Botley West Solar Farm

Environmental Statement

6.1 ES Contents and Glossary

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Jonathan Alsop	15 November 2024

Prepared by:

RPS
20 Western Avenue,
Milton Park, Abingdon,
Oxfordshire, OX14 4SH
United Kingdom

Prepared for:

Photovolt Development Partners GmbH, on behalf of SolarFive Ltd.

Contents

Environmental Statement – Table of Contents

Volume 0 – Non Technical Summary [EN010147/APP/6.2]

Volume 1 – Chapters [EN010147/APP/6.3]

Volume 2 – Figures [EN010147/APP/6.4]

Figure Number	Figure Title
2.1b	Illustrative Masterplan Northern Site 2 of 2
2.2a	Illustrative Masterplan Central Site 1 of 4
2.2b	Illustrative Masterplan Central Site 2 of 4
2.2c	Illustrative Masterplan Central Site 3 of 4
2.2d	Illustrative Masterplan Central Site 4 of 4
2.3	Illustrative Masterplan Southern Site 1 of 1
2.4a	275kV Illustrative Cable Corridor Plan
2.4b	275kV Illustrative Cable Corridor Plan
2.4c	275kV Illustrative Cable Corridor Plan
2.4d	275kV Illustrative Cable Corridor Plan
5.1	Illustrative Masterplan Cable Corridor Plan Overview
5.2	Illustrative Masterplan Cable Corridor Plan Overview - Northern Site between the Oxfordshire Way, and B4027, south east of Wootton
5.3	Illustrative Masterplan Cable Corridor Plan Overview - Area between the Northern and Central Sites on land to the east of Woodstock and in the vicinity of the Bladon roundabout on the A44
5.4	Illustrative Masterplan Cable Corridor Plan Overview - Central Site on land east of Burleigh Wood and around Bladon Heath
5.5	Illustrative Masterplan Cable Corridor Plan Overview - Land between the Central and Southern Sites east and south of Eynsham around the Swinford Bridge
5.6	Substation Locations
7.1a	Designated heritage assets within the 2 km study area – Northern Site
7.1b	Designated heritage assets within the 2 km study area – Central Site
7.1c	Designated heritage assets within the 2 km study area – Southern Site
7.2a	Non-designated heritage assets (Prehistoric) within the 1 km study area – Northern Site
7.2b	Non-designated heritage assets (Prehistoric) within the 1 km study area – Central Site
7.2c	Non-designated heritage assets (Prehistoric) within the 1 km study area – Southern Site
7.2d	Non-designated heritage assets (Roman) within the 1 km study area – Northern Site
7.2e	Non-designated heritage assets (Roman) within the 1 km study area – Central Site

Figure Number	Figure Title
7.2f	Non-designated heritage assets (Roman) within the 1 km study area – Southern Site
7.2g	Non-designated heritage assets (Early Medieval and Medieval) within the 1 km study area – Northern Site
7.2h	Non-designated heritage assets (Early Medieval and Medieval) within the 1 km study area – Central Site
7.2i	Non-designated heritage assets (Early Medieval and Medieval) within the 1 km study area – Southern Site
7.2j	Non-designated heritage assets (Post-medieval, Modern and Undated) within the 1 km study area – Northern Site
7.2k	Non-designated heritage assets (Post-medieval, Modern and Undated) within the 1 km study area – Central Site
7.2l	Non-designated heritage assets (Post-medieval, Modern and Undated) within the 1 km study area – Southern Site
8.1 – 8.3	Site Location
8.4 – 8.6	Landscape Resources Plan
8.7	ZTV and Representative Viewpoints (Whole Project Overview)
8.8	ZTV Section Overlaps (Whole Project Overview)
8.8a	ZTV Bare Earth
8.9 – 8.11	Representative Viewpoint and Photomontage Locations
8.12 – 8.127	Representative Viewpoint Photographs (winter)
8.128 – 8.243	Representative Viewpoint Photographs (Summer)
8.244	National Character Areas
8.245	Figure 8.245 Regional Landscape Character
8.246	Local Landscape Character Areas
8.247	District Landscape Character Areas (including ZTV)
8.248 – 8.371	Photomontages (Winter and Summer)
9.1	Statutory Designated Sites
9.2	Non-Statutory Designated Sites
9.3 a b & c	Phase 1 Habitat Map
10.1	Study Area
10.2a	Hydrological Features - Northern Site
10.2b	Hydrological Features - Central Site
10.2c	Hydrological Features - Southern Site
10.2d	Hydrological Features - Cable Route
10.3	WFD Catchments (surface water)
10.4	Flood Warnings / Alerts
10.5	Drinking Water Protected Areas and Nitrogen Vulnerable Zones
10.6a	BGS 150k Bedrock Geology - Northern Site
10.6b	BGS 150k Bedrock Geology - Central Site
10.6c	BGS 150k Bedrock Geology - Southern Site
10.6d	BGS 150k Bedrock Geology - Cable Route
10.7a	BGS 150k Superficial Geology - Northern Site
10.7b	BGS 150k Superficial Geology - Central Site
10.7c	BGS 150k Superficial Geology - Southern Site
10.7d	BGS 150k Superficial Geology - Cable Route
10.8	WFD Catchments (groundwater)

