



ScottishPower Renewables UK Limited

Land Adjacent to Whitelee Windfarm – Green Hydrogen Production Facility









Wood Group UK Limited – April 2021

Report for

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

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Document revisions

No.	Details	Date
1	Planning Statement Draft	29.01.2021
2	Finalised Draft	31.03.2021
3	Final	06.04.2021

Executive summary

Purpose of this report

- 1.1.1 This report has been produced for the purpose of supporting a Planning Application in respect of a proposed green hydrogen production facility on land to the west of Whitelee Windfarm within the administrative boundary of East Ayrshire Council (EAC). **Section 3** provides a comprehensive outline of the site's location and a detailed description of what is being proposed.
- 1.1.2 This report sets out the full extent of the on-site infrastructure, demonstrates the legislative and planning policy context within which the Proposed Development is considered and provides an assessment against this planning policy context, alongside other material considerations, to determine its suitability in planning terms.
- National policy states that compliance with the Local Development Plan is of primary consideration in the assessment of planning applications. This application is made under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended (the Planning Act). It is subject to assessment against the East Ayrshire Council Local Development Plan 2017 (LDP2017). Other relevant material considerations include, but are not limited to, adopted and emerging national policy and guidance (e.g., the National Planning Framework for Scotland 3 (NPF3) and Scottish Planning Policy (SPP)), and local Supplementary Guidance. Further consideration of the merits of the Proposed Development and assessment against national and local policy and guidance is provided below within Sections 4 - 6.
- 1.1.4 Care has been taken to ensure that the embedded design, mitigation measures and overall nature of the Proposed Development fully accord with the provisions of adopted and emerging local and national planning and energy policy. Notably, the Site location has been selected so as to reduce as far as possible the potential adverse environmental impacts of the Proposed Development from an ecological, hydrological and landscape and visual perspective.
- 1.1.5 This report demonstrates that the Proposed Development would not have any significant adverse effects and would create a sustainable green hydrogen production facility that would aid in the decarbonisation of Scotland and the UK. As **Section 5** of this report demonstrates, finding clean sources of fuel (such as green hydrogen) is critical to combating climate change.
- In October 2019, the Climate Change (Emissions Reduction Targets) (Scotland) Act (the Climate Change Act) received Royal Assent. Through this Act, the Scottish Government amended the 2009 Act and committed to becoming carbon-neutral by 2045, a target which is five years' ahead of the rest of the UK. It also provided an interim target of 75% by 2030 The Act treats this target as necessary and not simply an ambition and consequently it must be reflected in the way which sustainable green energy projects are handled at the local level. This application is for a suitable and well designed development that would directly contribute to the national targets by reducing reliance of fossil fuels and offering a viable alternative through the availability of green hydrogen.
- 1.1.7 This application has been subject to an Environmental Impact Assessment (EIA) and is supported by an EIA Report. Full details of all supporting documentation which form this application are provided within **Section 1**.

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1. Introduction

1.1 General introduction

- This Planning Statement prepared by Wood Group UK Limited ('Wood') provides an assessment of ScottishPower Renewables (UK) Limited's (the 'applicant') ('SPR') proposals for a green hydrogen production facility with associated temporary construction laydown area and infrastructure (the Proposed Development). The Proposed Development is located immediately west of the existing Whitelee Windfarm (the 'Site'). The location is within Eaglesham Moor within the administrative boundary of EAC.
- This application is made to EAC and information which has been provided within this report relating to other Section 36 components (namely the solar photovoltaic (PV) farm, high voltage (HV) cable, Battery Energy Storage System (BESS) and associated infrastructure) while not the subject of this planning application are nonetheless considered from an EIA perspective and assessed within the accompanying EIA Report. Given this, these other project components are material to the assessment of the green hydrogen production facility and its infrastructure. For further information on the wider Project components, as well as details of the differing consenting regimes, please refer to the Project summary below within **Section 2.**
- ^{1.1.3} The Site location is shown in detail within the accompanying location plan (**Figure 1.1**) and site plan (**Figure 1.2**). Further information on the Site and its surroundings is provided later in this report under **Section 3**.
- 1.1.4 This Planning Statement forms part of the planning application submission for the Proposed Development. The application consists of the following documents with their associated appendices:

Document Title	Document Reference	Summary of Content
Covering Letter	43122-WOOD-XX-XX-CO-T-0001_S0_P01.1	A covering letter submitted with the application confirming the application submission and request for determination under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended.
Application Form	-	A copy of the completed application form submitted to EAC via the eDevelopment Scotland Portal for an application to be determined under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended.
Copy of Notices	-	A copy of the notices which have been provided to landowners, or those with an ownership interest in the land, made in conjunction with the completed application form for submission to EAC.

Table 1.1 List of associated documentation for Full Planning Permission application

Document Title	Document Reference	Summary of Content
EIA Report	Volume 1, Non-Technical Summary - 43122- WOOD-XX-XX-RP-OE-0001_S0_P01.1 Volume 2, Technical Assessments - 43122- WOOD-XX-XX-RP-OE-0002_S0_P01.2 Volume 3 – 7, Appendices and Supporting Figures	This EIA Report provides the Environmental Impact Assessment associated with the Proposed Development, with particular focus on ecological, hydrological, landscape and visual and traffic and transport assessment topics. The EIA Report has been undertaken holistically and therefore assesses both the Proposed Development as well as associated proposed developments which are subject to a separate application under Section 36 (S36) of the Electricity Act 1989 (the Electricity Act). Namely these elements comprise a solar photovoltaic (PV) farm, Battery Energy Storage System (BESS) with associated High Voltage (HV) cable. Further details of the associated development under S36 can be found below within Section 2 .
Planning Statement	43122-WOOD-XX-XX-RP-T-0001_S0_P01.1	This Planning Statement which presents an overview of the Proposed Development, the Site, consideration against International and National Energy Policy, National and Local Planning Policy, assessment of potential environmental effects in respect of ecology, hydrology, landscape and visual and traffic and transport and recommended mitigation(s) and other material considerations.
Design Statement	43122-WOOD-XX-XX-RP-T-0002_S0_P01.1	A non-statutory Design Statement presenting an overview of the design evolution of the Proposed Development.
Consultation Report	43122-WOOD-XX-01-RP-T-0001_S1_R1	A non-statutory Consultation Report providing a summary of pre-application consultation activities undertaken in respect of the Proposed Development.

- 1.1.5 In addition to the information listed above within **Table 1.1**, further information has been provided *for information only*. This information includes the reports prepared in relation to an application made to the Energy Consents Unit (ECU) for a solar PV farm, BESS, HV cable and associated infrastructure under S36 of the Electricity Act. These components form part of a related development that shares some infrastructure and have been subject to the same EIA as the Proposed Development as part of a singular Project being developed by the applicant.
- 1.1.6 The above notwithstanding, the related components of the S36 are not subject of the assessment of this application and should not be treated as material to the assessment of the Proposed Development. The information listed below is provided to EAC in the interest of completeness and to aid in the contextual understanding of the overall Project. A summary of the information only documentation is provided below in **Table 1.2**.

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Table 1.2 List of Information Only documents

Document Title	Document Reference	Summary of Content
Section 36 Supporting Statement	43122-WOOD-XX-XX-RP-T-0003_S0_P01.1	A Supporting Statement submitted in support of the S36 application to the ECU which presents an overview of the Proposed Development, the Site and consideration against International and National Energy Policy, National and Local Planning Policy and other material considerations.
Section 36 Design Statement	43122-WOOD-XX-XX-RP-T-0004_S0_P01.1	A non-statutory Design Statement presenting an overview of the design evolution of the S36 scheme.

1.1.7 This Planning Statement is structured as follows:

Table 1.3 Planning Statement structure

Section	Summary
Section 2: Background and Overview	Provides information on the background surrounding this planning application and its context, and information on the agent and applicant.
Section 3: Site and Proposed Development	Provides information on the Site and its surroundings and describes what the Proposed Development is.
Section 4: Legislative Context	Explains the relevant planning regulations that the Proposed Development is beholden to.
Section 5: Renewable Energy Policy and Legal Framework	Highlights the sizeable amount of renewable energy supporting documentation that exists.
Section 6: Planning Policy and Environmental Appraisals	 Outlines the relevant Development Plan and its relevant policies. Outlines the relevant national and local planning policies and other material consideration and provides an assessment of the Proposed Development and its potential effects against these. A Landscape and Visual Appraisal specific to the Proposed Development with cumulative consideration of the wider Project. An ecological appraisal specific to the Proposed Development with cumulative consideration of the wider Project in respect of Habitat Loss. A summary of the combined geological, hydrological and hydrogeological appraisal specific to the Proposed Development and cross-referenced from the HIA undertaken and submitted with the S36 application. A brief summary of considerations in respect of waste and air quality.
Section 7: Summary and Conclusions	Summarises why the Proposed Development should be granted planning permission.

2. Background and overview

2.1 Introduction

This Section provides a contextual background to the wider Project within which the Proposed Development sits as well as relevant background information concerning the applicant, the agent and the reasons why the wider Project Site has been selected. All information contained within this Section of the report is provided at a Project level for the ease of understanding by EAC, consultees and interested third parties. Further details specific to the Proposed Development can be found below within **Section 3**.

The applicant

2.1.2 SPR (the applicant) has been operating within the renewable energy market for many years and has successfully developed schemes ranging from wind farms to solar farm developments alongside other large-scale infrastructure projects. The applicant 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 agent

2.13 Wood is one of the UK's largest multidisciplinary environmental and engineering consultancies. The business forms part of a global business supplying consultancy, engineering and project management services. From 12 office locations around the UK, Wood contributes across the business cycle from policy setting through strategy into implementation, development and operational effectiveness. With skills ranging from development planning and design through an array of environmental and engineering disciplines, Wood has a comprehensive service portfolio and applied experience in a wide range of markets.

2.2 Summary of pre-application activities

Consultation

- 2.2.1 Prior to the submission of this Planning Statement, consultation has been undertaken with both the Energy Consents Unit (ECU) and the local planning authority EAC.
- **Table 2.1** lists the dates of all consultation between Wood, the applicant, the ECU, NatureScot (previously Scottish Natural Heritage) ('NS') and EAC undertaken to date.

Date	Consultee	Attendees	Summary
18.08.2020	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 Proposed Development by the applicant and Wood.

Table 2.1 Summary of pre-application engagement with determining authorities and consultees

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Date	Consultee	Attendees	Summary
10.09.2020	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 regarding submission and appropriate determination routes.
18.11.2020	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.
10.12.2020	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) Lewis Monaghan (SPR) Coni Caskie (SPR) Pete Robson (SPR) Chris Pepper (Wood) Alastair Evans (Wood) Alastair Miller (Wood)	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	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 Proposed Development. 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.

2.3 **Project overview**

2.3.1 It is relevant to set out the background to the Proposed Development and how it fits into a wider strategic Project. The Project comprises development proposals which will be integrated with renewable power sources to enable the manufacture of green hydrogen. An application under Section 36 of the Electricity Act 1989 will be submitted to the ECU for Project components which do

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not form part of the Proposed Development from the perspective of this application for planning permission.

2.3.2 The Project in its totality comprises the following components listed below in **Table 2.2**.

Table 2.2	Project	summary	by	component
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Component	Summary	Consenting Route	Determining Authority
Green hydrogen production facility	A green hydrogen production facility including accesses, a temporary construction laydown area and associated infrastructure	Application for Full Planning Permission submitted under Section 32 of the Town and Country Planning (Scotland) Act 1997, as amended. The 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.	EAC
Solar PV farm	c. 20 megawatt (MW) solar PV farm including temporary construction laydown area, a 1.5km link/haul 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 Extension and associated infrastructure.	Application submitted under S36 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. Components submitted under S36 are due to classification as Electricity Generating Stations.	ECU
BESS	c. 50MW BESS including an associated HV cable linking the BESS with the existing substation at Whitelee Extension, a temporary construction laydown area and associated infrastructure	Application submitted under S36 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. Components submitted under S36 are due to classification as Electricity Generating Stations.	ECU

- In its totality, the Project is a renewable energy development that intends to make use of available renewable energy technologies to maximise and optimise the green energy potential of the Site. The applicant wishes to construct a solar PV farm with a combined rated output of up to 40MW.
- This solar PV farm has the primary function of providing the main source of green electricity to the proposed green hydrogen production facility which has a rated energy consumption of c. 20MW. During peak production, the green hydrogen production facility is anticipated to produce c. 10 tonnes of green hydrogen per day and will consume c. 480,000 litres of water per day, which will be taken from a dedicated direct water supply.
- To support the Project, it is proposed to construct a BESS located to the south of the solar PV farm and green hydrogen production facility and c. 0.65km west of the existing Whitelee Extension substation, into which it will connect. The BESS will have a storage capacity of 100MWh and a maximum discharge capability of 50MW and will act as a supplementary/auxiliary source of energy capacity for the green hydrogen production facility during times where there is insufficient electricity generation from the solar PV farm on its own. The BESS will be connected to the solar PV farm and green hydrogen production facility by means of a buried HV cable. When surplus electricity is generated from the solar PV farm, the BESS can store this for later use during periods

of low generation output, or it can be exported via the existing Whitelee Extension substation to support the stability of the electrical grid.

Project Site selection

- ^{2.3.6} 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.
- 2.3.7 The applicant is committed to avoiding development 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.
- 2.3.8 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.
 - Past knowledge of the site gained from the previous Whitelee Windfarm Extension Phase 3 application, 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.

