which is sufficiently distant from main populated settlements.

11.1.2 An EIA for the Project in its totality has been carried out in accordance with the regulatory requirements of the EIA Regulations as well as relevant good practice guidance, which involves the compilation, evaluation and presentation of any potentially significantly environmental effects which may arise from the development.

11.1.3 The design strategy has a delivered mixed renewable and green energy scheme with a layout that represents optimum fit within the technical and environmental parameters of the Site.

11.1.4 Through embedded design and proposed mitigation, major and significant adverse effects as a result of the construction and operation of the Project and its components have been avoided; however, moderate adverse landscape and visual effects will remain albeit to an extremely limited degree. Given the nature of the Project and the Site, these effects cannot be avoided in their entirety; however, landscape and visual effects will be localised in extent to only a very small number of receptors and within approximately 0.2 – 0.3km of the of the Site. The EIA Report EcIA identifies the only significant adverse impact is in relation to peatland habitat, however suitable compensatory habitat management has been provided to offset these impacts.

11.1.5 The Project presents an important environmental benefit as a renewable energy and green fuel generator contributing to Scotland's ambitious renewable energy targets and offsetting fossil fuel energy sources which produce CO2 and contribute to climate change.

11.1.6 Overall, this EIA shows that, given the iterative design process, and with the committed good practice measures and proposed further site-specific mitigation in place, most potential environmental effects associated with the construction and operation of the Project can be avoided altogether or minimised to a suitable degree.

© Wood Group UK Limited

Appendix A
Non-Technical Summary Supporting Figures