Figure Number	Figure Title
10.9	Designated Sites
10.10a	EA Flood Map for Planning - Northern Site
10.10b	EA Flood Map for Planning - Central Site
10.10c	EA Flood Map for Planning - Southern Site
10.10d	EA Flood Map for Planning - Cable Route
10.11	Hydraulic Modelling Results
10.12	Water Abstractions, Pollution Incidents and Discharge Consents
11.1	Land Parcels with Constraints
11.2	ALC and Mineral Safeguarding Zones
13.1	Construction Phase Noise Study Area
13.2	Construction Phase Vibration Study Area
13.3	Operational Phase Noise Study Area
16.1	Human Health Study Area
16.2	Illustrative 3D Views of Educational Facility
17.1	Published ALC Data
17.2	Predictive BMV Land Assessment
17.3	Surveyed ALC Grades
17.4	Land Holdings
17.5	PRoW and Other Promoted Routes
17.6	Distribution of Soil Associations
19.1	Site Boundary and Construction Dust Buffers
19.2	Modelled Road Links and Sensitive Receptors
20.1	Cumulative Developments- Cherwell
20.2	Cumulative Developments- Vale of White Horse and OCC
20.3	Cumulative Developments- WODC

Volume 3 – Appendices [EN010147/APP/6.5]

Appendix Number	Appendix Title
1.1	Statement of Expertise
4.1	Scoping Report
4.2	Scoping Opinion
4.3	EIA Regulations - Schedule 4 Signposting
4.4	Glint and Glare Study inc. Technical Aerodrome Safeguarding Report
6.1	Project Mitigation Measures and Commitments Schedule
6.2	Cable Laying Methodology and Indicative HDD Crossing Locations
7.1	Historic Environment Desk Based Assessment
7.2	Assessment of airborne remote sensing and satellite imagery for archaeology
7.3	Geophysical Survey Report
7.4	Heritage Impact Assessment
7.5	Settings Assessment

