hw planning

Planning and Environmental Statement

Proposed Substation and Grid Connection at Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballybeg, Linkardstown and Moyle Big (townlands), County Carlow

Client: Ballyloo Solar Farm Limited

November 2025

Connecting people.

Connecting places.

Contents

01 //

Introduction

1.1 Introduction

This Planning and Environmental Statement has been prepared by HW Planning on behalf of Ballyloo Solar Farm Limited. It accompanies a planning application for the development of a proposed substation and associated underground cabling grid connection cable to connect into the existing 110/220kV Kellis substation and will be located in Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballybeg, Linkardstown and Moyle Big (townlands), County Carlow.

1.2 Application Context

The purpose of the proposed development is to transport the electricity generated at the permitted Ballyloo and Park Solar Farms, and the proposed Ballybannon Solar Farms to the national electricity grid via the existing 220/110kV Kellis substation. The planning status of those solar farms is set out below:

- An application for the Ballyloo Solar Farm was made to Carlow County Council on the 28th February 2024 (Council Reference: 24/60043). The Council issued a Notification of Decision to Refuse Permission on the 25th March 2025 and a First Party Appeal was submitted by the Applicant to An Coimisiún Pleanála on the 22nd April 2024. Permission was granted by An Coimisiún Pleanála on the 5th September.
- An application for the Park Solar Farm was made to Carlow County Council on the 19th July 2024 (Council Reference: 24/60205). The Council issued a Notification of Decision to Grant Permission on the 24th April 2025.
- An application for the Ballybannon Solar Farm was made to Carlow County Council on the 22nd May 2025 (Council Reference: 25/60137). The Council issued a Notification to Grant Planning Permission on the 31st October 2025[1].

Early in the project development phase, it was identified that the proposed substation and grid connection may constitute 'strategic infrastructure development' having regard to the provisions of the Planning and Development (Strategic Infrastructure) Act 2006 and established case precedent on such matters. The Act provides that applications for permission/approval for specified private and public strategic infrastructure developments be made directly to An Coimisiún Pleanála. The applicant entered into pre-application consultations with An Coimisiún Pleanála on the 10th February 2025, with a meeting held on 31st March 2025. An Coimisiún confirmed their opinion that the proposed development meets the definition of 'strategic infrastructure development' as defined

[1] The decision of the Council is still within the statutory appeal period.

in the legislation by means of a formal notice dated 22nd July 2025[2]. The subject application is made pursuant to this determination.

In addition to the above pre-application consultation, the applicant also requested a meeting under section 182F of the Planning and Development Act 2000, as amended, to determine An Coimisiún Pleanála's opinion as to flexibility with regard to the proposed development. The applicant proposed design flexibility for the following development:

01 The substation will be either 110kV or 220kV voltage. The 110kV substation will use Air Insulated Switchgear (AIS) switchgear, whilst the 220kV substation might use AIS or Gas Insulated Switchgear (GIS) depending on the requirements of EirGrid.

02 The underground cable grid connection from the proposed substation to the existing 110/220kV Kellis substation will be at either 110kV or 220kV voltage.

03 The underground cable grid connection is located primarily in the public road network. However, there are two options proposed for its final entry into the existing 220/110kV Kellis substation.

   a. Option A is to leave the L30535 local road and enter onto private lands where it will cross agricultural farmland into the existing 220/110kV Kellis substation.

   b. Option B is to be situated within the L30535 local road which provides road access into the existing 220/110kV Kellis substation.

   It should be noted that the options described above apply to both the 110kV and 220kV underground grid connection cables.

An Coimisiún confirmed that the above referred design flexibility can be facilitated by means of a formal notice dated 22nd July 2025[3]. It should be noted that the red line development application boundary is identical for the substation options and the grid connection options.