Benefits of the project

- The proposed solar PV farm would have an anticipated nominal capacity of up to 40MW. The solar PV farm will serve primarily to provide renewable energy to the green hydrogen production facility during peak solar months. Where seasonal variances do not support full deployment of electricity sufficient for the green hydrogen production facility, provision is made within the design to supplement any shortfall in supply by directing supply from either the BESS or from the Whitelee Windfarm via the existing Whitelee Extension substation. Likewise, were a situation to arise during peak solar months where an oversupply of electricity is generated from the solar PV farm, the HV cable routing flow can be reversed to direct excess electricity to the BESS for storage and future reuse or to the existing Whitelee Extension substation for distribution to the Grid.
- 2.3.10 Further underlining the Project's green credentials. The *green* hydrogen production facility uses 100% renewable energy to produce high purity hydrogen via electrolysis of water, suitable for use straight away without further processing *Blue* hydrogen on the other hand is achieved using processes such as Steam Methane Reforming (SMR), which consume fossil fuels and produce hydrogen fuel of a lower purity level. With the national agenda toward decarbonisation in Scotland

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set, the applicant recognise the need to deliver new renewable energy technologies to the highest level of green credentials and this ability to capitalise on the existing wind energy resource as a fall back to the solar PV farm has been a key driver in the selection of Whitelee for the siting of this Project.

- 2.3.11 Scotland is legally bound through the Climate Change (Scotland) Act (2009) as amended to reduce carbon emissions to Net Zero by 2045, with interim targets to reduce emissions by 56% by 2020, 75% by 2030 and 90% by 2040. A series of annual targets towards this Net Zero and interim target have also been set. Presently, these annual targets have not been met in Scotland for the past two years, demonstrating the clear scale of the challenge that Scotland is urgently facing.
- 2.3.12 The Project is an exemplar in the multi-faceted approach to the delivery of new forms of green technologies which can support existing forms of renewable energy and represents a step toward making a substantial contribution to national climate change targets and in particular towards the interim target of a 75% reduction in greenhouse gas emissions by 2030.
- 2.3.13 Hydrogen is particularly valuable in terms of helping to decarbonise transportation methods that have, until now, been viewed as very difficult to decarbonise. Such transportation includes heavy industry and commercial transport, aviation, and maritime transport often some of the most polluting transportation methods with the largest carbon footprints.
- 2.3.14 The green hydrogen production facility is therefore an opportunity to deliver renewable fuel to power a new, green fleet of transport and heavy freight vehicles. As the hydrogen is produced from water using 100% renewable energy, and as only water vapour and oxygen are the by-products of the heating of the source water, the green hydrogen production facility will reduce harmful emissions and move the country towards its national decarbonisation objectives by reducing the carbon emissions produced by the transport and freight sector in Scotland.
- 2.3.15 In the context of the wider international and national policy, aims and objectives, the Project would represent a significant opportunity for the delivery of new and diverse forms of renewable energy development, due to its interlinked solar PV, green hydrogen production and BESS elements.

Consenting routes

- 2.3.16 Under Regulation 58(1) of the Town and Country Planning (Scotland) Act 1997, the duration prescribed for which a development must be enacted is 3 years from the date of decision. Without prejudice to the ultimate determination of this application, the applicant requests that any consent granted with the direction that an extended duration for the commencement of development of no less than 10 years from the date of decision. This request is made under Regulation 58(2) of the Town and Country Planning (Scotland) Act 1997 which provides the determining authority with the power to lengthen the duration of enactment through a direction in line with the guidance of Circular 3/2013 Development Management Procedures.
- 2.3.17 Due to the scope of legislation, it is considered that the Project is required to be submitted under two different consenting regimes. Details of these are as shown above in **Table 2.2**.

3. Site and proposed development

3.1 Site location

- 3.1.1 The Site is located immediately adjacent to Whitelee Windfarm and is wholly contained within the local authority area of East Ayrshire. It extends to a total area of 1.8 hectares.
- The Site 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 Site 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. 2km to the west of the Site.
- 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 green hydrogen production facility 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.
- 3.1.5 The red line site boundary associated with this Planning Statement is included within **Appendix A** of this document as well as within associated **Figure 1.1.**
- The Site for the proposed green hydrogen production facility is situated within the wider Project site which is identified within **Volume 7C** of the EIA Report as well as within **Figure 1.5**.
- 3.1.7 No vehicular or pedestrian access is included within this application in relation to the green hydrogen production facility. While access is required – by the means of a link/haul road between the Site and the B764 – this road and its corresponding junction are being applied for as ancillary infrastructure under the application for S36 consent. The rationale behind the inclusion within the S36 application is that the link/haul road is necessary for the maintenance and management of the solar PV site.

Proposed Development Grid Reference

3.1.8 The Proposed Development is located at UK National Grid Reference NS 51284 47199 (centred location).

3.2 Proposals

Summary description of Proposed Development

The green hydrogen production facility is embedded within the solar PV layout and incorporates the substation building required for the solar PV farm within the fence line. It is proposed that the green hydrogen production facility will ultimately be accessed via a c. 1.5 km link/haul road connecting directly to the B764/Moor Road via a new vehicular junction located at NS 49870 47450. This link/haul road forms part of the S36 application and is *not* part of this application for the green hydrogen production facility. Further information concerning the access and the relationship with the corresponding S36 application is provided below under paragraphs 3.2.5 to 3.2.7.

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- The extent of the green hydrogen production facility site measures 120m x 120m based on a site platform of 1.44 hectares. This is inclusive of the proposed temporary construction laydown area located along the span of the northern boundary of the Site.
- 3.2.3 The plant has a predicted lifespan of 25 years, however consent is being sought in perpetuity.
- ^{32.4} 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 onsite 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.

Access

- 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.
- 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.
- 3.2.7 Operationally in respect of the Proposed Development, 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.

Layout and infrastructure

3.2.8 While relatively compact in footprint, the green hydrogen production facility will include the following infrastructure as shown in **Table 3.3** below:

Plant Information	Indicative Proportions
Hydrogen electrolyser stack house	35m x 30m x 6.5m
Hydrogen purification unit	30m x 15m x 4m
Site office with associated staff and visitor parking	10m x 8m x 5m
Transformer compound	30m x 8m x 3.45m
Water purification unit	15m x 10m x 4m
Water supply kiosk	2.5m x 2.5m x 3.2m
SPR substation	12m x 12m x 5m
H2, O2 and H2O separation unit	3m x 3m x 12m

Table 3.1 Balance of plant and associated infrastructure

Plant Information	Indicative Proportions
O2 capture unit	10m x 12m x 6m
N2 bottles/skid unit	5m x 8m x 3m
Air compressor unit	10m x 8m x 2.5m
Compressor house	15m x 10m x 6m
Lube oil storage and cooler	10m x 10m x 9m
H2 storage vessels/racks	39m x 27m x 5m
Security gatehouse	3m x 3m x 4m
Internal fencing	max height 3m
External security fencing	max height 3m
Pipework gantries	N/A
4 No. filling bay valves on 1 pipework skid (for H2 filling of tube trailers on-site for export off-site)	N/A
Foundations and hardstanding	N/A

Summary of hydrogen production process and technology used

- ^{3.2.9} 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 c. 20MW power demand during the life of the project. The anticipated water demand for the facility is 20m³ per hour¹ up to c. 480,000 litres per day and is anticipated to be supplied by mains water supply.
- 3.2.10 The PEM electrolysis technology involves several steps in its process as outlined in **Table 3.4**:

Process Step	Description
Water Purification	The feed water enters the Water Purification System to deliver high-purity deionized water required for the electrolysis process.
Water Polishing	To reuse water from the electrolysis system, a Water Polishing System is installed. Incoming water from the prior purification unit and returning water from the electrolysers is further processed to reach the high-water purity.
O ₂ /H ₂ O Separation	Oxygen and water are separated in a separation vessel and the oxygen is vented to the atmosphere. Oxygen can also be recovered and utilized for other purposes.

Table 3.2 PEM process summary

¹ 480,000l equivalent to 20m³ x 24 hours

Process Step	Description
Electrolysis Cube Modules	The electrolysis modules split the incoming water into hydrogen and oxygen using PEM electrolysis technology. ITM Power's multi-MW scale electrolysers are built with a modular design philosophy. The stack modules are manufactured onto a skid-frame and built in banks of 3 stacks. Hydrogen is generated at a pressure of 30 bar within the stack while the oxygen is generated at a lower pressure. Each 3-stack module is housed inside a standard ISO container to enable ease of shipping and installation. The modules are completely pre-fitted, to simplify site-installation, and factory acceptance tested before they leave the factory.
H ₂ /H ₂ O Separation System	The produced hydrogen stream of the electrolysis system is post-processed to achieve the desired purity. The first step of purification involves a separation of the H2/H2O through a separation vessel.
H ₂ Deoxo System	The hydrogen passes to the H2 Deoxo System, which removes excess oxygen from the hydrogen stream.
H ₂ Drying System	In the next stage the hydrogen passes a H2 Drying System, which removes any remaining water and achieves the desired hydrogen purity.

- This purified hydrogen is contained with the horizontal stacked high-pressure vessels located to the north east of the site. Tube-trailers entering the site from the north west access would arrive and park at one of the four available loading bays and connect to the pipework skid for filling. This process can take approximately 6 hours and once completed, the now full tube-trailer would unhook from the pipework skid and exit the site to via the north east access it arrived by.
- The two raw materials for the green hydrogen production facility are electricity and water. In the case of the Proposed Development, electricity would be substantially served from the associated solar PV farm or, in limited circumstances primarily resulting from seasonal reductions in solar availability, from the BESS and/or excess electricity produced at Whitelee Windfarm. Water supply would be taken from a direct connection to the network and potable/tap water is sufficient as a means of supply.
- The total plant water consumption at the beginning of life is anticipated to be 20m³ per hour, which is equivalent to 480,000 litres per day. However, variance may occur depending on local water quality. The water consumption will increase during the lifespan of the plant as stack efficiency reduces and cooling requirements increase.
- 3.2.14 Power supply is required by means of HV cable transfer at 33kV. Projected maximum electricity consumption is c. 20MW.
- 3.2.15 The figures above however assume that the plant would operate at full capacity on day 1 of operation, however plant capacity will be driven by off taker demand.

Temporary construction laydown area

- 3.2.16 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.
- 3.2.17 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.

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3.3 Programme

- 3.3.1 It is anticipated that construction activities associated with the construction of the green hydrogen production facility would take approximately 43 weeks which is within an overall Project programme comprising works associated with other components.
- 3.3.2 Construction activities are assumed to take place on a 7 day 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 programme.
- ^{3.3.3} Further information on the overall project programme can be found within **Volume 2, Chapter 3** of the EIA Report.

Temporary works phase

Construction traffic and access

- 3.3.4 Construction traffic would access the Site via the link/haul road serving both the solar PV farm and the Proposed Development (see paragraph 3.2.5 above).
- It is not anticipated that a high degree of abnormal loads will be required to support the delivery of site infrastructure for the 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.
- It is anticipated that prior to construction works being undertaken that a Construction Traffic Management Plan (CTMP) will be prepared in line with best practice guidance, and the applicant anticipates that such a requirement would form a condition of any consent granted.
- ^{3.3.7} Furthermore, it is anticipated that site personnel and construction workers will travel to the Site on a shared transportation basis, and that the detail of this and its management would be contained within the CTMP.

Construction Environmental Management Plan

- It is proposed that the management of all construction activities on site would be informed through the production of a Construction Environmental Management Plan (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.
- 3.3.9 Combined, the CTMP and CEMP would form the primary management and reporting tools for all on-site construction activities.

Operational phase

The applicant's experience suggests that there is no operational need to limit the lifetime of renewable energy development. Therefore, consent is being sought for the Proposed Development in perpetuity. Increasing the operational period allows the costs of green hydrogen production to be reduced and maximises the contribution that the Proposed Development (and the Project as a whole) can make towards climate change targets.

Decommissioning

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.

3.4 Peatland restoration and habitat management

- The applicant recognises the potential impacts of construction on peat bog and the potential to impact on the peatland habitat, including groundwater dependent terrestrial ecosystems (GWDTEs). Significant evaluation of the peatland habitat from both an ecological and a hydrological perspective has been considered in the generation of these proposals, including recommendations for mitigation against potential impacts and for compensatory peatland restoration.
- As the proposed green hydrogen production facility is also proposed to be constructed on peatland, it has been considered further within the EIA Report. For further information on peatland restoration and habitat management, as well as hydrological impact, please refer to **Volume 2**, **Chapters 6** and **8** of the EIA Report which contain an Ecological Impact Assessment (EcIA) and a Hydrological Impact Assessment (HIA) and accompany this application.

4. Legislative context

4.1 The statutory framework

The Town and Country Planning (Scotland) Act 1997, as amended

The green hydrogen production facility is not an electricity generating station, nor is it deemed ancillary to the other components of the wider Project. The green hydrogen production facility and its ancillary infrastructure will be considered under Section 32 of the Town and Country Planning (Scotland) Act 1997 (as amended).

The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017

- 4.1.2 The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) set out the requirements for applications made the Town and Country Planning (Scotland) Act 1997 (as amended) in terms of EIA.
- 4.1.3 The EIA Regulations implemented European Union (EU) Directive 2014/52/EU which amended Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
- 4.1.4 The EIA Regulations outline the process of an EIA and the criteria that would determine if an EIA were necessary or not, the relevant environmental studies and statements, how the information is evaluated by local Planning Authorities or other statutory consenting regimes and consulting bodies and how this is implemented through the Planning Act.
- The Proposed Development falls within Schedule 2, Section 10(a) of the EIA Regulations and as such an EIA is only required if the Proposed Development is likely to have significant effects on the environment by virtue of factors such as its nature, size or location.