Appendix Number	Appendix Title
8.1	Landscape Character
8.2	Landscape Value
8.3	Strategic Arboricultural Impact Assessment & Method Statement
8.4	Photomontage Methodology
9.1	Desk Study
9.2	Phase 1 Habitat Survey Report
9.3	Hedgerow Survey Report
9.4	Bat Survey Report
9.5	Great Crested Newt (GCN) Survey Report
9.6	Invertebrate Survey Report
9.7	Reptile Survey Report
9.8	Badger Survey Report [CONFIDENTIAL]
9.9	Breeding Bird Survey Report
9.10	Wintering Bird Survey Report
9.11	Dormouse Survey Report
9.12	Arable Weeds Survey Report
9.13	Biodiversity Net Gain Statement
9.14	Habitats Regulations Assessment Report
9.15	Veterans Tree Survey Report
9.16	Section 42 Consultation Responses
10.1	Flood Risk Assessment
10.2	Conceptual Drainage Strategy
10.3	Hydraulic Modelling Report
10.4	Hydrology Report
10.5	Surface Water Modelling Report
10.6	Surface water and Groundwater abstractions, pollutions incidents and discharge consents Report
10.7	Water Framework Directive Assessment
11.1	Botley Northern Site Area – Land Parcel 2, Desk Top Study And Preliminary Risk Assessment
11.2	Botley Northern Site Area – Land Parcel 3, Desk Top Study And Preliminary Risk Assessment
11.3	Botley Northern Site Area – Land Parcel 4, Desk Top Study And Preliminary Risk Assessment
11.4	Botley Central Site Area – Land Parcels 5, 6 and 11, Desk Top Study And Preliminary Risk Assessment
11.5	Botley Central Site Area – Land Parcel 7, Desk Top Study And Preliminary Risk Assessment
11.6	Botley Central Site Area – Land Parcel 8, Desk Top Study And Preliminary Risk Assessment
11.7	Botley Central Site Area – Land Parcel 9, Desk Top Study And Preliminary Risk Assessment
11.8	Botley Central Site Area – Land Parcel 10, Desk Top Study And Preliminary Risk Assessment
11.9	Botley Central Site Area – Land Parcel 12, Desk Top Study And Preliminary Risk Assessment
11.10	Botley Central Site Area – Land Parcel 13, Desk Top Study And Preliminary Risk Assessment

Appendix Number	Appendix Title
11.11	Botley Southern Site Area – Land Parcel 14, Desk Top Study And Preliminary Risk Assessment
11.12	Botley Northern Site Area – Land Parcel 15 (Cable Route), Desk Top Study And Preliminary Risk Assessment
11.13	Botley Southern Site Area – Land Parcel 16 (Cable Route), Desk Top Study And Preliminary Risk Assessment
11.14	Mineral Resource Assessment - Botley West Solar Farm
12.1	Description of Network Links and Sensitivity
12.2	Traffic Survey Data
12.3	Base Traffic Flows
12.4	Public Transport Networks
12.5	Sensitive Receptors
12.6	Construction vehicle trip generation assumptions
12.7	Traffic flows with construction traffic
12.8	Accesses and highway drawings
12.9	Personal Injury Accident (PIA) clusters
13.1	Baseline Sound Survey
13.2	Construction Phase Noise and Vibration
13.3	Operational Noise
14.1	Climate Change Policy
14.2	Greenhouse Gas Calculations
14.3	Outline GHG Reduction Strategy
15.1	Socioeconomic Baseline Assessment
15.2	Outline Skills, Supply Chain & Employment Plan
16.1	Human Health Consultation and Engagement
16.2	Oxfordshire HIA Toolkit Alignment Review
16.3	Community Health Profile
16.4	Human Health PRoW Analysis
17.1	Agricultural Land Classification and Soil Survey Report
20.1	Cumulative Developments Longlist and Shortlist

Master Glossary Terms

[EN010147/APP/6.1]

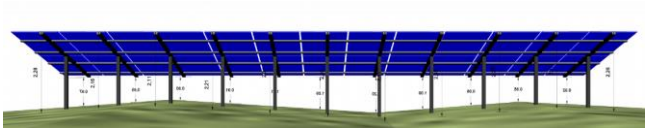
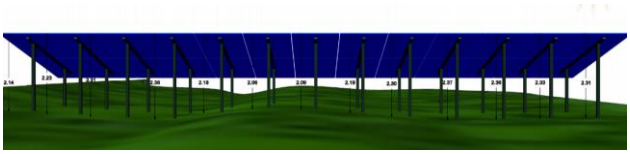
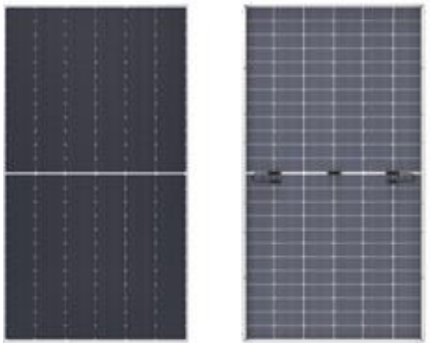
Please note, these are overarching main glossary terms, each chapter and appendix have separate glossaries.