[2] Reference ABP-321855-25
[3] Reference ABP-321858-25

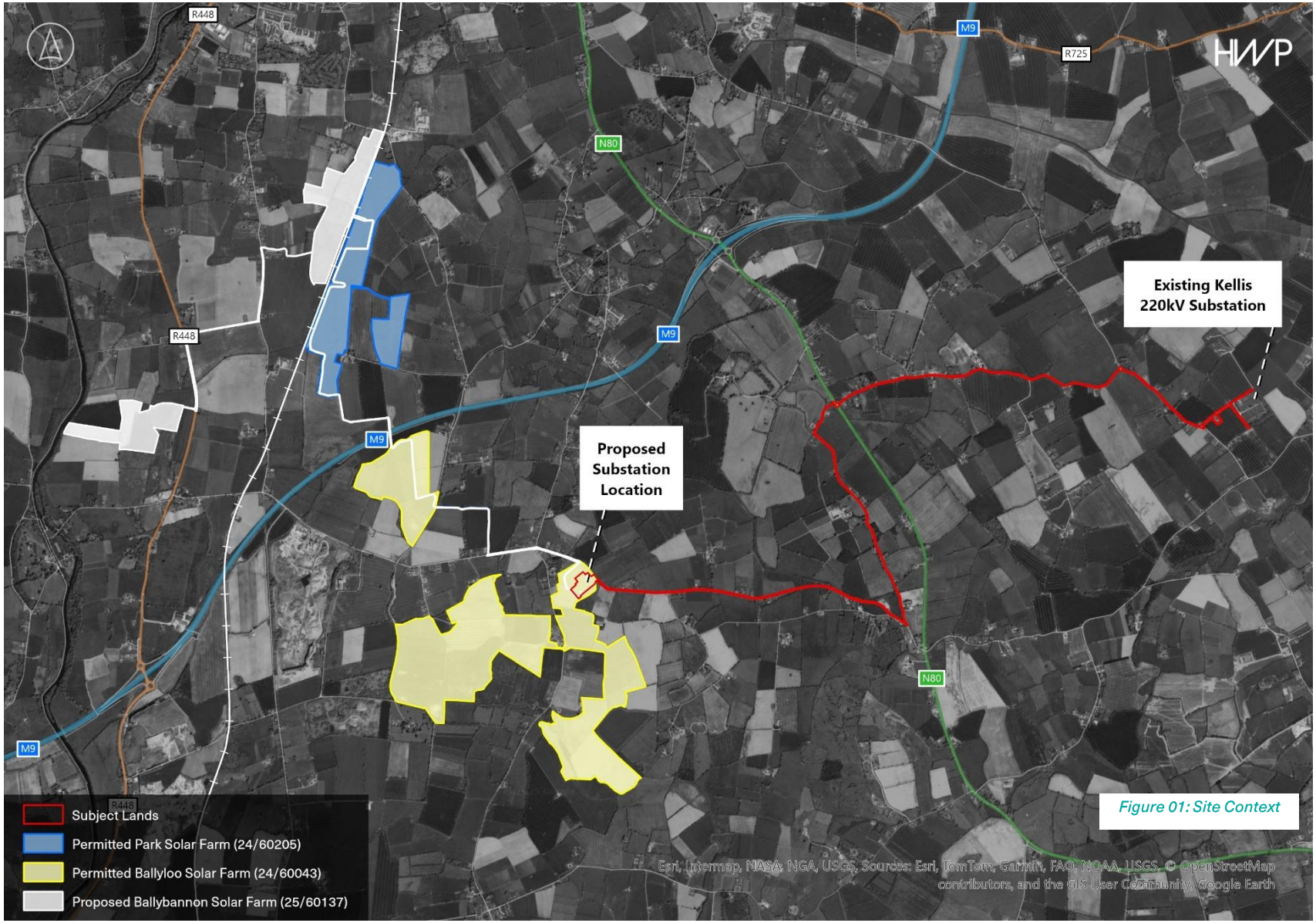


Figure 01: Site Context

02 //

Site and Development Context

2.1 Subject Site

The site area of the proposed substation compound is approximately 2.4 hectares[4] within an agricultural field accessed off the L3050 local road. The associated grid connection extends across the townlands of Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballybeg, Linkardstown and Moyle Big (total red-line boundary area of 11.6 hectares). The proposed grid connection is contained within the existing public road network, with the potential exception of the final 0.6km of the underground cable route to the existing Kellis 110/220kV Substation which may be laid across private agricultural lands[5]. The existing Kellis 110/220kV Substation is a particularly important substation on the transmission network, as it has multiple ways of receiving and transmitting large power volumes. This type of substation is known as a "mesh node" and makes Kellis substation very suitable for accommodating large renewable generation projects.

The proposed substation site is located c.2km south of the settlement of Tinryland, 5km south of Carlow Town and c1.6km to the north of the village of Nurney. It is proposed to access the site via a new entrance off the L3050 local road which will be created by the removal of c.30 linear metres of existing hedgerow. The map in Figure 01 illustrates the subject site in the context of the permitted and proposed solar farm sites.

2.2 Proposed Development

2.2.1 General

The electricity produced from the Ballyloo, Park and Ballybannon Solar Farms will be transported into the proposed substation.

The proposed substation will be either an Air Insulated Switchgear (AIS) or Gas Insulated Switchgear (GIS) tail fed substation with the associated grid connection comprising underground cabling which will connect into the existing 220/110kV Kellis substation.

As set out in Section 1, the applicant proposes design flexibility for the following development. The proposed development comprises of:

1. A 220kV Air Insulated Switchgear (AIS) or Gas Insulated Switchgear (GIS) electricity substation or a 110kV AIS electricity substation, including two control buildings, associated electrical structures and apparatus, lightning protection, telecom pole, perimeter security

[4] As per the submitted plans, the substation compound is a subset of this. The final substation compound area will depend on substation constructed.
[5] Option A in the presented plans.

fencing, security lighting, water and drainage infrastructure, temporary construction compound to connect to and serve solar farms;

2. Associated grid connection between the proposed substation and the existing 110/220kV Kellis substation comprising 220kV or 110kV underground electricity cables (reflecting final substation option) of c.8.9 km or c. 8.65 km in length to be provided in an excavated trench including associated fibre cable and ducting, and all associated site development and reinstatement works. Two options are proposed after the first c.8.3 km of underground grid connection and for the final c.0.35 – 0.6 km of the underground cable grid connection route comprising (i) cabling in the L30535 public road, or (ii) cabling in private agricultural land;

3. Temporary construction and permanent operational access to the substation from the L3050, vehicular entrance and access track from this public road;

4. All ancillary site development, excavation, construction, landscaping and reinstatement works;

5. The development subject to this application forms part of grid connection and access arrangements which will facilitate the connection of the permitted Ballyloo Solar Farm (Carlow County Council Reference 24/60043 / An Coimisiún Pleanála Reference ABP-322347-25), permitted Park Solar Farm (Carlow County Council Reference 24/60205), and proposed Ballybannon Solar Farm (Carlow County Council Reference 25/60137) to the national electricity grid via the existing 110/220kV Kellis substation. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development. The NIS includes consideration of the permitted Ballyloo and Park Solar Farms and the proposed Ballybannon Solar Farm which are located in County Carlow.

The operational lifetime of the solar farms is assumed to be 40 years. However, following the decommissioning of the solar farms, it is envisaged that the substation (and underground cable grid connection) will remain in situ as a valuable functioning and operational part of the electricity transmission network managed by the Transmission Systems Operator, EirGrid.

2.2.2 Substation

110kV AIS Substation

The substation will be based on EirGrid design specifications. The 110kV AIS substation will consist of both EirGrid and Independent Power Producer (IPP) including IPP Control Room buildings, HV electrical equipment and associated infrastructure including palisade fences and concrete post and rail fences. The installation of HV electrical equipment will include a Transformer (TRAFO) with associated equipment along with:

- Cable Sealing End (CSE);
- Surge Arrestor (SA);
- Earth Disconnect (DT);
- Current /Voltage Transformer (CT/VT);
- House Transformer (HT);
- Circuit Breaker (CB);

- Lightning Mast (LM);
- Diesel Generator;
- Security Fencing and Cameras;
- Drainage, access etc.

Earthworks will be undertaken so the compound is level, with a finish compound level of 100.72m.