Screening

- 4.1.6 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. This Screening Request was made in respect of all Project components and included the proposed green hydrogen production facility. Following statutory consultation with 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 subsequent applications under Section 36 of the Electricity Act and Section 32 of the Planning Act would require to be the subject of an EIA and be supported by an accompanying EIA Report. A summary of the findings of the Screening Opinion is outlined within Volume 2, Chapter 1 of the EIA Report. Copies of the Screening Request and Screening Opinion are provided within Volume 7 of the EIA Report.
- 4.1.7 The results of the EIA are presented in the accompanying EIA Report which, as prescribed in the EIA Regulations, is required to include a "description of the likely significant effects" of the Development; the effects which are not considered to be significant do not need to be described. It is therefore necessary for the scope of the EIA to be appropriately and clearly defined to ensure that any likely significant effects are described and assessed.

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4.1.8 The EIA Report conveys the findings of the assessment of the potential significant environmental effects of the Development during construction, operation and decommissioning.



5. Energy policy and legal framework

5.1 Introduction

- 5.1.1 This Chapter explains the rationale for the Proposed Development in terms of international, UK and national (Scottish Government) renewable energy policy. It provides the framework of international agreement and binding targets upon which international and national energy policy is based. The international and national policy described and summarised below demonstrates the need for renewable energy from which the Proposed Development can draw a high level of support.
- 5.1.2 Notably, the use of hydrogen as a form of green energy is relatively new when compared to more established wind, wave and solar renewables schemes and as such, the international and national energy policy does not offer a large degree of prescriptive targets in respect of this type of energy. Given this, and while it is acknowledged that hydrogen production is not in of itself a "renewable" form of energy it is nonetheless a green form of energy which takes abundant natural resources (in this case water) and provides a sustainable green supply which directly tackles the national need for decarbonisation as established in the Climate Change Act.
- 5.1.3 The above notwithstanding, it is considered to apply existing renewable energy policy in the assessment of the Proposed Development within the context of international and national ambitions to reduce reliance on, and provide green alternatives to, fossil fuels and to supplement the renewables sector through the use of emerging technologies which can achieve the ultimate aims of decarbonisation.

5.2 International policy context

5.2.1 The Scottish and UK legislative and policy framework on climate change is shaped by international climate change legislation and are considered in **Table 5.1** below. These incorporate binding targets in the reduction of greenhouse gas emissions and in the generation of energy from renewable sources.

International Document	Overview
Kyoto Protocol 1997	An international treaty under the United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions. The Protocol's first commitment period started in 2008 and ended in 2012. A second commitment period was agreed on in 2012, running to 2020, in which 37 countries have binding targets, including the EU and its Member States.
The COP21 UN Paris Agreement 2015	The central aim of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping the increase in global temperature to well below 2oC above pre- industrial levels and to pursue efforts to limit the temperature increase to 1.5oC. The first global "stocktake" to assess collective progress is to take place in 2023 and will follow every five years thereafter.
	In 2018 the Intergovernmental Panel on Climate Change (IPCC) published a special report on the impacts of global warming of 1.50 above pre-industrial levels and related greenhouse gas emissions pathways, in the context of strengthening the global response to the threat of climate change. The report states that pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, with renewables being projected to supply 70–85% of electricity in 2050. The UK Government responded to

Table 5.1 International policy documents

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International Document	Overview
	the report by asking the UK Committee on Climate Change to update the advice it gives to Government on setting targets for carbon emissions and whether the UK needs to reduce carbon emissions at a faster rate or to a greater extent than originally planned. This continued focus on the decarbonisation of the energy generation sector will result in a reliance on mature renewable energy technologies such as solar PV.
The COP26 UN Climate Change Conference UK 2020	The COP26 was originally scheduled to take place at the Scottish Event Campus (SEC) in Glasgow between the 9th and 20th November 2020. The Prime Minister appointed Alok Sharma as the COP26 President on 13 February 2020. On the 29 th May 2020, it was determined to move the COP26 UN climate conference date to take place between the 1 st and 12 th November 2021. Member states of the conference are expected to continue their efforts to take climate action.

5.3 UK energy policy

Table 5.2 below contains the UK policy and guidance which governs energy generating developments. The UK policy contains many renewable energy and climate reduction targets, which highlights the importance the UK government places upon renewable energy generating developments.

Table 5.2UK energy policy documents

International Document	Overview
Climate Change Act 2008	The Climate Change Act is the basis for the UK's approach to tackling and responding to climate change. This Act committed the UK to reducing greenhouse gas emissions by at least 80% of 1990 levels by 2050. It also requires the Government to set legally-binding 'carbon budgets' to act as 'stepping stones' towards the 2050 target. A Committee on Climate Change was set up to ensure emissions targets are set based on expert independent assessment of the evidence and to monitor the UK's progress towards meeting the targets. Carbon budgets cover a five-year period and currently run to 2032. The UK is currently in the third carbon budget period (2018 to 2022). The Committee on Climate Change has confirmed that the first carbon budget was met and the UK is currently on track to outperform on the second and third, however, it is not on track to meet the fourth (2023 to 2027), and to meet future carbon budgets and the 80% target for 2050, the UK will need to reduce emissions by at least 3% a year, from now on, requiring more challenging measures to be applied by Government. The UK Government has confirmed its intention to set the Fifth Carbon Budget to reduce UK greenhouse gas emissions relative to 1990 levels by 57% by 2028-32, in line with the advice of the Committee on Climate Change.
Climate Change Act 2008 (2050 Target Amendment) Order 2019	Article 2 of this Order amends section 1 of the Climate Change Act 2008 (see above). Section 1(1) imposes a duty on the Secretary of State to ensure that the UK will reduce greenhouse gas emissions by 100% of 1990 levels by 2050. Previously this was 80%. This 'Net Zero' target is likely to affect and increase future Government renewable and low carbon energy targets and create a more positive policy environment for renewable energy.
Committee on Climate Change Progress Report to Parliament June 2020	On the 25 June 2020 the Committee on Climate Change (the CCC) published the 2020 report to Parliament, assessing progress in reducing UK emissions over the past year ² . The report highlights that although a limited number of steps have been taken over the past year to support the transition to a net-zero economy and improve the UK's resilience to the impacts of climate change, much remains to be done. The report indicates that reaching Net Zero emissions in the UK will require all energy to be delivered to consumers in zero-carbon form, i.e. renewables and nuclear, bioenergy and fossil fuels combined with carbon capture and storage.

² https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/#key-findings

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International Document	Overview
The Sixth Carbon Budget: The UK's Path to Net Zero	On 9 December 2020, the CCC released the Sixth Carbon Budget ³ which updates intermediary targets for the UK's progress to Net Zero which states:
	"Our recommended pathway requires a 78% reduction in UK territorial emissions between 1990 and 2035. In effect, it brings forward the UK's previous 80% target by nearly 15 years. There is no clearer indication of the increased ambition implied by the Net Zero target than this."
	These targets must be considered as a factor in the determination of applications for alternative fuel projects which can reduce reliance on fossil fuel usage. In establishing intermediary targets towards Net Zero, the context exists for Local Authorities to recognise the action that must be taken sooner rather than later. As concluded in the Sixth Carbon Budget:
	"The implication of this path is clear: the utmost focus is required from government over the next ten years. If policy is not scaled up across every sector; if business is not encouraged to invest; if the people of the UK are not engaged in this challenge – the UK will not deliver Net Zero by 2050."
	Furthermore, the Sixth Carbon Budget recognises the important role of low-carbon energy supply, stating:
	"The role for the hydrogen supply sector is to enable decarbonisation in other sectors while managing costs and wider energy system impacts. Hydrogen appears to be essential for reaching Net Zero, but it is important for it to be focused on the applications of highest value, where electrification is less feasible, and for it to be produced in a low-carbon way."
UK Renewable Energy Strategy 2009	This Strategy sets out the path for the UK to meet the legally binding target of 15% of all energy consumed in the UK to come from renewable sources by 2020. It includes action to deliver the 'lead scenario' of 30% of electricity, 12% of heat and 10% of transport energy to be generated from renewables by 2020. The Strategy will help us tackle climate change, reducing the UK's emissions of carbon dioxide by over 750 million tonnes between 2009 and 2030. The Strategy reaffirms the requirement to be the target of an 80% reduction in greenhouse gas emissions by 2050 identified in the Climate Change Act 2008.
	Regarding delivering renewable transport, the Strategy has the following vision:
	"Looking at the transport system between 2020 and 2050, the fuels we use will be cleaner, the technology greener and we will have seen a shift to renewable sources of transport energy such as sustainable biofuels, electricity and hydrogen."
UK Renewable Energy Roadmap 2011 and updates in 2012 and 2013	The 2011 roadmap analysed how the deployment of renewable energy might evolve by 2020, focussing on 8 technologies that have either the greatest potential to help the UK meet the 2020 target in a cost effective and sustainable way, or offer great potential for the decades that follow. This included solar PV. The 2012 update highlighted the urgent need for new large-scale renewable energy projects to ensure the 2020 targets are met. The 2013 update noted that the share of renewable energy generation had increased from 9.7% in 2012 to 15.5% in 2013, and that Scotland accounted for 33% of the total UK renewables output during this period. The importance and benefits of solar PV are particularly noted in paragraph 179:
	"it is versatile and scalable, with deployment possible in a wide range of locations including domestic and commercial buildings and where appropriate on the ground; solar projects can be developed and installed very quickly; and the fuel, solar radiation is free."

³ https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf



International Document	Overview
UK Clean Growth Strategy 2017	 The UK Government published the Clean Growth Strategy 'Leading the Way to a Low Carbon Future' in October 2017. It makes reference to the 2015 Paris Agreement and states: "The actions and investments that will be needed to meet the Paris commitments will ensure the shift to clean growth will be at the forefront of policy and economic decisions made by Government and businesses in coming decades". The strategy recognises that meeting the fourth and fifth carbon budget raises challenges, stating: "In order to meet the fourth and fifth carbon budgets (covering the periods 2023 – 2027 and 2028-2032) we will need to drive a significant acceleration in the pace of decarbonisation and in this strategy we have set out stretching domestic policies that keep us on track to meet our carbon budgets". The strategy sets out two guiding objectives for the UK's approach to reducing emissions: To meet our domestic commitments at the lowest possible net cost to UK taxpayers, consumers and businesses. To maximise the social and economic benefits for the UK from this transition.
UK Industrial Strategy 2017	The Industrial Strategy White Paper entitled 'Building a Britain fit for the Future' was published by the UK Government in November 2017. The Industrial Strategy sets a path to improved productivity and identifies four Grand Challenges – developments in technology that are set to transform industries and societies around the world, and in which the UK has the opportunity to play a leading global role. One of these Grand Challenges is 'clean growth'. The Industrial Strategy sees the move to cleaner economic growth through low carbon technologies and the efficient use of resources as "one of the greatest industrial opportunities of our time" (page 42). The Strategy sets out the aim to maximise the advantages for UK industry through leading the world in the development, manufacture and use of low carbon technologies, systems and services which cost less than high carbon alternatives (page 42).
HM Government Energy White Paper - Powering our Net Zero Future 2020	The Energy White Paper: Powering our Net Zero Future was published in December 2020. It provides further clarity on the Prime Minister's Ten Point Plan for a Green Industrial Revolution and puts in place a strategy for the wider energy system that transforms energy, supports a green recovery and creates a fair deal for consumers. The White Paper states that clean power will be generated by investing in new hydrogen technologies, offshore wind farms and nuclear plants. The White Paper identifies that part of the Ten Point Plan includes working with industry the UK is aiming for 5GW of low carbon hydrogen production capacity by 2030.

5.4 Scottish Government energy policy

5.4.1 Energy policy is a matter reserved to the UK Parliament. The UK Government therefore retains control of the overall direction of energy policy including renewable energy targets. However, the devolved administrations, including the Scottish Government can, and have, prepared distinct climate change and related renewable policy for their devolved areas as well as implementing UK wide policies. **Table 5.3** contains the considered Scottish energy policy for the Proposed Development.



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Table 5.3 Scottish Government energy policy documents

International Document	Overview
The Climate Change (Scotland) Act (2009)	The 2009 Act is the key legislation in Scotland dealing with climate change and carbon targets. The Act included an interim greenhouse gas emissions reduction target of at least 42% for 2020 and an 80% reduction target for 2050 against 1990 levels. The Act requires Scottish Ministers to set annual targets for Scottish emissions from 2010 to 2050, consistent with meeting both the interim and 2050 targets. The Act has been amended in 2019 requiring 100% lower than the 1990s baseline level. Details of this are set out below.
	through the publication of Climate Change Plans. The Scottish Government published its third Climate Change Plan in February 2018, setting out proposals and policies to reduce emissions by 66% by 2032 against 1990 levels.
2020 Routemap for Renewable Energy in Scotland 2011 (updated 2013 & 2015)	The Scottish Government published the 2020 Routemap in July 2011. It established a target for the equivalent of 100% of Scotland's electricity demand to be supplied from renewable sources by 2020, roughly equating to the equivalent of around 16GW of installed capacity. The Scottish Government recognised at that time that " <i>Meeting the equivalent of 100% of Scottish demand for electricity from renewables within the next 9 years will be a huge challenge</i> " (page 19) and to meet the target will "demand a significant and sustained improvement over the deployment levels seen historically" (page 26). This target remains unmet (see further below) and the challenge of further sustained deployment remains.
	The Routemap also provided an increase in the Scottish Government's overall renewable energy target to 30% by 2020 and a new target of 500 MW of community and locally owned renewable energy by 2020.
	The Routemap was updated in December 2013. It continues to recognise the role that renewable energy has in delivering secure, low carbon and cost-effective energy supplies and the investment and job opportunities it presents.
	A further Routemap update published in September 2015 provided statistics on deployment of renewables at that time and sectoral updates. The Routemap states the importance of solar PV provides to ensure a healthy energy mix. It also notes that despite the Scottish climate, solar is still a valuable type of development that is needed to meet Scotland's renewable energy targets. Solar PV developments are noted to have had their associated costs fall the most out of all the different types of renewable energy technologies, showcasing the competitiveness of solar PV schemes in the long term.
	At every stage of the Routemap, the importance for energy storage developments was stressed as such developments aid in the storage of energy from renewable energy developments for use later. This means such schemes improve the amount of renewable energy available for the grid and ensures less renewable energy is potentially wasted.
Electricity Generation Policy Statement 2013	The Electricity Generation Policy Statement was published in June 2013. It examines the way Scotland generates electricity and considers the changes necessary to meet the various targets in the sector set by Government, including in the Climate Change (Scotland) Act 2009. It reiterates the Government's commitment to securing the transition to a low carbon economy and that Scotland has the potential to make a major contribution to the EU's overall renewables target.
	The Policy Statement is built around the 2020 target of the equivalent of 100% of Scotland's electricity demand to be supplied from renewable sources by 2020. It acknowledges that the target, which it estimates would require around 14 -16GW of installed capacity, is a challenge. But it embodies the Government's belief that "Scotland can and must exploit its huge renewables potential to the fullest possible extent – to help meet demand here and across Europe" (paragraph 14).
	The Policy Statement highlights that the renewable targets underpin the Government's vision of a stable and desirable future generation mix for Scotland, built around the following key principles:
	A secure source of electricity supply.At an affordable cost to consumers.