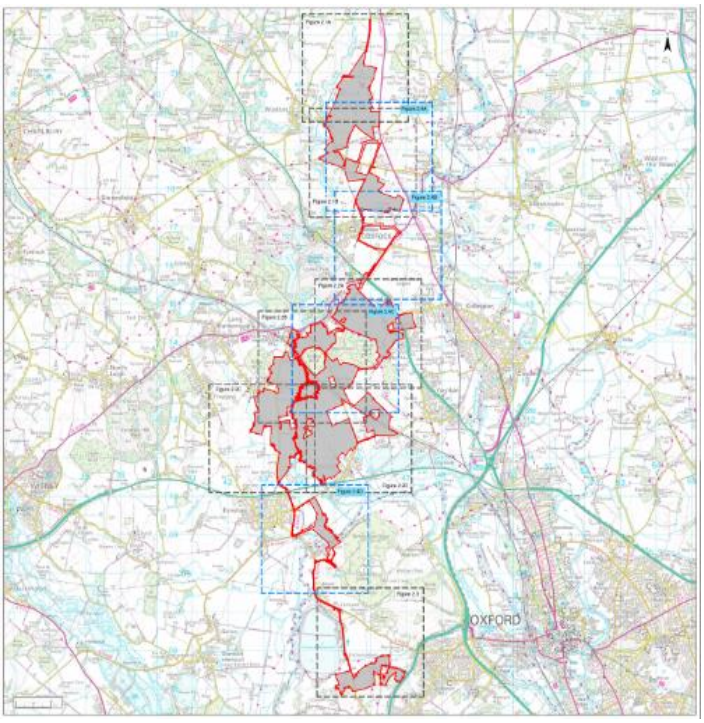
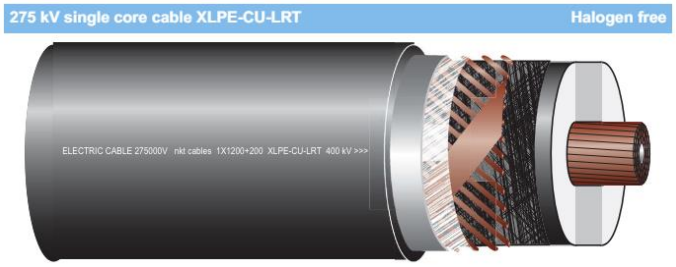
Term	Meaning
The Applicant	SolarFive Ltd
The Project	Botley West Solar Farm
Order Limits	The area of land encompassing the Project, required to enable the DCO development, and shown on the Site Location and Order Limits Overview (Figure 1.1)
Project Site Boundary	The boundary for the Project that is encompassed within the Order Limits
Solar installation areas	Areas of above ground installation for the operational solar farm, comprising solar panels, power converter stations, substations, access tracks and associated above ground infrastructure.
Site	The area encompassed within the Order Limit comprising the Northern Area, Central Area, Southern Area and Cable Corridor.
Construction Compound	Areas required temporarily during the construction phase of the Project, to facilitate the construction process.
Cable Corridor	Areas identified for the interconnecting cables (33kv and 275kv) for which there remains optionality in terms of the specific route to be followed – see also Technical Glossary.
Cable Route	The installation route for interconnecting cables (33kv and 275kv) – see also Technical Glossary.
Northern Site Area	The northern part of the solar installation area for the Project, which extends broadly from Rousham Gap in the north towards Woodstock in the south, and which is situated between the A4260 and the Dorn River Valley, near Tackley and Wootton.
Central Site Area	The central part of the solar installation area for the Project, which extends across an area situated broadly between Bladon and Cassington, south of the A4095 and north of the A40
Southern Site Area	The southern part of the solar installation area for the Project, which occupies land at Denman's Farm, situated south and east of Farmoor Reservoir and north of Cumnor.
Construction Period	The period of time required to build the Project, that would likely take 24 months
Operational Period	The operational period of the Project, proposed for 37.5 years. October 2028 is the assumed date of connection and energisation of the Project for the purposes of EIA assessment.
Decommissioning Period	Likely to commence two years before the end of the 42 year total DCO development period and is expected to be completed in that time. This period is expected to take 24 months