The 110kV AIS substation layout is indicated in Figure 02. It should be noted that the red line development application boundary is identical for all substation options.

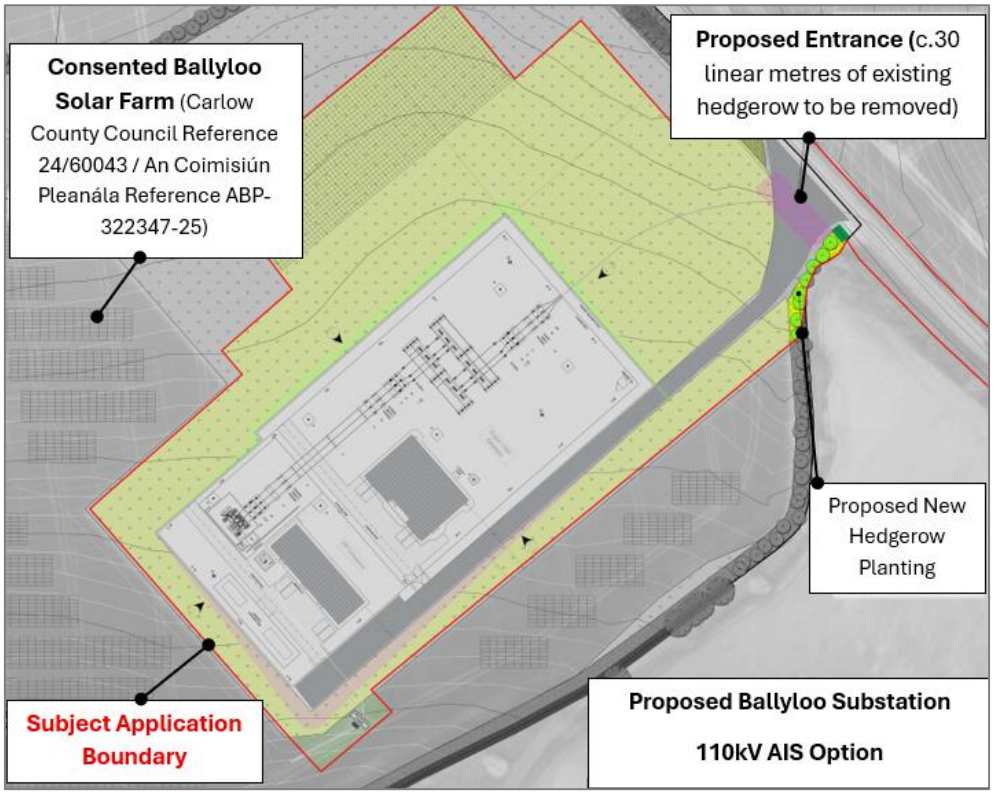


Figure 02: Proposed 110kV AIS Substation Option

220kV AIS Substation

The 220kV AIS substation will comprise the same infrastructure and equipment as the 110kV AIS substation option. The key difference is that the clearance distances required between individual components becomes greater at 220kV and therefore it has a larger footprint.

The 220kV AIS substation layout is indicated in Figure 03. It should be noted that the red line development application boundary is identical for all substation options.

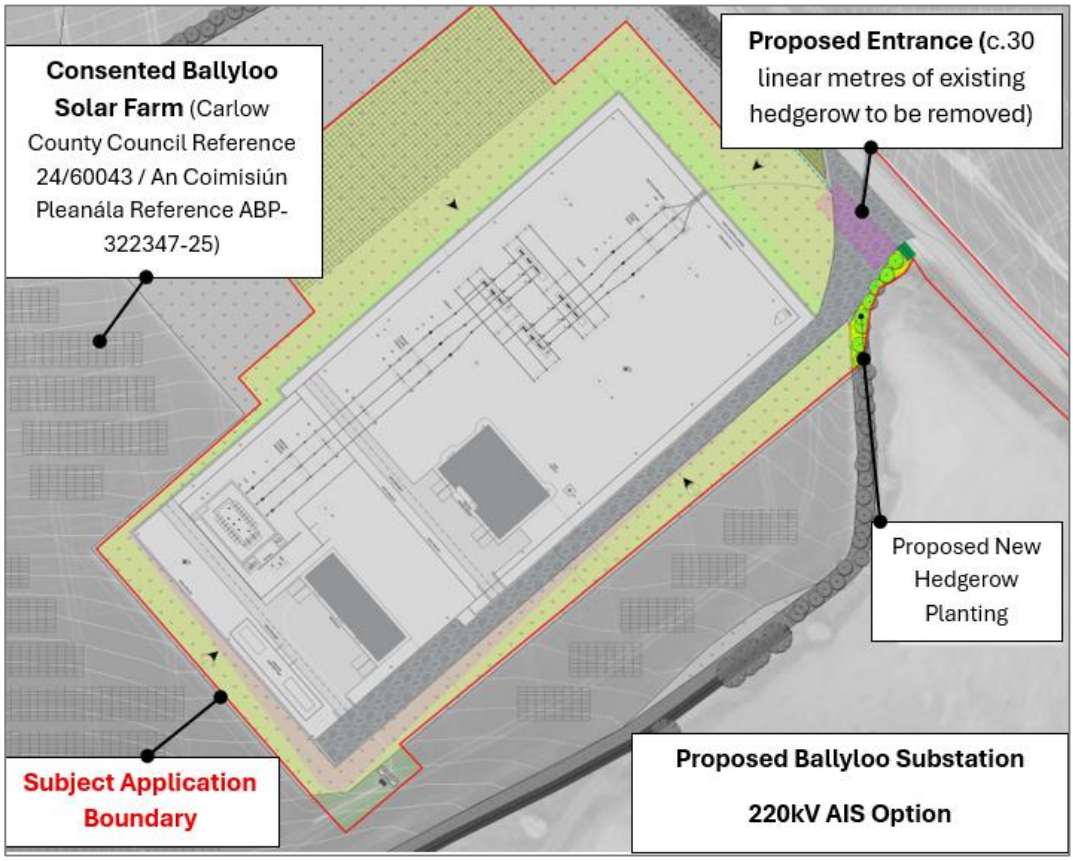


Figure 03: Proposed 220kV AIS Substation Option

220kV GIS Substation

The substation will be based on EirGrid design specifications. The substation compound will consist of a two storey GIS substation building, IPP Control Room building, High Voltage (HV) electrical equipment and associated infrastructure including palisade fences and concrete post and rail fences. The installation of HV electrical equipment will include a transformer with associated equipment along with:

- Lightning Masts (LM);
- Back-Up Diesel Generator;
- Harmonic filters if required by EirGrid;
- Capacitor Bank if required by EirGrid;
- Fire/Blast Wall;
- Telecoms Pole.