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International Document	Overview
	 Which can be largely de-carbonised by 2030. Which achieves the greatest possible economic benefit and competitive advantage for Scotland including opportunities for community ownership and community benefits.
The Chief Planner Letter to All Heads of Planning (November 2015)	A letter from the Scottish Government Planning and Architecture Division to all Heads of Planning entitled 'Energy Targets and Scottish Planning Policy' was published in November 2015. The letter was issued following an announcement by the Secretary of State for Energy and Climate Change that the UK Government would be bringing to an early closure the Renewable Obligation subsidy scheme. The letter confirmed that the Scottish Government's policy remains unchanged and that it supports new onshore renewable energy developments. The letter adds that this policy support continues in the situation where renewable energy targets have been reached and confirms that there is no cap on the support for renewable energy
	development. In short, the need for renewable energy including solar PV developments is unconstrained.
The Scottish Energy Strategy (December 2017)	The Scottish Energy Strategy, which was published in December 2017, sets out the Scottish Government's 2050 vision for the future energy system in Scotland:
	"A flourishing, competitive local and national energy sector, delivering secure, affordable, clean energy for Scotland's households, communities and businesses" (page 6).
	The Strategy reiterates the role that Scotland can play in delivering international and national commitments on reducing greenhouse gas emissions and notes that renewable energy and its associated infrastructure is now a major industrial sector in its own right, helping to sustain economic growth and employment.
	The 2050 vision is built around six priorities. Of particular relevance to the Proposed Development is the priority of 'renewable and low carbon solutions'. The Scottish Government states that it will:
	"Continue to champion and explore the potential of Scotland's huge renewable energy resource, and its ability to meet our local and national heat, transport and electricity needs – helping to achieve our ambitious emissions reductions targets." (page 8).
	Two new targets for the Scottish energy system by 2030 are set out on page 7:
	 The equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources. An increase by 30% in the productivity of energy use across the Scottish economy.
	The Strategy identifies that renewable electricity could rise to over 140% of Scottish electricity consumption, ensuring its contribution to the wider renewable energy target for 2030. The Strategy continues that this assumes a considerably higher market penetration of renewable electricity than today, requiring in the region of 17GW of installed capacity in 2030 (compared to 9.5GW of installed capacity as of June 2017.
	The role of renewable energy in achieving the longer-term vision is further emphasised on page 34 where it states:
	"Scotland's long-term climate change targets will require the near complete decarbonisation of our energy system by 2050, with renewable energy meeting a significant share of our needs".
	The Strategies vision for 2050 includes Scotland using low carbon electricity and hydrogen to meet Scottish demands for electricity. Hydrogen producing developments are therefore also seen with growing importance for the long-term sustainability of Scotland's energy market and generation.
	The vital role of solar PV developments, to achieve climate change targets is recognised by the Strategy:
	"Solar will play an important role in a low carbon energy system, helping meet Scotland's renewable generation ambitions. Combining storage with wind and solar assets presents a valuable solution for the energy system as a whole, offering the potential for demand to be managed locally. This kind of

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International Document	Overview
	flexibility and control will be important as electric vehicles become an integral part of the transport system."
Climate Change Plan 2018	This Climate Change Plan is the Scottish Government's third report on proposals and policies for meeting its climate change targets. It sets out how Scotland can deliver its target of 66% emissions reductions, relative to the baseline, for the period 2018–2032. The Climate Change Plan comprises three parts. Part One sets out the context for the Scottish Government's climate change proposals and policies. It shows the emissions reductions pathway to 2032 and the crucial roles that will be played by local authorities and the wider public sector (and the planning system) and communities. The Scottish Government's statutory duties are covered in Part Two, alongside the annual emissions targets to 2032 and the monitoring framework and indicators that will be used to measure progress against the policies set out in the Plan. Part Three provides detailed information on the emissions envelopes and emissions reduction trajectories for each sector.
	route to market for lowest cost renewable technologies, which solar PV currently is as the Strategy states (page 78):
	"Between 2010 and 2017, the cost of generating electricity from solar PV fell by over 70%"
	The Climate Change Plan also notes the potential for hydrogen producing developments in achieving Scotland's transition to a decarbonisation.
Climate Change (Emissions Reductions Targets) (Scotland) Act 2019	The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 received Royal Assent on 31 October 2019. The Act requires that the net Scottish emissions account for the net-zero emissions target year is at least 100% lower than the baseline (the target is known as the "net-zero emissions target"). The "net-zero emissions target year" is 2045.
	 The Act sets interim targets as follows: 2020 is at least 56% lower than the baseline. 2030 is at least 75% lower than the baseline. 2040 is at least 90% lower than the baseline.
	In introducing the Net Zero target, the Climate Change Secretary stated "There is a global climate emergency. The evidence is irrefutable. The science is clear. And people have been clear: they expect action. The Intergovernmental Panel on Climate Change issued a stark warning last year: the world must act now. By 2030 it will be too late to limit warming to 1.5 degrees."
Update to the Climate Change Plan 2020	An update to the Climate Change Plan was published in December 2020. It sets out the Scottish Government's pathway to achieving the targets set by the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019 for Net Zero emissions by 2045. The update states that actions to develop the role of hydrogen in Scotland's energy system will be taken forward, including building on the outputs of the Hydrogen Assessment project. It states that a Hydrogen Policy statement will be published in December 2020 and a Hydrogen Action Plan will be published in 2021.
Hydrogen Policy Statement 2020	This was published in December 2020. It identifies that role that hydrogen can play a major role globally in the transition to Net Zero, and that Scotland can be a major player in this emerging global hydrogen market. The statement sets out the Scottish Government's vision for Scotland to become a leading hydrogen nation in the production of reliable, competitive, sustainable hydrogen, and restates the target of 5GW of low-carbon hydrogen by 2030.

Progress toward achieving targets

5.4.2 The Scottish Government's target is to achieve the equivalent of 50% of total Scottish energy consumption from renewable sources by 2030. Figures published by the Scottish Government in

December $2020^{4'}$ show that in 2019, 24% of total Scottish energy consumption came from renewable sources (19.2% in 2017, and 21.1% in 2018).

^{5.4.3} The Scottish Government also has a target to deliver the equivalent of 100% of Scottish electricity consumption from renewables by 2020. As noted in above, the '2020 Routemap for Renewable Energy in Scotland' acknowledged that this was a challenging target that will demand a significant improvement over the deployment levels seen historically. In 2019, renewable sources generated the equivalent of 89.5% gross electricity consumption⁵, this is up from 76.2% in 2018.

The 2020 100% electricity target equates to around 16GW of installed renewables capacity. The 50% energy from renewable sources by 2030 target in the Scottish Energy Strategy (2017) may require in the region of 17GW of installed renewables capacity by 2030 (Scottish Energy Strategy page 34).

- 5.4.5 Figures released in the Energy Statistics for Scotland (December 2020) show that as of September 2020, 11.8GW of renewable electricity capacity was operational in Scotland (no change compared to September 2019). While there is an additional 13.9GW of capacity either under construction, consented, or in planning, the target relates to installed capacity, a point made clear in a number of Public Inquiry reports⁶.
- In any event, the need for renewable energy is unconstrained regardless of progress towards targets. As noted by the Reporter for the Caplich Wind Farm, reiterating the position set out in the Chief Planner Letter to All Heads of Planning (November 2015), stating at paragraph 2.107 that '*It is clear therefore that, when considering the level of policy support that is offered by the Scottish Government to proposals such as this, it does not matter whether targets have been met or exceeded. Support for appropriate on-shore wind energy proposals will remain, even when existing targets have been met.*' It is important to note that, though the scheme was for a wind farm, it still stands that any renewable energy development *would not* be constrained by renewable energy targets.
- ^{54.7} The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 sets out even more ambitious targets, including increasing the 2045 target to 100% emissions reduction and making provisions for a net/zero greenhouse gas emissions target to be set on a credible and costed pathway. The UK Committee on Climate Change (CCC) in its advice to the UK and Scottish Governments on achieving the net-zero target stated that renewable electricity generation "must quadruple". The Scottish Government should make "use of planning powers to drive decarbonisation". In December 2019, the CCC stated "Scotland's next Climate Change Plan must set out a comprehensive strategy detailing the policies and governance that will drive a rapid, sustained transformation to a net-zero society. Net-zero planning must be embedded across all levels of government in Scotland, it must also engage the public, provide a stable direction of travel and set out a simple, investable set of rules and incentives for business".
- 5.4.8 The targets mean demand for renewable electricity will go up, rather than down. There was a shortfall for the previous 2020 targets.
- 54.9 What remains very clear is that there is a significant shortfall against the Scottish 2020 renewable electricity generation target (which relates to operational development) and the targets should not, in any event, be treated as a cap.

⁴ Energy Statistics for Scotland December 2020.

⁵ Energy Statistics for Scotland December 2020.

⁶ South Kyle (2016), reference WIN-190-3, paragraph 2.68; Benbrack reference WIN-170-2002 paragraph 2.67; Caplich (2017) reference WIN-270-7 paragraph 2.116.





5.4.10 The Caplich Public Inquiry report (the findings of which were adopted by the Scottish Ministers) also confirms that national planning policy as set out in NPF3 and SPP confirms the commitment to making Scotland a low carbon place and a world leader in low carbon energy generation.

6. Planning policy

6.1 National planning policy

Introduction

- 6.1.1 National planning policy is set out within the third version of the National Planning Framework (NPF3) and Scottish Planning Policy (SPP). Both were published in 2014 and are approaching the end of their originally intended 5-year life. The Planning (Scotland) Act 2019 proposes to review national policy with the preparation of the fourth version of the National Planning Framework (NPF4). This review will incorporate Scottish Planning Policy and will become part of the Development Plan. The Scottish Government has now revised the timetable for the preparation of NPF4, with a Position Statement published in November 2020 and a draft due in Autumn 2021.
- ^{6.1.2} The current 2014 documents therefore provide the current national policy framework, with the Scottish Energy Strategy and Onshore Wind Policy Framework providing up to date advice on the Scottish Minister's position and targets for the supply of energy from renewable sources.

The National Planning Framework 3

- 6.1.3 NPF3 presently provides the statutory national framework around which to orientate Scotland's long-term spatial development. NPF3 represents the spatial expression of the Scottish Government's Economic Strategy (2011) and it highlights the spatial planning implications of multiple national policy documents and commitments, including the binding decarbonisation targets enshrined within the Climate Change (Scotland) Act 2009.
- 6.1.4 Overall, NPF3 emphasises the Scottish Government's commitment to increasing sustainable economic growth across all areas of Scotland and therefore orientates the efforts of Scotland's planning system towards this purpose. The introduction to the NPF3 notes the importance of maintaining economically active and vibrant rural areas whilst *"safeguarding our natural and cultural assets and making innovative and sustainable use of our resources"*.
- 6.1.5 NPF3 sets out a national spatial strategy structured around four key themes. These are set out in **Table 6.1** below;

Theme	Commentary	Relevance to SPP
A successful, sustainable place	This theme is underpinned by the objective of achieving "a growing low carbon economy" alongside creating "high quality, vibrant and sustainable places". The Framework calls for a renewed focus on exploiting Scotland's energy resources, and in paragraph 2.7, NPF3 identifies a need for development which "facilitates adaptation to climate change, reduces resource consumption and lowers greenhouse gas emissions".	This outcome relates to supporting sustainable economic growth and regeneration, and the creation of well-designed, sustainable places. It identifies the importance of the planning system in locating development in the right place to provide opportunities for people to make sustainable choices and improve their quality of life and to contribute to a growing, adaptable and productive economy.