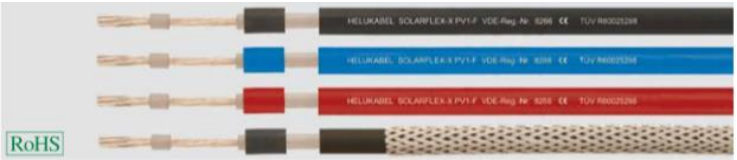
Total DCO Development Period	The combined period of up to 42 years that is sought under the DCO, comprising the cumulative total of the construction, operational and decommissioning periods.
Project Substation	See Technical Glossary
Power Convertor Stations	See Technical Glossary
NGET 400kV Substation	See Technical Glossary
High Voltage Transformers	See Technical Glossary
Cumulative Effects	The combined effect of the Botley West solar farm in combination with the effects from other proposed developments, on the same receptor or resource.
Designated heritage asset	A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.
Development Plan	The adopted and emerging policies and land use proposals of the relevant Local Planning Authority.
National Policy Statements	The National Policy Statements for energy that are undergoing consultation.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Host Authority	Those authorities, defined under Section 43 of the 2008 Planning Act, within whose land area the Project is proposed to be situated. For Botley West Solar Farm these comprise; West Oxfordshire, Cherwell and Vale of White Horse District Councils, and Oxfordshire County Council.
Impact	Change that is caused by an action/proposed development, e.g., land clearing (action) during construction which results in habitat loss (impact).
Inter-related Effects	Inter-related effects arise where an impact acts on a receptor repeatedly over time to produce a potential additive effect or where a number of separate impacts, such as noise and habitat loss, affect a single receptor.
Local Authority	A body empowered by law to exercise various statutory functions for a particular area of the United Kingdom. This includes County Councils, District Councils and County Borough Councils.
Preliminary Environmental Information Report	A report that provides preliminary environmental information in accordance with Regulation 12 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of the project and which helps to inform consultation responses.
Receptors	A component of the natural or man-made environment that is affected by an impact, including people.
Scoping Opinion	Sets out the Planning Inspectorate's response (on behalf of the Secretary of State) to the Scoping Report prepared by the Applicants. The Scoping Opinion contains the range of issues that the Planning Inspectorate, in consultation with

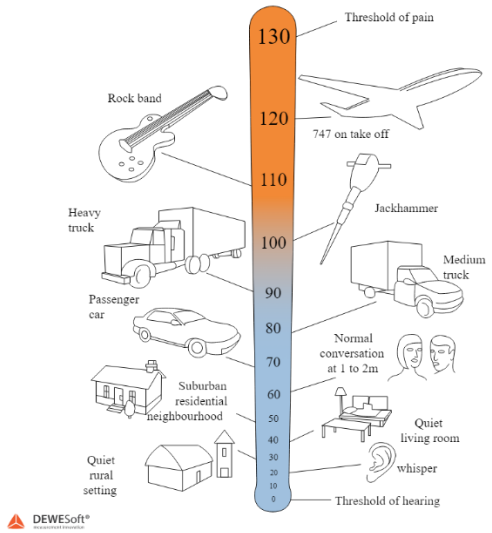
	statutory stakeholders, has identified should be considered within the Environmental Impact Assessment process.
Study area	This is an area defined for each environmental topic, which includes the Botley West Solar Farm Order Limits as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.
Planning Act 2008	The primary legislation under which Nationally Significant Infrastructure Projects (NSIPs) are to be determined.