The 220kV GIS substation layout is indicated in Figure 04. It should be noted that the red line development application boundary is identical for all substation options.

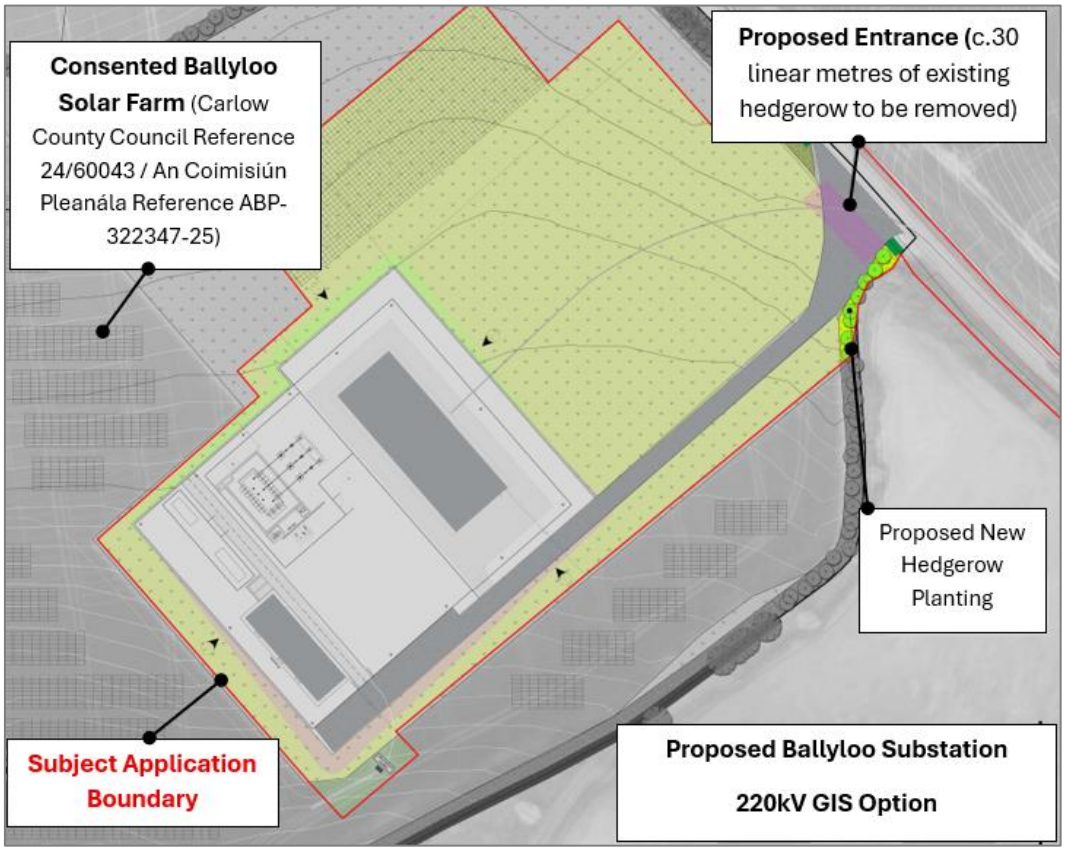


Figure 04: Proposed 220kV GIS Substation Option

2.2.3 Substation Access

It should be noted that the red line development application boundary is identical for all substation options.

Construction access to the substation will be provided by private lands, with a new entrance from the public road L3050. c.30 linear metres of existing hedgerow will be removed to facilitate the entrance. The entrance will be suitably splayed and has been subject to sight line and autotrack analysis, with the latter including modelling of abnormal load delivery for the transformer. The entrance will include a linear drain to ensure there is no potential for runoff to the public road.

A compacted access track will extend from the entrance to the substation compound. The track will include a geotextile base and filter membrane and 200 mm of Clause 804 sub-base. There will be sections of temporary track alongside the permanent track to facilitate delivery of the transformer within the site. The autotrack analysis has demonstrated that delivery of the substation transformer can be safely accommodated.

2.2.4 Temporary Construction Compound

As outlined in the submitted site layout plans, it is proposed to provide a temporary construction compound, accessed from the entrance from the L3050. The temporary compound will include the following facilities at a minimum:

- Adequate canteen space to allow for all workers during the peak period;
- Office space with lighting, heating and internet facilities;

- Toilets and adequate welfare facilities for construction staff in accordance with the relevant statutory Health & Welfare guidelines;
- Parking space for both light and heavy vehicles;
- Designated skips and temporary storage areas.

2.2.5 Surface Water Drainage and Water Services

110kV & 220kV AIS Substations

It should be noted that the surface water drainage proposals are similar for both the 110kV and 220kV AIS substation options described in this report.

Surface water drainage for the substation compound have been designed to mimic the natural drainage patterns of the site and thereby be in accordance with the Best Management Practices (BMPs) of Sustainable Drainage Systems (SuDS).

This is achieved when the following parameters are considered:

- The compound construction is formed with permeable stone thus mimicking a soakaway scenario. ESB compound stone is single sized for the first 150mm for safety purposes. It then changes to a graded 6F2 material. The area of this permeable surface is circa 8,315m2 for the 110kV AIS substation option and 13,600m2 for the 220kV AIS substation option.
- The main areas to be drained includes the roofs and the compound road. These equate to approximately 1,592m^2 for the 110kV AIS substation option and 2,023m2 for the 220kV AIS substation option. These areas are modest in themselves and in comparison to the overall compound area. The compound road will be drained via series of road gullies.
- Assuming even the most basic of infiltration rates down through the permeable compound stone, the existing greenfield situation is easily maintained.