Table 6.1 Key themes of NPF3 and relationship to SPP

Theme	Commentary	Relevance to SPP
A low carbon place	This theme relates to the legally binding target of reducing Scotland's greenhouse gas emissions by 80% by 2050 compared with 1990 levels, as set out in the Climate Change (Scotland) Act 2009. It states that "Our built environment is more energy efficient and produces less waste and we have largely decarbonised our travel".	This outcome relates to the legally binding target of reducing Scotland's greenhouse gas emissions by 80% by 2050 compared with 1990 levels, as set out in the Climate Change (Scotland) Act 2009. The outcome further sets out Scotland's commitment to generating at least 30% of overall energy demand, and the equivalent of at least 100% of gross electricity consumption, from renewables by 2020. The need to facilitate this transition by supporting diversification in the energy sector and the importance of onshore wind are recognised within NPF3.
A natural, resilient place	This theme is concerned with environmental protection and it is noted that Scotland's principal asset is the land, which must be managed sustainably as both an economic and dynamic resource and an environmental asset. It is noted in paragraph 4.22 of the SPP that "rural areas have a particular role to play in building Scotland's long-term resilience to climate change and reducing our national greenhouse gas emissions".	As noted in NPF3, Scotland's principal asset is the land, which must be managed sustainably as both an economic and dynamic resource and an environmental asset. The role of rural areas in the transition towards a low carbon economy is recognised.
A connected place	This theme is orientated around maximising physical and digital connectivity around Scotland and between Scotland and the rest of the world.	This outcome relates to supporting better transport and digital connectivity, recognising that improved transport and digital infrastructure connections facilitate accessibility within and between places and support economic growth and an inclusive society.

The National Planning Framework 4 – position statement

- ^{6.1.6} The NPF4 Position Statement provides the national guidance on the direction the Scottish Government wishes to take planning and development within Scotland in the future. The Position Statement is clear that difficult and considerable changes are needed within the Scottish planning system to rebalance it with climate change as a guiding principle. This shift is required to ensure Scotland can achieve its target of net-zero emissions by 2045.
- ^{6.1.7} The NPF4 Position Statement is in support of renewable energy developments and on the creation of hydrogen networks. Green hydrogen production facilities are especially noted for their ability to create a clean fuel that can be used by vehicles to further the Net Zero agenda toward a carbon neutral Scotland by 2045. The Position Statement appreciates that hydrogen is a newer technology and highlights how the final version of the NPF4 is likely to have new policies that are in support of such developments.

Scottish Planning Policy

^{6.1.8} The Scottish Government has identified 16 national outcomes which explain how the purpose of sustainable economic growth is to be achieved. Both the NPF3 and the SPP are underpinned by a common vision, which is articulated in paragraph 11 of the SPP:

"We live in a Scotland with a growing, low-carbon economy with progressively narrowing disparities in well-being and opportunity. It is growth that can be achieved whilst reducing emissions and which respects the quality of environment, place and life which makes our country so special. It is growth which increases solidarity – reducing inequalities between our regions. We live in sustainable, well-

designed places and homes which meet our needs. We enjoy excellent transport and digital connections, internally and with the rest of the world".

- ^{6.19} The SPP is a material consideration that carries significant weight. It sets out the Scottish Government's expectations regarding the treatment of specific planning issues within development planning and development management. The SPP includes policies relating to sustainable development and renewable energy which are directly applicable to the Proposed Development, as detailed below.
- 6.1.10 To implement this *Vision* statement the SPP identifies four planning outcomes which dovetail into the themes of NPF3 identified above within **Table 6.1**.
- 6.1.11 The most relevant paragraphs of the SPP are considered below in **Table 6.2**.

Subject Policy	SPP Reference	Overview
Principle Policy on Sustainability	Paragraphs 24 - 35	includes a presumption in favour of development. This relates to the identification of the need for, and the acceptability of, the development. Thirteen principles (found at paragraph 29 of SPP) which should guide planning policies and decisions have been identified. The principles of relevance to the Proposed Development include:
		 "Giving due weight to net economic benefit. responding to economic issues, challenges and opportunities, as outlined in local economic strategies. Supporting good design and the six qualities of successful places. Supporting delivery of infrastructure. Supporting climate change mitigation and adaptation. Having regard to the principles for sustainable land use set out in the Land Use Strategy. Protecting, enhancing and promoting access to natural heritage, including green infrastructure, landscape and the wider environment. Avoiding over-development, protecting the amenity of new and existing development and considering the implications of development for water, air and soil quality."
Supporting Business and Employment	Paragraphs 92 - 108	This section highlights the need to "give due weight to net economic benefit of proposed development" (paragraph 93). The SPP identifies energy as one of several key growth sectors which should be appropriately supported through Development Plans.
Valuing the Historic Environment	Paragraphs 135 - 151	The SPP states that planning should promote the care and protection of the designated and non-designated historic environment and should take account of all aspects of the historic environment.
A Low Carbon Place	Paragraphs 152 - 174	It is noted that taken together, the NPF3 and the SPP should "facilitate the development of generation technologies that will help to reduce greenhouse gas emissions from the energy sectorefficient supply of low carbon and low-cost heat and generation of heat and electricity from renewable energy sources are vital to reducing greenhouse gas emissions and can create significant opportunities for communities" (paragraph 152-153). The SPP identifies four planning principles (paragraph 154) related to the delivery of electricity and heat infrastructure, three of which are

Table 6.2 Relevant subject specific Policies within the SPP



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Subject Policy	SPP Reference	Overview
Valuing the Natural Environment	Paragraphs 193 - 233	 "Support the transformational change to a low carbon economy. Support the development of a diverse range of electricity generation from renewable energy technologies. Guide development to appropriate locations and advise on the issues that will be taken into account when specific proposals are being assessed". SPP paragraphs 167 and 168 state that Development Plans should identify areas capable of accommodating renewable electricity projects in addition to wind generation, including hydro-electricity generation related to river or tidal flows or energy storage projects of a range of scales. Paragraph 169 identifies several considerations which are likely to be relevant when determining proposed energy infrastructure developments. These include economic impacts and benefits, renewable energy targets, effects on greenhouse gas emissions, cumulative impacts and environmental impacts including residential amenity considerations such as noise; landscape and visual impacts; public access, tourism and recreation, hydrology; geology; natural and built heritage; impacts on the transport network, aviation interests and telecommunications; and requirements for decommissioning and restoration. The SPP identifies several planning principles related to natural heritage protection and ecological resilience. Principles (paragraph 194) of relevance to the Proposed Development include that planning should: "Facilitate positive change while maintaining and enhancing distinctive landscape character. Conserve and enhance protected sites and species. Promote protection and improvement of the water environmentin a sustainable and co-ordinated way. Seek to protect soils from damage. Protect and enhance ancient semi-natural woodland as an important and irreplaceable resource, together with other native or long-established woods, hedgerows and
Maximising the Benefits of Green Infrastructure	Paragraphs 219 - 233	The SPP identifies several planning principles related to the protection, enhancement and promotion of green infrastructure including core paths and other important routes.
Managing Flood Risk & Drainage	Paragraphs 254-268	A precautionary approach to flood risk from all sources is promoted and where relevant, flood risk assessments and the deployment of SUDs are required.
Promoting Sustainable Transport and Active Travel	Paragraphs 269-291	Notes the requirement to consider traffic impacts including cumulative.

National planning advice and Circulars

^{6.1.12} The SPP is supported by Planning Circulars, Planning Advice Notes (PANs), Advice Sheets and Ministerial/Chief Planner Letters issued to planning authorities across Scotland. Planning Circulars

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contain guidance on policy implementation through legislative or procedural change, while PANs expand on national policy and incorporate best practice advice.

6.1.13 The following Scottish Government/NS Planning Circulars and Advice documents are of relevance to the Proposed Development and are contained within **Table 6.3**.

Table 6.3 Relevant subject specific policies within the SPP

PAN or Circular	Overview
Online Planning Advice regarding Flood Risk (published 18th June 2015)	This advice document provides brief guidance on all aspects of flood risk. It was produced to support the SPP and its goals for ensuring flood risk is properly considered, managed and mitigated in potential developments. This document also ensures that information regarding flooding is made available and kept up to date by SEPA and that Local Authority's LDP (LDP2017) and development management procedures consider flooding to be a considerably important aspect new developments must consider and address.
Draft Advice on Net Economic Benefit and Planning (2016)	This draft advice note seeks to educate developers and local authorities on how to consider net economic benefits that can exist in some, but not all, developments. Where the decision to grant planning permission is finely balanced or difficult to ascertain due to LDP requirements and/or other material considerations, the net economic benefit of a proposed development should be considered. The document is clear that any proposed net economic benefit needs to be proportionate, supported by evidence and transparent to ensure any predictions are as accurate as possible.
Draft Peatland and Energy Policy Statement (2016)	In June 2016, the Scottish Government published its draft Peatland and Energy Policy Statement, which provides the basis from which the Scottish Government and its agencies will act in development and implementing policies in relation to peatland and energy. This policy is a material consideration for new energy developments and the impact they may have on peatland habitats. The Policy Statement notes that; <i>"analysis by the James Hutton Institute suggests Scotland's peatlands store approximately 2,000 Mt carbon (or over 7,000 million tons CO2 equivalent). For Scotland to meet its greenhouse gas emissions reduction targets, this vast carbon store must be maintained and where possible enhanced."</i>
PAN 1/2011 Planning and Noise (March 2011)	This PAN outlines the importance of developers and local authorities working to ensure new developments do not pollute their surrounding with undue noise. Developments that produce a considerable amount of noise and/or constant noise can have considerable effects on their neighbours unless such noises are in keeping with their surroundings.
PAN 3/2010 Community Engagement (August 2010)	This PAN seeks to advise developers on how to conduct effective engagement for National and Local bodies and stakeholders. Developers should use methods that are appropriate to ensure any attempts to carry out community engagement are accessible for as many people as possible. Community engagement can provide important local knowledge and local people should have a say in how development is shaped in their surroundings. Notably revisions to the guidance contained within PAN 3/2010 alongside transitional arrangements following the onset of the COVID-19 global pandemic have been issued. Further details of the implications of these interim arrangements can be found within the accompanying non-statutory consultation report which supports this application.
PAN 60 Planning for Natural Heritage (2000, revised January 2008)	This PAN provides guidance on the importance of natural heritage and the duty of Local Authorities and developers to ensure Scotland's important natural heritage is maintained and/or enhanced. Scottish Natural Heritage (SNH) is an important consultee and can provide both developers and local authorities with important advice on how to approach developments.
PAN 51 Planning, Environmental Protection and Regulation (Revised October 2006)	This PAN outlines the importance of local authorities and SEPA's role in protecting the environment. Developments should not unduly compromise the environment and it is important for developers to consult with SEPA and other bodies to ensure the full extent of a development affects are understood and mitigated.



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PAN or Circular	Overview
PAN 79 Water and Drainage (September 2006)	This PAN outlines the importance of Scotland's water resources and infrastructure including drainage. It also outlines how developments need to consider flooding and how they must not increase the risk of flooding in their surroundings.
PAN 75 Planning for Transport (August 2005)	This PAN seeks to inform developers and local authorities on the importance of good quality infrastructure and developments that are well integrated into their surroundings. The benefits of good quality infrastructure are many and early planning for infrastructure is often key to ensure it is effective.

6.2 Local planning policy

Development Plan policies

- 6.2.1 Section 25 of the Town and Country Planning (Scotland) Act 1997 (the Planning Act) requires that planning decisions be made in accordance with the Development Plan (in this case the LDP2017) unless material considerations indicate otherwise. The elements noted in **Table 2.2** that would be submitted under the Planning Act would therefore need to be in accordance with the LDP2017.
- ^{6.2.2} The relevant Development Plan relating to the Proposed Development is the EAC LDP2017. The relevant LDP policies are contained within **Table 6.3** below.

Policy/Guidance	Overview and Objectives	Response
Overarching Policy OP1	This policy provides a list of criteria all development proposals must satisfy to be deemed acceptable. Where a development proposal demonstrates their contribution towards sustainable development, should these contributions outweigh their lack of consistency with parts of this policies criteria then their contributions towards sustainable development can soften the criteria. As this policy is overarching the policy is concerned with ensuring developments conform with all policies of the LDP, have no unacceptable impacts on the environment, are well designed and of an appropriate size and scale to their surroundings, creates no unacceptable impacts on the landscape character and protect important natural and built heritage assets.	The Proposed Development has been designed to a standard which is suitable for its form and function and has been sited and scaled to minimise its appearance and impact on key receptors such as landscape and visual. In broad terms, the proposal would accord with the overarching aims of Policy OP1 of the LDP2017.
Policy IND3: Business and Industrial Development in the Rural Area	Policy IND3 allow for the creation of renewable energy related developments within rural areas where the development proposal has demonstrated it has been considered critically against relevant policy and satisfies those policies. The policy is therefore wide ranging in terms of renewable energy developments as it enforces the importance of the other policies within the LDP and for developments to be considered critically against their various requirements.	The Proposed Development satisfies policy IND3 through considering itself against the other policies of the LDP2017 that are relevant and satisfying their various requirements.