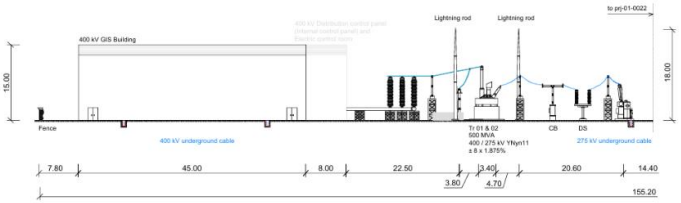
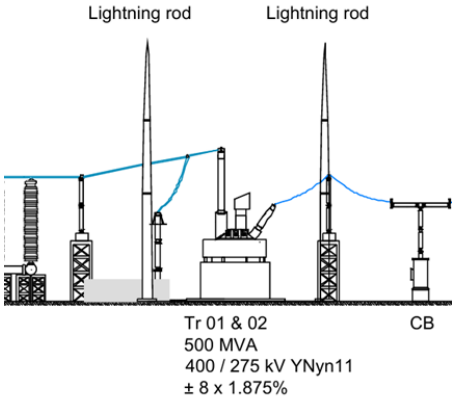
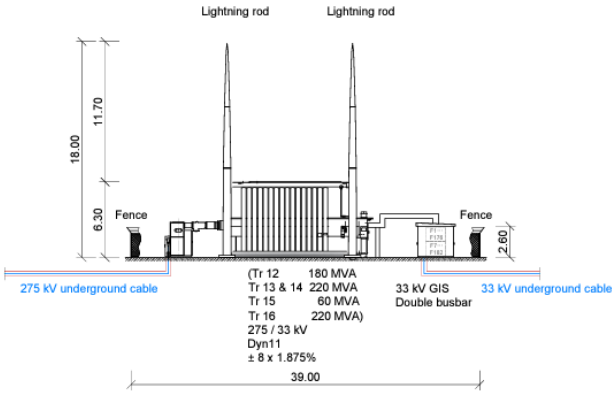
Technical Glossary Terms

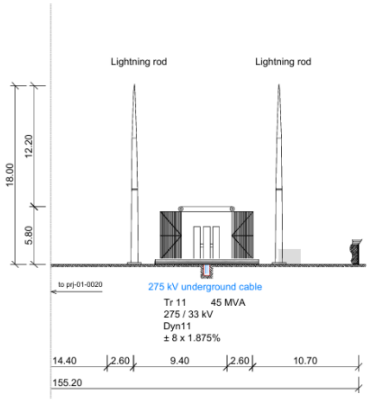
Term	Definition	Image
Solar panel array	An arrangement of solar panels that are connected and intended to function as a unit to produce electricity from sunlight.	
Solar Panel Table	A structure that supports solar panels. It provides stability, ensuring the table remains upright and withstands environmental factors like wind. The number of leg-supports can vary based on the design and size of the table.	 
Solar PV Modules	Devices that use light from the sun to create direct current (DC) electricity. Their purpose is to reduce solar glare and increase solar ray absorption. The modules are composed of silicon-based photovoltaic (PV) cells that are protected by an extruded aluminium frame and toughened glass.	

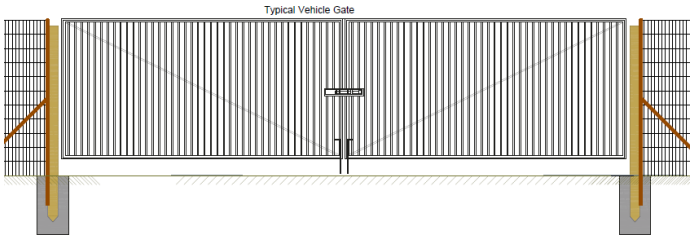
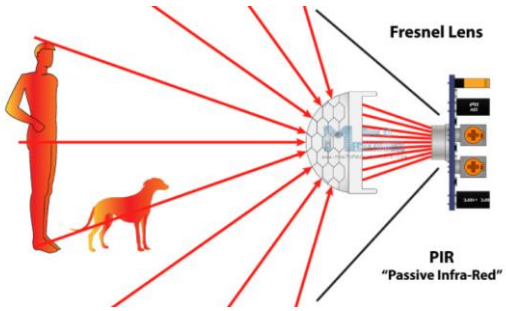
Term	Definition	Image
Cable Corridor	The designated area where underground cables are laid to connect different site areas or substations within a project. It includes the routes and options for laying the cables, as well as the environmental, commercial, and engineering considerations that are considered when determining the preferred route for the cables.	
Cable Route	A cable route refers to the path or corridor designated for the installation of underground cables that are used to connect the secondary substations located at different project sites to the main project substation. The cable route includes indicative locations where the underground cables will be laid, the depth at which they will be buried, and any crossing points, such as public highways or sensitive areas, where the cables will be installed. The route is carefully planned and assessed to ensure minimal environmental impact and to meet engineering and commercial considerations.	
275 KV AC cable	The 275kV AC cable refers to a type of electrical cable used to transmit alternating current (AC) at a voltage level of 275,000 volts. These cables are used to connect the solar project sites with the main substation, and they are buried underground at specific depths depending on the location,	