The surface water generated in the hardstanding areas and in the bunded areas within the substation compound will discharge to soakaway via Class 1 Full Retention Oil Separators. The electrical transformer in the substation is oil filled equipment and, as such, is protected with impermeable bunds. Surface water generated in this bund will be pumped out by an oil sensitive pump ensuring that only non-contaminated water enters the site drainage network.

220kV GIS Substation

Surface water drainage for the substation compound have been designed to mimic the natural drainage patterns of the site and thereby be in accordance with the Best Management Practices (BMPs) of Sustainable Drainage Systems (SuDS).

This is achieved when the following parameters are considered:

- The compound construction is formed with permeable stone thus mimicking a soakaway scenario. ESB compound stone is single sized for the first 150mm for safety purposes. It then changes to a graded 6F2 material. The area of this permeable surface is circa 7,660m2 for the GIS substation.

- The main areas to be drained includes the roofs and the compound road. These equate to approximately 2,746m^2. The compound road will be drained via series of road gullies.

The surface water generated in the hardstanding areas and in the bunded areas within the substation compound will discharge to soakaway via Class 1 Full Retention Oil Separators. The electrical transformer in the substation is oil filled equipment and, as such, is protected with impermeable bunds. Surface water generated in this bund will be pumped out by an oil sensitive pump ensuring that only non-contaminated water enters the site drainage network.

2.2.6 Substation Foul Water Drainage

It should be noted that the foul water drainage proposals are the same for all AIS and GIS substation options described in this report.

There are no existing foul sewer water drains on or near the proposed substation site.

The foul drainage proposal must cater for the wastewater generated in the welfare facilities of the proposed substation. These welfare facilities include a toilet and wash hand basin both the EirGrid and IPP control buildings. The station will be unmanned in normal operation so demand for facilities which generate foul flows will be low.

Foul holding tanks are normally used in EirGrid and ESB substations. The foul holding tanks will have a capacity of 5m3 which is a multiple of the foul water generated over three months of normal operation of the station. The foul holding tank will also be inspected by a suitably qualified and indemnified person at these intervals and records of inspections will be held on site for inspection by the local authority.

2.2.7 Substation Water Supply

It is proposed to provide the required potable water demand of the station (all options) with a bored well on site. The potable water demand within the site will be low as the proposed station is to be unmanned. To avoid issues like stagnation in the water supply line and problems resulting from this, there will be a continual water demand of 24 litres per week from automatically flushing WCs within the station.

2.2.8 Grid Connection

The substation will connect to the existing 220/110 kV Kellis substation via a proposed 110kV or 220 kV underground grid connection cable.

The overall length of the grid connection is approximately 8.9km at its longest . The route is shown in Figure 05. All works will be carried out in accordance with international best practice and full compliance with health and safety requirements.

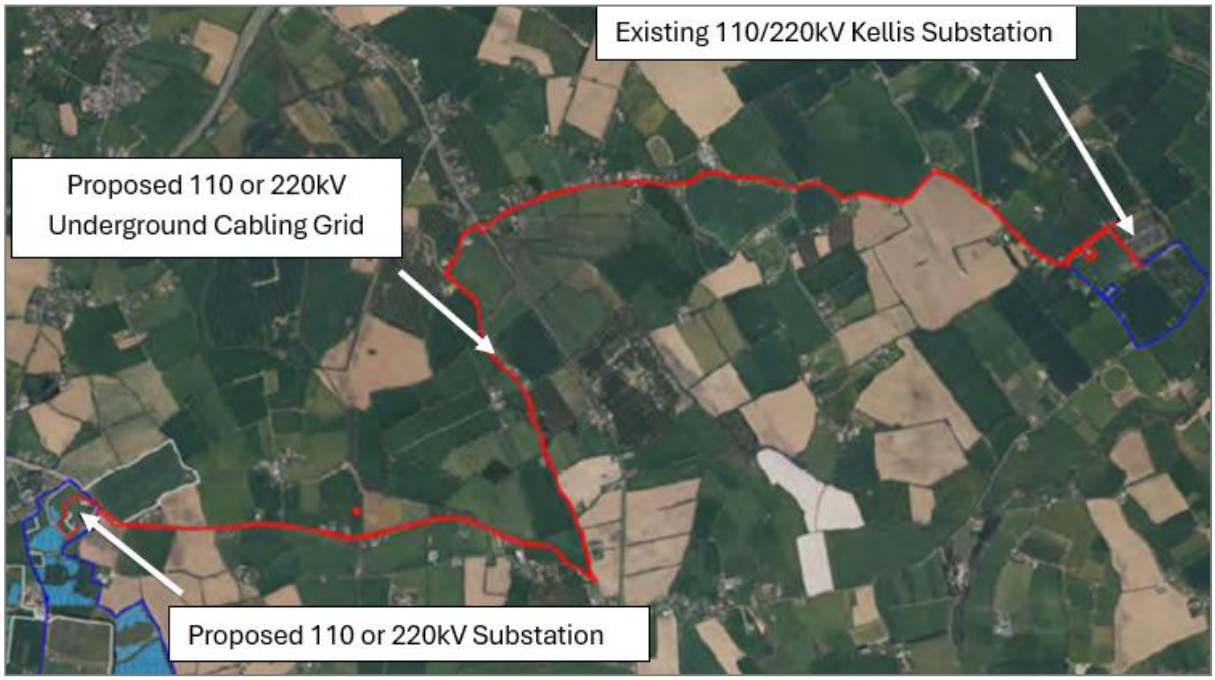


Figure 05: Underground Cabling Grid Connection Overview

It should be noted that the red line development application boundary is identical for both the 110kV and 220kV grid connection cable options. The route travels east from the proposed substation on the L3050 before turning north onto the L30504. It then crosses the N80 at Castletown Cross Roads and continues east on the L7148 before turning south onto the L3053. The cable would then turn east onto the L30535 which is the main road access to the existing 220/110kV Kellis substation. There are two options proposed for the final c.0.35-0.6km section accessing the substation. One option (Option A) is within privately owned agricultural lands and the other option (Option B) is via the L30535 local road. Both options are indicated in Figure 06. In the case of Option A, c. 1m of hedgerow will be temporarily removed for the purposes of laying the cable into the substation lands. This will be reinstated.