Table 6.4 East Ayrshire Local Development Plan policies

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Policy/Guidance	Overview and Objectives	Response
Policy RES11: Residential Amenity	Policy RES11 requires development proposals to not compromise the amenity and characteristics of residential areas, protecting said areas from potentially damaging developments. Established residential properties will have come to expect a certain level of residential amenity that new developments should not compromise.	The Proposed Development is in accordance with policy RES11 through being located away from established residential areas and being of a high-quality design that sites its elements carefully and seeks to screen itself from the small number of residential properties that are in close proximity to it.
Policy RE1: Renewable Energy Developments	Policy RE1 is an overarching policy for renewable energy developments. The policy establishes the criteria in Schedule 1: Renewable Energy Assessment Criteria, which is a set of criteria all renewable energy development proposals must comply with. It also stresses the importance for renewable energy development proposals are appropriate to their surroundings.	The Proposed Development conforms with policy RE1 by satisfying the criteria of Schedule 1 and by considering and proving it is appropriate to its surroundings.
Schedule 1: Renewable Energy Assessment Criteria	Schedule 1 provides the detailed criteria established by policy RE1 that renewable energy development proposals must consider.	The Proposed Development has been assessed against the Schedule 1 criteria and found to be in accordance with it, alongside being intrinsically designed with these policy objectives in mind.
Policy RE5: Financial Guarantees	This policy seeks to ensure financial guarantees from developers where the Council expects the development in question to have restoration, aftercare, decommissioning and/or mitigation costs. Such financial contributions are required to be agreed before work commences on the development should it be deemed acceptable.	Based on the information above, the Proposed Development is sought in perpetuity and therefore policy RES 5 of the LDP2017 has limited scope in the assessment of this application. Should elements of the Proposed Development be decommissioned over time, The applicant would propose to engage directly with EAC concerning the methodology for decommissioning. Should it be deemed necessary consent is contingent on financial guarantees, The applicant would seek to engage at an early opportunity with EAC in order to ascertain the necessity and scope of such a guarantee.
Policy T1: Transportation Requirements for New Development	Policy T1 requires development proposals to satisfy the requirements of the Ayrshire Roads Alliance and align with any Regional and Local Transport Strategies. Development proposals are required to demonstrate that their development would be accessible, preferably by sustainable and active means.	The East Ayrshire Local Transport Strategy 2009 – 2014 is the most recent strategy and the Proposed Development has been designed to accord with its aims, objectives, and vision. The Proposed Development has been located to ensure that it can benefit from the shared access arrangements and link/haul road infrastructure being applied under the S36 application as ancillary to the solar PV farm.
Policy WM1: Sustainable Waste Management	Policy WM1 requires development proposals to meet the aims of the Scottish Governments Zero Waste Plan and follow the principles of the Waste Hierarchy. Development proposals are therefore required to ensure they minimise any waste produced and recycle as much waste as possible. The policy encourages developments that manage to use recycled material.	The Proposed Development would be constructed and operated in line with the Waste Hierarchy and has been designed to ensure any waste produced is kept to a minimum and recycled where possible. Once operational, it is not anticipated that the Proposed Development will generate any significant levels of waste which would require further consideration under policy WM1.



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Policy/Guidance	Overview and Objectives	Response
Policy WM3: Sustainable Waste Management and New Developments	Policy WM3 requires development proposals to have waste separation on site during construction to ensure as much waste as possible has the potential to be recycled and not lost to landfill. Major and significant local developments could also be required to produce a Site Waste Management Plan to demonstrate in detail how waste generation will be minimised during the site's construction and operation.	While the Proposed Development is not anticipated to be a significant generator of waste materials, it would be constructed and operated with sufficient waste separation services to ensure general and other waste is likely to be recycled, with minimal waste being lost to landfills.
Policy ENV1: Listed Buildings	Policy ENV1 provides protection to both the character and setting of listed buildings within East Ayrshire. The demolition or loss of listed buildings would rarely be supported.	The Proposed Development would be in accordance with policy ENV1. There would be no loss of any listed buildings. Lochgoin Monument is a grade B listed building and lies approximately 1.5km to the south east. Given the distance from the Proposed Development and the nature of its setting, it is considered that the Proposed Development would not harm its character or significance.
Policy ENV2: Scheduled Monuments and Archaeological Resources	Policy ENV2 provides protection to the character and setting of scheduled monuments, only permitting support for development proposals where any adverse effects on scheduled monuments has exceptional overriding circumstances. This policy also affords protection to the archaeological resources located within East Ayrshire. Archaeological assets discovered should remain in situ where possible and developers are required to provide for the archaeological excavation of the asset where this is not possible.	The Proposed Development would be in accordance with this policy as it would not have any significant adverse effects on any scheduled monument. The Proposed Development would also manage the discovering of any archaeological assets in- line with this policy and has been designed to avoid any existing currently know archaeological assets.
Policy ENV6: Nature Conservation	This policy affords protection to the important natural resources, assets and biodiversity found within East Ayrshire. Development proposals that adversely affects Natura 2000 or SSSI sites would only be permitted where they would not have adverse effects on the integrity of these sites. Potential effects on sites of local importance due to the composition of natural assets within them, are also protected. Development proposals are required to minimise and mitigate their potential effects on these sites and on protected species that might operate in and around the development site. The policy also seeks to ensure that development proposals are designed in such a manner that opportunities to incorporate or extend existing habitat networks are considered.	The Proposed Development would be in accordance with Policy ENV6 due to it not having any significant negative effects on the natural assets located within East Ayrshire and being designed and sited in such a manner that it has appropriately mitigated any potential effects on these assets as possible. Furthermore, it is noted that no statutory nature designations are included within or adjacent to the application site.
Policy ENV8: Protection and Enhancing the Landscape	This policy affords protection to the landscapes of East Ayrshire and even seeks to see the enhancement of East Ayrshire's landscapes over the lifetime of the LDP. The policy requires development proposals to be well designed and of a size, scale and layout that is in accordance with the landscape character the site is located within. The policy notes that the finishing's, colours and materials used in developments is also of considerable importance and such aspects of development should be carefully considered to ensure development proposals mitigate and reduce their potential effects on landscapes and their characteristics as much as possible. The policy highlights the following important landscape features that should be conserved and considered in development proposals:	The Proposed Development is in accordance with policy ENV8 due to it having been designed in accordance with this policy's recommendations and has been sited in such a way so as to mitigate and reduce its potential landscape effects.

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Policy/Guidance	Overview and Objectives	Response
	 "Settings of settlements and buildings within the landscape. Skylines, distinctive landforms features, landmark hills and prominent views. Woodlands, hedgerows and trees. Field patterns and means of enclosure, including dry stone dykes. Rights of way and footpaths." 	
Policy ENV9: Trees, Woodland and Forestry	This policy affords protection to the trees, woodlands and forests located within East Ayrshire. Development proposals must justify the loss of such natural assets and must achieve clear and considerable public benefit from their development. Compensatory planting and similar schemes could be used by development proposals to help justify the loss of trees.	The Proposed Development is in accordance with policy ENV9 and would not result in the direct removal of significant sections of forestry. Furthermore, the forestry that within and surrounding the site is commercial woodland and therefore trees are often harvested, and replacement trees replanted. The applicant has no control over these forestry operations as the forestry within the locale is managed by Forestry and Land Scotland who maintain an ongoing presence on site.
Policy ENV10: Carbon Rich Soils	This policy affords protection to the important peatland soils within East Ayrshire. The policy seeks to minimise any potential effects or loss of peatland soils as these are an important source of carbon storage. The policy does make special exceptions for renewable energy developments, which may be built on carbon rich soils where their economic and public benefit outweighs the potential loss of said soils.	The Proposed Development has been carefully designed and its elements sited in order to minimise the amount of peatland the Proposed Development would be located on and in general, areas of deep peat have been avoided. Where areas of peatland cannot be avoided – such as is the case with the siting of the solar PV arrays, responsible management of the peatland habitat has been a fundamental consideration in the generation of the proposals and appropriate mitigation through compensatory peatland restoration in other locations within the site has been proposed.
Policy ENV11: Flood Prevention	This policy seeks to ensure new developments within East Ayrshire at not as risk of flooding and do not increase the risk of flooding in their surroundings. Development proposals are required to mitigate their susceptibility to flooding, ensuring their resulting development would be as flood resilient as possible.	The Site has extremely localised areas of high, medium and low risk of surface water flooding throughout the site – most of which are concentrated in areas following existing watercourses. The site layout has been carefully designed around these potential flood risks and appropriate buffers have been applied to watercourses to limit the potential impact on the development resulting from a flood event.
Policy ENV12: Water, Air and Light and Noise Pollution	This policy works to ensure development proposals within East Ayrshire do not create unreasonable levels of water, air, light and noise pollution. Preferably, development proposals would produce as little pollution and types of pollution as possible. Development proposals are required to mitigate any effects from pollution as much as possible.	At its core, the Proposed Development provides little to no pollution. Operationally, the green hydrogen production facility will have extremely limited impacts from pollution and its main by-products are oxygen and clean water. Suitable mitigation can be applied and controlled through standard planning conditions.

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Other material considerations

The emerging Local Development Plan

- EAC is currently in the process of preparing the Local Development Plan 2 (LDP2), a successor to the current LDP2017. EAC has progressed to the stage of issuing a Main Issues Report (MIR) which contains the main issues the Council seeks to address in LDP2 and helps to identify how the Council will consider development proposals in the future.
- At the time of submission, LDP2 is not at a stage where it would be considered as a fundamental material consideration in the assessment of the Proposed Development. This notwithstanding and having consideration to the request for a 10-year enactment period, it is noted that there are no present changes captured within the LDP2 MIR which would conflict with the aims and rationale behind the Proposed Development. In fact, it is reasonable to assume, that within the next 10 years, the national agenda toward green technologies will only become more acute.

East Ayrshire Economic Development Strategy 2014 – 2025

^{6.2.5} This document provides the economic aspirations of the East Ayrshire region. Key to this application is EAC desire to ensure the East Ayrshire region increases its sustainability and places it as key to ensuring long term economic growth. The document also highlights renewables as being a priority growth sector. The Proposed Development would represent capital investment in the area and would provide a source of employment.

6.3 Planning policy assessment

Introduction

^{6.3.1} This section of the Planning Statement provides an assessment of the Proposed Development against relevant national and LDP2017 policies and other material considerations (as set out in **Sections 6.1 and 6.2** respectively).

Contribution to energy targets and de-carbonisation

The green hydrogen production facility would produce up to 10,000kg of green hydrogen per day at peak, though this would reduce over long-term use through the degradation of the plant and machinery. This is a considerable amount of green and versatile fuel which can be used to power various transportation methods as outlined earlier in this report. The Proposed Development is therefore considered to be a valuable addition in meeting the national climate change targets established within **Section 5** above.

Land use and principle of development

- ^{6.3.3} The principle of the Proposed Development on national policy level has been assessed as acceptable. At a local level, the EAC seeks to achieve high quality development with *"a presumption in favour of development which contributes to sustainable development"*.
- ^{63.4} The Spatial Strategy of the LDP2017 sets out a series of requirements which support this presumption in favour of sustainable development, these include but are not limited to:
 - "Directing development to accessible locations to reduce the overall need to travel. Where travel is necessary, locations accessible by a variety of modes of public transport as well as walking and cycling are prioritised.

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- Identifying development opportunities in locations with the infrastructure and landscape capacity to accommodate them.
- Identifying opportunities for renewable energy development, particularly wind energy development, giving due regard to relevant environmental, community and cumulative impact considerations.
- Making provision for sensitive development in the rural area with those most sensitive parts being afforded higher levels of protection.
- Ensuring that all development is of the highest quality design and contributes positively towards making the area concerned a successful place thereby improving the quality of life and health of residents, stimulating private investment, attracting visitors to the area and assisting in reducing carbon emissions."
- ^{63.5} Broadly speaking, the Proposed Development would comply with the general principles of the spatial strategy insofar as it is sited at a location close to the motorway network and is therefore highly accessible. It is also sited adjacent to the existing wind farm at Whitelee. It is located within a rural area with extremely limited sensitivity and no statutory designations and limited impact on identified receptors. It offers an opportunity to capitalise on the location of Whitelee and Eaglesham Moor as a centre for renewable and green energy in Scotland and will continue to improve the overall quality of life and health of residents through its primary benefit of reducing carbon emissions.
- In determining the suitability of the Proposed Development in its principle, consideration of land use is essential. In this case, the LDP2017 is the primary consideration for establishing land use compatibility and whether or not a development would be deemed to be contrary to the Development Plan. While it is recognised that at its core, the Proposed Development represents the introduction of an industrial use within a rural locale, it is considered that by virtue of the broad compliance with the LDP2017 Spatial Strategy and by virtue of the designation of the site as an area of renewable (wind) development – a quasi-related use, particularly given the corresponding solar PV farm being applied for through the Electricity Act (but nonetheless forming part of the wider Project) – the Proposed Development is compliant with the overall aims and agendas of the LDP2017 and is not contrary to the LDP2017.
- 6.3.7 Policy IND3 relates to industrial development within a rural setting. IND3 supports development outwith settlement boundaries only where strict selection criteria is met. In the case of the Proposed Development this would be criteria (vii) *"Renewable energy developments within the Rural Area that have been subject to detailed consideration against policy criteria".*
- 6.3.8 By virtue of its fundamental purpose for the production of green hydrogen as a means of fossil fuel alternative technology, the Proposed Development presents a low-carbon energy development which in-principle mitigate and adapt to climate change.
- ^{63.9} The accompanying EIA Report successfully demonstrates that the Proposed Development would cause no unacceptable significant adverse effects on the environment which would be contrary to policy criteria with regard to its principle.
- ^{6.3.10} Therefore, the Proposed Development is considered to accord with the vision and Spatial Strategy of the LDP2017, overarching policy OP1 and Policy IND 3.

Landscape and visual impact

^{6.3.11} The following policies have been identified as relevant to Landscape and Visual considerations: Policy ENV8, as well as overarching policy OP1.