Term	Definition	Image
	Such as roadways or agricultural land.	
33 KV AC cable	The 33kV AC cable is a type of electrical cable used to transmit electricity at a voltage of 33 kilovolts. These cables are used in the infrastructure of solar PV installations to connect the power converter stations to the secondary transformers on site as part of the AC cabling system. The cables are typically buried underground at specific depths, and their route is planned within defined cable corridors.	
DC cable	DC cables are used to connect the solar PV modules to the combiner boxes, and from the combiner boxes to the inverters at the Power Converter Stations (PCS). These cables are installed both above ground and underground and are routed through conduit and racking secured to the solar PV module mounting structures. DC cables are likely to have two cross-sections: 6 mm² from modules to Combiner boxes and 240 mm² from combiner boxes to Inverters	
Combiner boxer	Combiner boxes centralize wiring from multiple solar panels, directing the output to an inverter. They include overcurrent protection to prevent power spikes.	

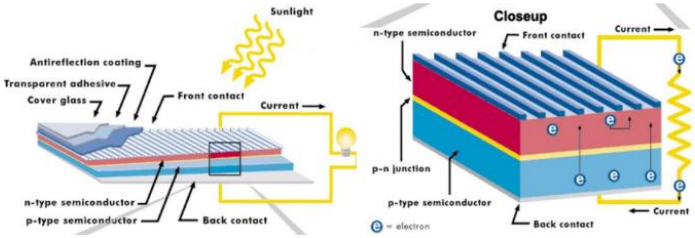
Term	Definition	Image
String inverters	String Inverters are used to convert the DC electricity generated by the solar panels into AC electricity.	
Power Converter Stations (inverters, transformers, and supporting equipment)	The Power Converter Stations (PCS) are units that house middle voltage transformers (1kV/33kV), switchgear, and inverters within the solar PV installation area. These stations are responsible for inverting direct current to alternating current while controlling and increasing the voltage of the electricity generated across the solar PV tables before it reaches the high-voltage transformer distance.	
Sound Power Levels	Sound power level is a measure of the total sound energy emitted by a source. It is expressed in decibels (dB) and indicates the acoustic power output of a sound source, such as machinery or equipment, without considering the effects of the surrounding environment. Sound power level indicates the overall sound energy produced by a source and is an important parameter for assessing the potential environmental impact of noise emissions.	

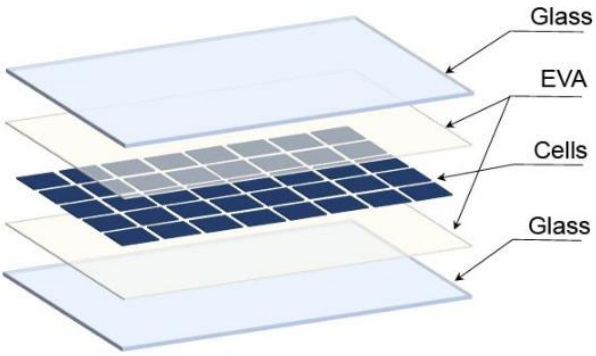
Term	Definition	Image
Project Main Sub-station	The project main substation comprise high voltage transformers (275/400 kV), main components of Gas insulated switchgear, Surge Arrester, Lightning protection, and Cabling etc... The project substation plays a critical role ensuring that power can be transmitted from the solar farm to the new NG substation.	
High Voltage Transformers (275/400kV) in the Main Substation	High-voltage transformers are located in the project main substation and increase the voltage of electricity from 275 kV to 400 kV .	
Secondary Sub-station	Each secondary substation comprise High voltage transformers (33/275 kV), main components of Gas insulated switchgear, Surge Arrester, Lightning protection and Cabling etc... The secondary substation plays a critical role ensuring that power can be transmitted from secondary substations to project main substation via underground cables.	