Planning permission is being sought from An Coimisiún Pleanála for a proposed grid connection between the proposed Ballyloo Substation and Kellis 110/220kV Substation, and underground cable run of up to c.8.9km metres which terminates at the boundary of the Kellis 110/220kV substation. As set out in the submitted plans and technical reports, it will be necessary to install a new line bay in the Kellis 220kV substation. This will require an additional short distance of underground cabling into the substation. The connecting line bay will consist of concrete bases, steelwork and electrical equipment similar to the already installed equipment within the station. This additional infrastructure will be subject to a future consenting process and is included for information in this planning application so that a robust assessment can be made of the entire application.

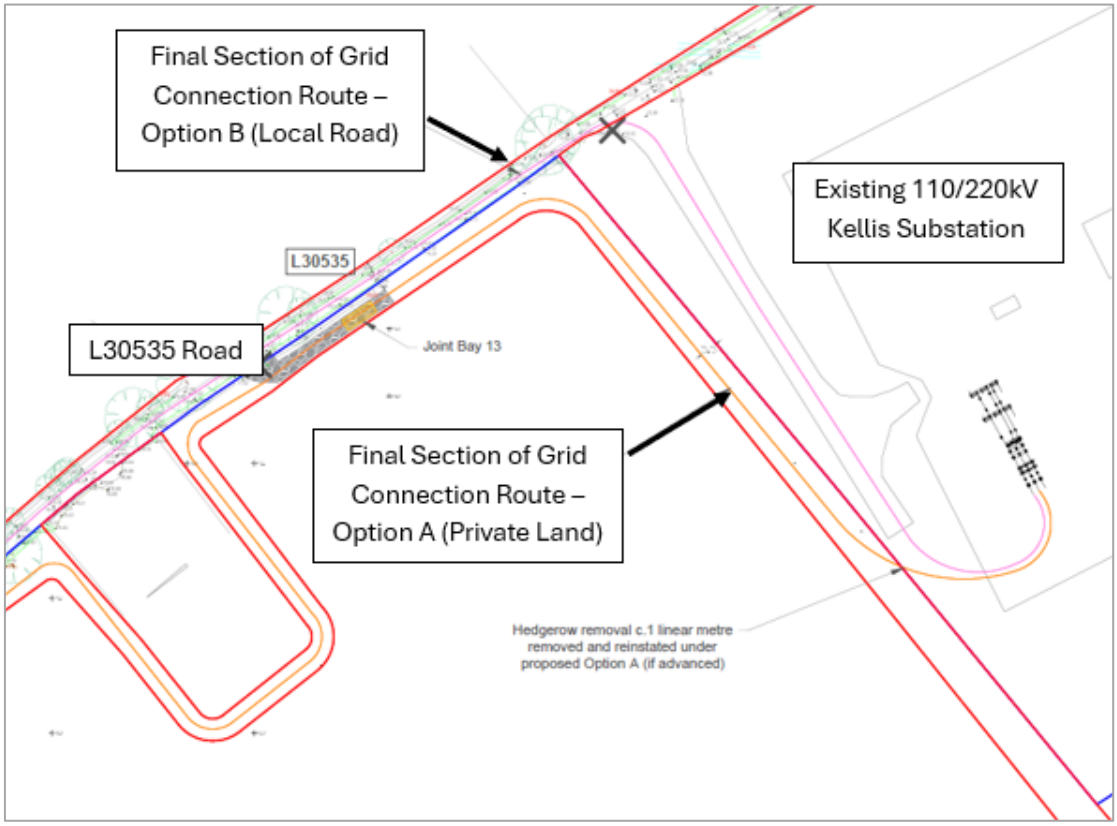


Figure 06: Final Underground Cabling Options on Public Road / Private Lands

2.2.9 Site Reprofiling

The subject site is relatively flat in nature but analysis of topographic data confirms that cutting and filling of the existing terrain will be required to establish a level platform for the substation compound.

110kV and 220kV AIS Substations

For the 110kV substation option, the amount of cut to be transported off site is expected to be c.3,443m3. Similarly, the necessary amounts of fill material will be transported onto site. This is expected to be c.3,838m3. For the 220kV substation option, the amount of cut to be transported off site is expected to be c.7,229m3. Similarly, the necessary amounts of fill material will be transported onto site. This is expected to be c.7,868m3.

220kV GIS Substation

The amount of cut to be transported off site is expected to be c.3,495m3. Similarly, the necessary amounts of fill material will be transported onto site. This is expected to be c.3,472m3.

In all cases, any surplus soil will be disposed of offsite by means of an Article 27 declaration (European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)) from the EPA or by means of transfer to an appropriate and licensed waste disposal facility.

2.2.10 Site Restoration and Landscaping

This will involve the reinstatement of all other excavated materials and associated landscaping works. It will include the replacement of topsoil in disturbed ground areas such as access tracks and the removal of the construction compound and other temporary work areas. The proposed development provides for the removal c.30 linear metres of hedgerow at the substation site entrance

and c.1 linear metre removed and reinstated under proposed Option A (if advanced) where the cable alignment passes through a field boundary near the Kellis 220kV sub. There is some 32 linear meters of new hedgerow proposed and 15 linear meters of bolstered hedgerow within the project red-line boundary. The application is accompanied by 3 no. landscape mitigation plans by Macro Works, reflecting the three substation options that may be implemented.

2.2.11 Other Planned Works

It is intended that the proposed substation and grid connection will service the permitted Ballyloo and Park Solar Farms, as well as the proposed Ballybannon Solar Farm which is under consideration by Carlow County Council.