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- 63.12 Policy ENV8 states that development proposals should not have a significant adverse impact on landscape character and should be sited and designed to respect the nature and landscape character of the area and to minimise visual impact. Furthermore, it goes on to state that where visual impacts are unavoidable, development proposals should include adequate mitigation measures to minimise impacts on the landscape.
- 6.3.13 The following relies on the expert assessment and conclusions contained within Volume 2, Chapter
 7 (the LVIA) of the EIA Report in order to determine compliance with the relevant criteria in the cited policies.
- ^{6.3.14} The Proposed Development 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 Proposed Development.
- As with most built developments, the Proposed Development would generate localised landscape effects where construction activity and built components would affect landscape character and elements. Landscape Effects are concerned with how the Proposed Development 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 Proposed Development would be such that the greatest landscape effects would be limited to the Site and up to approximately 0.2km on the host *Plateau Moorland with Windfarms* LCT. In addition, the Proposed Development would be visible in the landscape in the context of the Whitelee Windfarm turbines, a key feature of the LCT which present a noticeable manmade element in 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 Proposed Development would present as a 'new' element in the landscape, but in part of the landscape already characterised by large scale man-made features where it would be perceived as a relatively small-scale feature that would be less visible due to the surrounding undulating landform.
- ^{63.16} The greatest visual effects from the introduction of the Proposed Development would be mostly limited to receptors within approximately 0.5 - 1km, in particular to the west, southwest and east, with less visual effects from other directions and beyond 1km. Visual effects would be limited by the landform which slopes down to the west such that most views of the Proposed Development would be mid to long range. Where visible in these views, the Proposed Development would be seen as a low-lying feature relative to the prominent Whitelee Windfarm turbines, backclothed by landform and forestry and would sit below the horizon.
- ^{63.17} The overall effects of the Proposed Development on the landscape and visual resource are limited to a very small geographical area (within approximately 0.2 - 1km) and a small number of receptors within this area would be affected. There would be greater combined cumulative effects on a number of receptors, primarily due to the proposed S36 components of the Project, and not the Proposed Development alone. Further the Proposed Development would be seen and experienced in a contemporary landscape alongside existing windfarm development.
- 6.3.18 Having consideration for the LVIA undertaken, within the context of Policy ENV8 it is considered that the Proposed Development will not present an unacceptable significant visual impact on the landscape and visual character of the area such that it should not be supported under the terms of the Policy.

Ecology and ornithology

6.3.19 Criteria within Policy ENV6 and Policy ENV 10 has also been identified relevant for the assessment of the Proposed Development as it pertains to ecology and ornithology. The cited LDP2017 policies aim to ensure that no significant adverse impacts occur to species or habitats, with particular



regard being had for international, national and local conservation and biodiversity site designations, as well as statutorily protected species.

- 6.3.20 The following relies on the expert assessment and conclusions contained within Volume 2, Chapter
 6 (the EcIA) of the EIA Report in order to determine compliance with the relevant criteria in the cited policies.
- Analysis and assessment of baseline ecological data have enabled the identification of appropriate mitigation and compensation measures to prevent, reduce, or offset potential adverse ecological and ornithological effects, as well as enhancement measures to provide beneficial effects, where possible. The following is a summary of the EcIA, such as it pertains to the Proposed Development:

EcIA methodology

- A desk-based data-gathering exercise was undertaken to obtain existing information relating to relevant ecological features, these being: statutory and non-statutory biodiversity sites; habitats and species of principal importance⁷; legally protected and controlled species; and other conservation notable species that have been recorded within the Study Area; and bird monitoring data for the adjacent and overlapping Whitelee Wind Farm Habitat Management Area (HMA).
- 63.23 Ecological surveys undertaken across the Site and wider Study Area, including a Phase 1 habitat survey, a National Vegetation Classification (NVC) survey.
 - A Phase 1 habitat survey of the Site and wider Study Area was undertaken on 21 August 2020 and 25 26 November 2020. Distinct habitats were identified, and any features of interest recorded and included on a Phase 1 habitat map.
 - Badger, otter, and water vole surveys were undertaken following standard methods within the Site and wider Study Area on 24-25 September 2020 and 25-26 November 2020.

Environmental measures embedded into the Proposed Development

- 6.3.24 An iterative design process has been carried out and range of environmental measures have been embedded into the Proposed Development, including:
 - Avoidance of areas of deeper peat (>1m) wherever possible.
 - Avoidance of Fenwick Moor PWS (which comprises wet modified bog tending to better condition blanket bog in places).
 - Avoidance of localised areas of bog pools and areas with high-water table with presence of broad-branched *Sphagnum* species (*Sphagnum magellanicum* and *Sphagnum papillosum*).
 - Habitats (both wet modified bog and marshy grassland within the HMA on shallow peat were considered more preferential than modified bog on deeper peat outside the HMA (Compensation for loss of HMA is discussed in Section 2).
 - Site infrastructure has been located a minimum 20m from watercourses.
 - All construction works areas have avoided known otter resting sites.
 - Avoidance of historical black grouse lekking sites.
- 63.25 Working practices to minimise effects on terrestrial, ornithological and freshwater ecology during construction would be set out within the CEMP and implemented under the direction/supervision

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⁷ Scottish Biodiversity List features.

of an Environmental Clerk of Works (ECoW). Full details presented in Table 6.9 of the EcIA (Volume 2, Chapter 6 of the EIA Report) core measures are summarised below:

- 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. All access tracks on peat depths exceeding 1m would be of floating design, to minimise effects on peat.
- 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 otherwise disturbing this species. Taking this and other mitigation measures into account, it was concluded that the Proposed Development would not have a significant effect on otter.
- A range of environmental measures have been embedded into the Proposed Development to minimise any potential impacts on breeding birds. Working practices to minimise effects on ornithological features during construction will be set out in a Bird Protection Plan (BPP).

Evaluation and impact summary

Nature conservation sites

- Given the distance from the application boundary and all identified nature conservation sites, no significant adverse effects on the ecological interest features of these sites are likely.
 - Brother Loch and Little Loch SSSI is located approximately 4.9km from the site boundary. There is no direct habitat connectivity and the potential effects on this Site are unlikely.
 - The nearest non-statutory site is Fenwick Moor (Greenfield Burn) PWS, which is located approximately 220m from the nearest working area. Potential effects on to the habitats of interest (blanket bog) are therefore unlikely.

Wet modified bog

- 6.3.27 Blanket bog communities are a restricted and declining habitat in the UK and Europe. Blanket bog is a SBL Priority habitat and includes habitats / vegetation communities listed on Annex I to the EC Habitats Directive.
- ^{6.3.28} The Proposed Development is situated on relict, wet modified bog within the Whitelee Habitat Management Area (HMA) on land formerly planted with commercial forestry. These habitats have been heavily modified through anthropogenic means and as such, are assessed as being in poor/modified condition with low cover values of typical species.
- ^{6.3.29} The Proposed Development is predicted to result in the permanent loss of 1.44 ha and temporary disturbance of 0.49 ha of wet modified bog communities. To avoid adverse impacts to the conservation status of blanket mire communities, additional habitat management proposals have been developed, and are outlined in this Section below, to compensate for the loss of this area.

Badger

^{63.30} No evidence of badger was recorded during extended Phase 1 habitat surveys undertaken in 2020.
 No field signs of badger were recorded anywhere within the survey area for East Kingswell
 Windfarm in 2009/2010 and surveys undertaken for neighbouring Whitelee Extension did not record any field signs within the wider study area. The foraging and setting resource within the Site

is considered sub-optimal. The soils present within the study area are generally poorly drained and are inherently of sub-optimal suitability for setting due to the likelihood of them becoming waterlogged. Nevertheless, inclusion of badger protection measures within the Site SPP will cover the potential for future presence.

Otter

- ^{6.3.31} During surveys in 2020, several well used and apparently long-established otter travel routes were identified within the wider Study Area and the location of these, and resting sites were considered when designing the Proposed Development, to avoid potential disturbance of these features wherever possible. The nearest water courses are the Bught Burn, approximately 70m to the south of the Proposed Development and a tributary of the Collorybog Burn approximately 90m to the north of the Proposed Development.
- 6.3.32 No well-used or recently occupied resting sites were recorded and there was no evidence of breeding identified at any of the resting sites along these watercourses.
- ^{63.33} Due to the extent of available watercourses/waterbodies and availability of suitable habitat within the Study Area that will remain undisturbed during construction, availability of foraging shelter habitat resource is not considered to be a limiting factor in respect to the Proposed Development. Nevertheless, inclusion of otter protection measures within the Site SPP and the inclusion of preconstruction surveys will ensure avoidance of any adverse impacts to this species and contravention of relevant legislation.

Water Vole

- ^{63.34} No evidence of the species was recorded during survey of the Site in 2020 and no evidence was recorded during historical surveys of the Site. The nearest water courses are the Bught Burn, approximately 70m to the south of the Proposed Development and a tributary of the Collorybog Burn approximately 90m to the north of the Proposed Development.
- ^{63.35} Water vole are known to be present in the wider area and potentially suitable habitat was noted within the Study Area. As such, water vole protection measures within the Site SPP and the inclusion of pre-construction surveys will ensure avoidance of any adverse impacts to this species and contravention of relevant legislation.

Bats

- 63.36 Historical surveys undertaken on the Site in 2009 and 2012 identified that at least three species of bat (Common pipistrelle, Soprano pipistrelle, are present in small numbers on the Site). It was considered at the time to support a no more than locally important population of bats (i.e., the Site supports populations of bat species that are not threatened or rare in the region and the habitats present are not integral to maintaining those populations).
- 63.37 Based on desk study data from historical bat surveys at the Site, five potential buildings and a single potential tree roost were recorded within the wider Study Area. However, all locations are recorded outside the nearest construction and operation areas. In addition to which, no felling of trees that could be suitable for roosting bats is proposed as a result of the Proposed Development.

Reptiles

^{63.38} An incidental record was made of a sloughed adder skin at Collory Bog in 2012 within the Proposed Development. Given the presence of reptile signs within the wider Study Area, and the suitability of the existing habitats for reptiles, it is considered likely that the Site may support reptile populations.

Inclusion of reptile protection measures within a Species Protection Plan (SPP) and pre-construction surveys will protect any identified hibernaculum during the construction phase and will ensure avoidance of any adverse impacts to these species and contravention of relevant legislation.

Freshwater fish

^{6.3.39} The nearest water courses are the Bught Burn, approximately 70m to the south of the Proposed Development and a tributary of the Collorybog Burn approximately 90m to the north of the Proposed Development, both of which would avoid impacts during construction and operation of the Proposed Development. Adoption of the environmental measures as outlined in EcIA (i.e., the pollution protection guidelines and measures outlined in a CEMP) will ensure the avoidance of any degradation of water quality and/or impacts on fish populations.

Black grouse

The nearest displaying bird within the Study Area was last recorded in 2017, approximately 450m from the Proposed Development. Since then, no records of black grouse have been made at this location or across the wider HMA study area indicating that the breeding population is unlikely to have persisted. Potential construction related disturbance/displacement effects during construction would therefore be unlikely. Nevertheless, as a precaution, a BPP would be developed in consultation with the relevant consultees in advance of construction works commencing.

Curlew

The nearest historical territories within the Study Area were last recorded in 2018, approximately 850m to the south east of the Proposed Development. During surveys undertaken within the Whitelee HMA, no curlew territories have been recorded closer to the development. Potential construction related disturbance/displacement effects during construction would therefore be unlikely.

Lapwing

- 63.42 Based on the available historical data, it is possible that the construction and operation of the proposed development may result in a worst-case displacement of two territories within around 500m of the Proposed Development.
- ^{63.43} A BPP would be developed in consultation with the relevant consultees in advance of construction works commencing. Breeding opportunities are likely to be available within the wider vicinity including both restored habitats within the surrounding Whitelee HMA and the proposed HMA to the north of the Proposed Development.

Habitat management proposals

Habitat reinstatement

63.44 Habitat reinstatement would take place alongside the green hydrogen production facility, and temporary lay down area. There is therefore potential for the majority of habitat disturbed during construction to be reinstated within and around the Proposed Development in the medium term (3 to 5 years) following construction activities.

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Compensatory habitat restoration

- 6.3.45 A Habitat Management Plan (HMP) will be prepared in order to address the direct and indirect land take from the green hydrogen production facility on former plantation within the existing Whitelee Habitat Management Area (HMA).
- 6.3.46 Habitat management proposals presented in greater detail within the EcIA (Volume 2, Chapter 6 of the EIA Report) will be implemented during the construction and operation phases that will focus on restoration of wet modified bog within suitable Habitat Management. The area proposed for restoration to blanket mire (from currently modified/degraded blanket mire) shares a boundary coincident with the Whitelee HMA.
- ^{63.47} All habitat restoration proposals detailed above would be subject to consultation with Whitelee Habitat Management Group and NatureScot.
- ^{63.48} A final HMP would include a confirmed HMA and associated Management Units where the aims and objectives would be agreed with EAC, Whitelee Habitat Management Group and NatureScot prior to commencement of construction.
- ^{63,49} Subject to the provision of a net balance of suitable habitat restoration land it is concluded that the Proposed Development would not result in any significant effects on the blanket bog resource.
- 6.3.50 Management measures to be implemented would be likely to include the following:
 - The blocking of historical drainage channels (using 'wave dams') has been proven to be improve the quality of bog habitats and has been used within the existing Whitelee HMA as well as the NatureScot Peatland ACTION project on several peatland restoration programmes.
 - Exclusion of grazing within Unit A (1-3) (October May inclusive), and densities June September not exceeding 0.05 Livestock Unit (LU)/ha subject to amendment by the Whitelee HMG.
 - Removal of self-seeded conifer regeneration.
 - Monitoring is also proposed to establish whether the objectives of the habitat management proposals are being obtained. The monitoring of proposed HMA units would be undertaken as per the protocols outlined within the Whitelee HMP.

Summary

- ^{63.51} No significant adverse ecological effects have been identified for the construction and operation of the Proposed Development, either alone or in combination with other developments and therefore these are not significant in relation to the EIA Regulations. Mitigation has been proposed to further reduce the low magnitude effects during the construction phase and reduce the likelihood of legal offences and comply with good practice. Further information on ecology surveys and their conclusions are available in Chapter 6 of the EIA Report.
- ^{6.3.52} The Development is therefore considered to be in line with Policy ENV6 and Policy ENV10 relation to ecology and ornithology.