Term	Definition	Image
High Voltage Transformers **33/275kV in secondary substations**	High Voltage Transformers (33/275kV) are located in the secondary substations and are used to increase the voltage generated by the solar panels from middle voltage (33 KV) to a high voltage (275 kV).	
National Grid Electricity Transmission (NGET) 400kV substation	A facility designed to receive the electricity generated by the solar farm and then transmit it into the wider electricity network.	
Fencing (deer fencing/stock proof fence) - mesh and poles	The fencing will be for operational security purposes and may be up to 2.1 m in height.	

Term	Definition	Image
Gates	A gate is a movable barrier that provides controlled access through a fence line. It allows access to an enclosed area while maintaining security and boundary integrity.	
Security cameras	Security cameras will be installed for security reasons, but in limited areas of the development, generally around the high-voltage infrastructure.	
Infra-red / PIR sensors	Passive infrared (PIR) motion sensors are used to activate security/emergency lighting.	
Access Tracks	Vehicular access to serve the installation areas will either be through existing field entrances or purpose-built new access tracks.	

Term	Definition	Image
Lighting (emergency)	The use of emergency lighting installation is to ensure that lighting is provided rapidly, automatically, and for a suitable time in a specific area when a normal power supply to the lighting fails. PIR motion sensor will be used for emergency lighting.	
New green infrastructure - including trees and hedgerows and other planting measures to enhance biodiversity.	The proposed landscape management plan includes establishing and maintaining grasslands, hedgerows, trees, and scrub areas across the site. Areas under and around the panels will develop vegetation that will be managed by conservation grazing. In areas not affecting power generation vegetation growth will be facilitated to improve biodiversity.	
New footpaths and cycleways	The Botley West Solar Farm project includes the development of new footpaths and cycleways as part of its infrastructure. These are intended to provide access and connectivity within the project site, enhancing the overall accessibility of the area.	
Pyranometers	Pyranometers are devices that are small and typically mounted onto the frame of the arrays or adjacent on freestanding poles no higher than 1.9m AGL to measure solar irradiance.	

Term	Definition	Image
Post/Piles	Piles are used for support and foundation of the solar PV modules. There are two types: Driven-piles or screw piles. Driven piles are forcefully driven or hammered into the ground. Screw piles use circular hollow steel pile shafts that are screwed into the ground. Use of pre-cast concrete shoes (no-dig non-piling construction solution) may be employed, if necessary, but only in areas of high archaeology interest	
	Main Components of Solar Panels	
Solar photovoltaic cells - Silicon	Solar Photovoltaic cells are layered structures made of two sections of a semi-conductive material, typically silicon. The generation of electricity requires an electric field, achieved during manufacturing by adding phosphorus to the upper silicon layer, causing a negative charge, and boron to the lower layer, generating a positive charge.	
Toughened Glass (front and rear)	Toughened glass, also known as tempered glass, is a type of safety glass that serves as protection for both the front and rear of solar panels, shielding the photovoltaic cells and internal components from environmental damage. It ensures durability, and impact resistance, crucial for the reliable operation of solar panels in various weather conditions.	

Term	Definition	Image
EVA layer	EVA (ethyl vinyl acetate) is used as an encapsulant material, it is inserted between the solar cells top and rear surface.	
Toughened rear glass	The components of a solar array include toughened glass for the rear of the panels, which is used for protection and durability.	