Carlow County Council Reference 24/60043 / An Coimisiún Pleanála Reference ABP-322347-25

An application for the Ballyloo Solar Farm was made to Carlow County Council on the 28th February 2024. The solar farm application design as submitted to Carlow County Council comprised of the following:

> *A 10 Year Planning Permission for a solar farm with a total area of circa 192 hectares in the townlands of Ballybar Upper, Ballyloo, Ballyryan, Garryhundon, and Linkardstown, in County Carlow. The solar farm will consist of solar panels on ground mounted frames, 30 no. single storey electrical inverter/transformer stations, 4 no. single storey spare parts containers, 4 no. Ring Main Units, 8 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 2 no. stream deck crossings and 1 no. horizontal directional drill, temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 4 no. entrances from the L3051, L3052 and L3050. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.*

The scheme was revised at Request for Further Information stage to include, inter alia, a reduction in the paneled area including omission of c.11.6 ha easternmost field (Parcel 4) of the project. The Council issued a Notification of Decision to Refuse Permission on the 25th March 2025 and a First Party Appeal was submitted by to An Coimisiún Pleanála on the 22nd April 2024. Permission was granted by An Coimisiún Pleanála on the 5th September 2025.

Carlow County Council Reference 24/60205

An application for the Park Solar Farm was made to Carlow County Council on the 19th July 2024. The solar farm application design as submitted to Carlow County Council comprised of the following:

> *A 10 Year Planning Permission for a solar farm with a total area of circa 73 hectares. The solar farm will consist of solar panels on ground mounted frames, 11 no. single storey electrical inverter/transformer stations, 3 no. single storey spare parts containers, 2 no. Ring Main Units, 3 no. weather stations, underground electrical ducting and cabling within the development*

site, private lands and within the L1010, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 3 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and L3050), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. entrances from the L1022 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farm proposed under Carlow County Council Reference 24/60043, but will not alter infrastructure proposed under that application. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.

The Council issued a Notification of Decision to Grant Permission on the 24th April 2025. The applied conditions provided for the removal of Parcel 1 from the permitted solar farm.

Carlow County Council Reference 25/60137

An application for the Ballybannon Solar Farm was made to Carlow County Council on the 22nd May 2025 for the following development:

A 10 Year Planning Permission for a solar farm with a total area of circa 57 hectares in the townlands of Ballybannon, Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Cloghna, Linkardstown and Park in County Carlow. The solar farm will consist of solar panels on ground mounted frames, 8 no. single storey electrical inverter/transformer stations, 2 no. single storey spare parts containers, 1 no. Ring Main Unit, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L4038, L8185, R448, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 5 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and the Dublin - Waterford railway), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. existing entrances from the R448 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farms proposed under Carlow County Council References 24/60043 and 24/60205, but will not alter infrastructure proposed under these applications. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.

The Council issued a notification to grant on the 31st October 2025.

2.3 Pre-Planning Discussions

The Applicant entered into pre-application consultations with An Coimisiún Pleanála on the 10th February 2025, with a meeting held on 31st March 2025. Alongside discussions on the strategic infrastructure status of the proposed development, the meeting was also a useful forum for discussion on key matters related to any prospective SID application. Specifically, this included discussion on appropriate assessment, biodiversity, landscape and visual and traffic and access

considerations. The feedback obtained from the Board has directly informed project design direction.

2.4 Planning History

A review of the Carlow County Council and An Coimisiún Pleanála Planning Enquiry Systems indicates that 3 previous valid solar farm planning application has been made with some overlap with the proposed substation compound. These applications relate the 3 solar farms that it is proposed to connect to the proposed substation as outlined in Section 2.2.

Reference: 24/60043

Applicant: Ballyloo Solar Farm Limited

Address: In the townlands of Ballybar Upper, Ballyloo, Ballyryan, Garryhundon and Linkardstown, County Carlow.

Date Received: 28/02/2024

Description: A 10 Year Planning Permission for a solar farm with a total area of circa 192 hectares. The solar farm will consist of solar panels on ground mounted frames, 30 no. single storey electrical inverter/transformer stations, 4 no. single storey spare parts containers, 4 no. Ring Main Units, 8 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 2 no. stream deck crossings and 1 no. horizontal directional drill, temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 4 no. entrances from the L3051, L3052 and L3050. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.

Decision: Permission was granted by An Coimisiún Pleanála on the 5th September 2025.

Reference: 24/60205

Applicant: Ballyloo Solar Farm Limited

Address: In the townlands of Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Linkardstown, Park and Tinryland, County Carlow.

Date Received: 19/07/2024

Description: A 10 Year planning permission for a solar farm with a total area of circa 73 hectares in the townlands of Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Linkardstown, Park and Tinryland in County Carlow. The solar farm will consist of solar panels on ground mounted frames, 11 no. single storey electrical inverter/transformer stations, 3 no. single storey spare parts containers, 2 no. Ring Main Units, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L1010, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 3 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and L3050), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. entrances from the L1022 and L1010. Sections of the proposed underground electrical cabling will traverse the

solar farm proposed under Carlow County Council Reference 24/60043, but will not alter infrastructure proposed under that application. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application

Decision: Permission was granted by Carlow County Council on the 27th May 2025.

Reference: 25/60137

Applicant: Ballyloo Solar Farm Limited

Address: In the townlands of Ballybannon, Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Cloghna, Linkardstown and Park, in County Carlow.

Date Received: 22/05/2025

Description: A 10 Year Planning Permission for a solar farm with a total area of circa 57 hectares. The solar farm will consist of solar panels on ground mounted frames, 8 no. single storey electrical inverter/transformer stations, 2 no. single storey spare parts containers, 1 no. Ring Main Unit, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L4038, L8185, R448, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 5 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and the Dublin - Waterford railway), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. existing entrances from the R448 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farms proposed under Carlow County Council References 24/60043 and 24/60205, but will not alter infrastructure proposed under these applications. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.

Decision: At the time of reporting, a decision on this application was still pending.