Geology, hydrology (including flood risk) and hydrogeology

63.53 Policy ENV10, Policy ENV11 and Policy ENV12 requires developers to ensure that development proposals would not have a significant adverse impact on water quality and environment, nor on flood risk and carbon rich soils.

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- An assessment (HIA) of the effects of the Proposed Development on the hydrology resource of the Site was undertaken. As shown in Volume 2, Chapter 9 of the EIA Report, the Proposed Development has been assessed as having the potential to result in effects of minor to negligible significance. Given that only effects of moderate significance or greater are considered relevant in terms of the EIA Regulations, the potential effects on hydrology are considered to be not significant.
- ^{6.3.55} The Development is therefore considered compliant with the criteria, relevant to hydrology, within Policy ENV10 and Policy ENV11.
- ^{63.56} The HIA undertaken Report considers the potential effects of all stages of the Project (construction, operation and decommissioning) with respect to Geology, Hydrology (including Flood Risk) and Hydrogeology.

Wider Project considerations

^{6.3.57} The HIA report adopts an EIA methodology to look at the combined effects on the water environment of the proposed solar PV farm, BESS and ancillary infrastructure (including main access tracks and HV cable) as well as the green hydrogen production facility. It directly supports the Section 36 application relating to the former part of the Project, but also provides the basis for this part of the Planning Statement in relation to the green hydrogen production facility.

Baseline

- ^{6.3.58} The HIA is an appraisal of the change to the baseline (existing and future, anticipated) water environment resulting from the Project in its totality. Publicly available and requested baseline data has been gathered to a defined Study Area. Two different buffer widths have been used to define the Study Area around the northern and southern parts of the wider Project Site. The green hydrogen production facility sits within the northern area of the wider Project Site, which is associated with a larger 1km buffer because of the relatively higher level of construction activity anticipated within this area. Data for beyond the Study Area has also been collected where catchment areas for distant water features may intersect the Study Area, such as for abstractions and conservation sites.
- 6.3.59 On the basis of the derived description of the baseline water environment and following consultation with the ECU, EAC and statutory consultees; a number of water features within the northern part of the extended Study Area have been identified that require assessment with respect to the green hydrogen production facility. They comprise the following:
 - The bedrock aquifer and Whitelee Water Framework Directive (WFD) groundwater body.
 - The Drumtee Water, tributaries and associated WFD surface water body.
 - The Fenwick Moor (Greenfield Burn) Provisional Wildlife Site (PrWS).
 - On-site potential Groundwater Dependent Terrestrial Ecosystems (GWDTEs), both south of the Collorybog Burn and parallel to the Drumtee Water.
- 6.3.60 Consideration has been given to the types of potential effects on these receptors that could arise from the green hydrogen production facility and within the HIA, these have been considered in combination with the solar PV farm and the associated ancillary infrastructure proposed.
- ^{6.3.61} The main effects are found to relate to the construction phase, and with respect to the green hydrogen production facility specifically from building foundations and site activities. Such activities could 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 effects on water quantity and quality.

In particular, the proposed electrolyser building within the green hydrogen production facility is to be located near the Drumtee Water, on sloping ground that drains towards the watercourse, and mitigation would be required during construction to protect this. Potential water effects would be more limited in the operational phase, but the constructed site and operational traffic and maintenance activities could still result in the generation of additional silt-laden runoff and fuel, oil and chemical spillages. The potential water effects during the decommissioning phase would be similar to those incurred during the construction phase, albeit to a slightly lesser degree.

Summary of assessment

^{6.3.63} The assessment identifies the location and the nature of the impact from these and other activities, and then prescribes an exhaustive range of measures to be adopted to mitigate against these potential negative effects, of most relevance to the green hydrogen production facility are those related to 'Excavations and Associated Drainage', 'Peat Excavations and Storage' and 'Site Working Practices' contained within Volume 2, Chapter 9 of the EIA Report. The mitigation measures centre on adoption of Best Practice engineering design and construction and operation methodologies that would be incorporated within the CEMP that would be produced prior to the commencement of construction activities.

Evaluation and impact summary

A summary of the significance of predicted hydrological and hydrogeological effects that, based on the identified environmental baseline and embedded mitigation, there are no likely significant adverse effects related to the green hydrogen production facility. Nevertheless, additional mitigation over that embedded in the design is proposed, comprising further micro-siting of infrastructure, such as ensuring that the green hydrogen production facility is positioned away from sensitive features, and an agreed water quality 'monitoring and respond' programme is put in place.

Traffic and Transport

- ^{6.3.65} Volume 2, Chapter 9 of the EIA Report evaluates the effects of vehicle movements associated with the construction, operation and decommissioning phases of the Proposed Development. Vehicle movements to and from the Site will likely consist of heavy goods vehicles, light goods vehicles and cars with limited use of abnormal loads.
- 6.3.66 Due to the nature of the use, which concerns the export of hydrogen fuel via tube trailer and due to the relatively remote access to public transport infrastructure, the Site is reliant on the use of private vehicles.
- ^{63.67} The assessment considers that by applying the mitigation measures contained within, the magnitude of effects, both individually and cumulatively, would be low in magnitude and nonsignificant, in terms of the EIA Regulations. This includes for potential effects on the trunk road network, with the M77 used as a primary travel route to and from the Site.
- ^{6.3.68} The Development is therefore considered to be compliant with the relevant criteria of Policy T2 in regard to transport, travel and access.

Other matters

Waste

^{63.69} The Proposed Development would be constructed and operated in line with the Waste Hierarchy and has been designed to ensure any waste produced is kept to a minimum and recycled as much as possible. It would also be constructed and operated with sufficient waste separation services to ensure general and other waste is likely to be recycled, with minimal waste being lost to landfills. The Proposed Development is therefore in compliance with the requirements of Policy WM1 of LDP2017.

Air quality

- 6.3.70 The operation of the green hydrogen production facility would produce minimal emissions and the largest contributor of emissions would likely be the staff and tube-trailer vehicles that access the site.
- 63.71 It is therefore considered that the Proposed Development would not have any significant negative effects with regard to air quality and pollutants and would be in accordance with national and local planning policy.
- 63.72 Notably the by-products associated with the green hydrogen production facility are water (H2O, a proportion of which is unused in the process) and oxygen (O2) which is used during the PEM process of separating the hydrogen and oxygen molecules from the feed water supply. The oxygen represents a 100% clean by-product which is free of pollutants and particulates. This has the added benefit of improving local air quality.
- A degree of the unused H2O, when vented into the atmosphere will condense and the result will be plumes of water vapour. The water vapour presents no air quality impact which would require further consideration under the EIA Regulations. Consideration of visual impact of the plumes is provided separately under Volume 2, Chapter 7 (LVIA) of the EIA Report.
- 63.74 Based on the foregoing, the Proposed Development is considered to comply with Policy ENV12 of the LDP2017 as it will not give rise to adverse impacts on local air quality levels, either on its own or cumulatively with other developments.

Noise

- ^{63.75} The Proposed Development is not anticipated to give rise to significant operational noise levels. Mitigation would primarily take the form of the siting and location of the green hydrogen production facility which has been located outwith 500m of nearby residential property. A summary of the distances to the closest residential properties is as follows:
 - Moor 0.94km to north of Site (under ownership of applicant, confirmed as presently unoccupied).
 - Kingswell 1.35km to north west of Site beyond B764.
 - Cauldstanes 1.35km to west of Site.
 - Best Friends 1.53km to west of Site beyond B764.
 - Drumtee 1.57km to west of Site.
 - Lochgoyne 1.67km to south east of Site.



- ^{6.3.76} The applicant contends that given the distance to local residential receptors, coupled with the low level of operational noise, that standard safeguarding conditions concerning noise could be included within any grant of Planning Permission.
- 63.77 It is anticipated that noise levels may be increased during construction and decommissioning activities and the management of this is proposed to be included within both the CEMP and CTMP.
- 6.3.78 Furthermore, the site is not located within a Noise Management Area, nor is it subject to a Noise Action Plan and on this basis, and taking account of the above information, it is considered that the Proposed Development would be consistent with the requirements of Policy ENV12, subject to safeguarding conditions.

Other issues

Forestry

- 6.3.79 The site is located on an area of wet modified bog immediately west of Whitelee windfarm. To the north of the site at a distance of 350m is a bank of commercial forestry situated between the Site and the B764. This section of commercial forestry is operated and administered by Forestry and Land Scotland. Additional to this section of forestry land, the nearest other forestry to the site is located immediately south c. 1.6km distant. This section of forestry land is also operated and administered by Forestry and Land Scotland and is westerly adjacent to Craigendunton reservoir. Other sections of commercial forestry used to exist immediately south of the application site boundary, however this has been clear felled and forms part of the Whitelee Windfarm and Extension HMA.
- Owing to its location, and the limited operational impacts beyond the red line boundary, the Proposed Development would not interfere in the operations of Forestry and Land Scotland in respect of the forestry land to the north and distant to the south of the Site boundary. Furthermore, there are no other areas of non-commercial forestry within the vicinity of the site which could be affected or otherwise impacted by the Proposed Development.

Archaeology and cultural heritage

- The Site does is not known to contain any archaeological assets, nor are there any designated cultural heritage sites within the site boundary. On review of the Screening Response it is noted that consultation was conducted with both EAC and the West of Scotland Archaeological Service (WoSAS). The advice provided is that subject to standard safeguarding conditions and the inclusion of an archaeological watching brief, there is not anticipated to be any impact on archaeological assets arising from the Proposed Development.
- ^{63.82} The closest cultural heritage asset is c. 1.5km distant to the south east of the application site boundary and is the Lochgoin Monument. The character and the setting of the Monument will not be detrimentally affected by the Proposed Development owing to its distance, the difference in landform and the existence of wind turbines from the wind farm between the Site and the Monument which breaks the natural landscape in this location.

6.4 Summary of compliance

6.4.1 The Principle of the Proposed Development fully accords with the objectives of the LDP2017 for achieving sustainable development whilst safeguarding the environment. The Proposed Development has been sited and has adopted a design that minimises the effects on the environment and amenity, through various mitigation measures, whilst maintaining its economic

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viability. A full EIA Report has been submitted which assesses the effects of the Proposed Development in respect of Ecology and Ornithology, Landscape and Visual, Geology, Hydrology and Hydrogeology and Traffic and Transport and accompanies this application. The conclusions of the EIA Report determine that no conflict with any relevant LDP2017 policies exists.



7. Summary and conclusions

- There has been a step change in recent Government policy and attitudes towards the importance of reducing greenhouse gas emissions as soon as possible in order to significantly reduce the risks and impacts of climate change. In May 2019, the Scottish Government declared a 'climate emergency'. This resulted in the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019, which received Royal Assent in October 2019. This Act now commits Scotland to a target of Net Zero emissions of all greenhouse gases by 2045, with interim targets to reduce emissions by 56 % by 2020, 70 % by 2030 and 90 % by 2040. A series of annual targets towards this Net Zero and interim target have also been set, with an annual increase in targets of around 1.9% from 2020 to 2030. The Act also places climate change duties on all Scottish public bodies, requiring them to exercise their functions in a manner which is consistent with meeting the Net Zero target.
- In its advice to the UK and Scottish Governments on achieving the Net Zero target, the UK Committee on Climate Change have stated that renewable energy generation "must quadruple" and that the Scottish Government should make "use of planning powers to drive decarbonisation." Increased support for the role of the planning system in more radically reducing greenhouse gas emissions has also come across as a central theme in consultee responses to the Scottish Government's Call for Ideas on the next National Planning Framework, with a recognition that the existing NPF3 and SPP have yet to fully reflect the legislation and policy requirements relating to climate change.
- 7.1.3 This Proposed Development at Whitelee represents the applicant's ambition to diversify its portfolio of 100% renewable green energy and when viewed within the context of the national decarbonisation agenda represents a convergence of new and cutting-edge technologies working as one to deliver the most sustainable renewable development possible.
- 7.1.4 The Scottish Government has recently identified investment in renewables as playing an important role in contributing towards Scotland's "green recovery" following the global COVID-19 pandemic. The Project overall represents a c. £35 million capital investment, which can be viewed as a direct contributor to this national agenda.
- 7.1.5 The Site at Whitelee has been chosen for a number of reasons. It is ideally positioned for access to the national motorway network for green hydrogen export, 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.
- 7.1.6 Furthermore, the suitability of the Site for development is established in its principle within the EAC LDP2017 and while it is noted that the intended Whitelee Phase 3 development was not previously supported in this location, it is considered that the principle, reason for refusal (L&V impact) is suitably addressed through the design and visually unobtrusive layout of the Proposed Development.
- In terms of adverse impacts, the supporting technical reports which accompany this application identify no significant environmental impacts as a result of the Proposed Development.
 Furthermore, those impacts which have been identified can be sufficiently mitigated in most circumstances and those which cannot be mitigated against are considered sufficiently minor so as to not require further consideration.
- 7.1.8 As highlighted in the UK Energy White Paper, the Scottish Government's Update to the Climate Change Plan 2020 and the Scottish Government's Hydrogen Policy Statement, hydrogen is rapidly emerging as a sustainable solution for the decarbonisation of the economy, being particularly relevant as a potential replacement for fossil fuel feedstock in industrial and chemical processes,

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and in transport, especially heavy-duty vehicles such as buses, HGVs, trains and ships where battery technology is less suited. These benefits of the Proposed Development alongside the minimal degree of environmental impact which would arise, its compliance with national and local planning policy and also the weight which should be given to the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019 and the national agenda towards decarbonisation and Net Zero objectives, it is concluded that the planning balance lies firmly in favour of the Proposed Development and it is respectfully requested that EAC support the proposals contained within this application and grant consent.



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Appendix A Figures







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