Alongside the above, there are a number of other planning applications that have been permitted locally around the existing Kells Substation. In some cases, the grid connection for some of these energy projects have an interaction with the red-line boundary (as it relates to possible cabling in the L30535 public road) for the final sections of the grid connection. A table of other projects is enclosed in Appendix A.

03 //

Planning Policy Context

The proposed substation / grid connection forms part of the wider solar farm developments, with the collective projects supported by a suite of national, regional and local planning policy objectives, which includes but is not limited to the following:

3.1 Global Context

3.1.1 IPCC Climate Change 2023

In March 2023, the UN's Intergovernmental Panel on Climate Change (IPCC) indicated in its 'Climate Change 2023 – Synthesis Report', that it is likely that global warming will exceed 1.5°C during the 21st century, thus making it a significant challenge to limit warming below 2°C. The IPCC state that the world is on a path to exceed the temperature limits of the Paris Agreement. The report states that without urgent actions, climate change increasingly threatens ecosystems, biodiversity, and the livelihoods, health and well-being of current and future generations. In relation to energy systems, the report states that these actions include urgent decarbonisation through renewable energy development such as wind and solar.

The United Nations Environmental Programme's most recent annual Emissions Gap Report, published in November 2024, states that nations must deliver dramatically stronger ambition and action in the next round of Nationally Determined Contributions (NDCs) or the Paris Agreement's 1.5°C goal will be gone within a few years. The report states:

> *"A failure to increase ambition in these new NDCs and start delivering immediately would put the world on course for a temperature increase of 2.6-3.1°C over the course of this century. This would bring debilitating impacts to people, planet and economies.*
>
> *It remains technically possible to get on a 1.5°C pathway, with solar, wind and forests holding real promise for sweeping and fast emissions cuts. To deliver on this potential, sufficiently strong NDCs would need to be backed urgently by a whole-of-government approach, measures that maximize socioeconomic and environmental co-benefits, enhanced international collaboration that includes reform of the global financial architecture, strong private sector action and a minimum six-fold increase in mitigation investment. G20 nations, particularly the largest-emitting members, would need to do the heavy lifting".*

3.2 European Context

3.2.1 European Green Deal and Fit for 55

In its 2018 Communication A Clean Planet for all, the European Commission set out its vision for a climate-neutral EU and explored pathways that would enable the EU to achieve climate neutrality by mid-century in line with the Paris Agreement.

The European Green Deal, published in December 2019, sets out a low emissions growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource efficient and competitive economy, where there are no net emissions of greenhouse gases by 2050, where economic growth is decoupled from resource use and where no person and no place is left behind.

The European Green Deal is underpinned by the European Climate Law, enacted in July 2020, which sets into legislation the objective of a climate-neutral EU by 2050 and a commitment to negative emissions thereafter. It also sets a binding intermediate Union target of a reduction of net greenhouse gas emissions (emissions after deduction of removals) by at least 55% by 2030 compared to 1990.

In July 2021, the Commission put forward the Fit for 55 package, a wide-ranging set of proposals to revise and update EU climate and energy legislation to ensure that EU policies are in line with the new EU objective established by the Climate Law. Additional Fit for 55 proposals were published in December 2021. Tripartite negotiations between representatives of the European Parliament, Council and Commission commenced in Q3 2022 with a view to reaching timely agreement on this ambitious package. This will help to accelerate Europe's decarbonisation and phase out our dependence on Russian gas, oil and coal imports.

3.2.2 Renewable Energy Directive

In November 2023, a revision of the Renewable Energy Directive (RED III), came into force. RED III increases the EU wide renewable energy target from 32% set under the previous revision of the directive to at least 42.5%, with an ambition to reach 45% by 2030. The Directive also introduces specific targets for Member States in the industry, transport, and building (district heating and cooling) sectors.

RED III extends the presumption that renewable energy projects and associated grid infrastructure are *'in the overriding public interest'* until such time as *"climate neutrality is achieved"* and provides a framework for the streamlining of the permit-granting process.

There is an 18-month period to transpose most of the directive's provisions into national law, with a shorter deadline of July 2024 for some of the provisions related to permitting for renewables, in particular Article 16(f) which establishes the legal presumption that the construction and operation of renewable energy development and storage assets are in the "*overriding public interest and serving public health and safety when balancing legal interest in individual cases for the purposes of Article 6(4) and Article 16(1), point (c), of Directive 92/43/EEC [the 'Habitats Directive'], Article 4(7) of Directive 2000/60/EC [the 'Water Framework Directive'] and Article 9(1), point (a), of Directive 2009/147/EC.[the 'Birds Directive']*".

3.2.3 REPowerEU Plan

Published in response to Russia's war against Ukraine, the European Commission published the REPowerEU Plan with the objective of identifying a pathway to make the European Union independent from Russian fossil fuels including oil and gas and ultimately achieve energy security.

"There is a double urgency to reduce Europe's energy dependence: the climate crisis, compounded by Russia's aggression and EU's dependence on fossil fuels, which Russia uses as an economic and political weapon.

The green transformation of Europe's energy system will strengthen economic growth, reinforce its industrial leadership, and put Europe on a path towards climate neutrality by 2050.

The European Commission calls on leaders, Member States, regional and local authorities, and indeed every citizen and business, to reduce Europe's energy dependence from Russia through the implementation of [the] REPowerEU plan"

The key objectives of REPowerEU can be summarised as follows:

- Accelerate the roll-out of renewables.
- Increase the 2030 target for renewables from 40%-45%.
- Tackle slow and complex permitting for major renewable projects.

To give effect to this, the Council of the European Union adopted Regulation (EU) 2022/2577 on 22 December 2022, '*Laying down a framework to accelerate the deployment of renewable energy.*' This regulation, which has immediate and direct effect in Member States, applies to "*all permit-granting processes that have a starting date within the period of its application*" and includes a number of tangible measures aimed at streamlining the permit-granting process and facilitating the accelerated deployment of renewable energy. The initial period of application of the Regulation is the 30 December 2022 to 29 June 2024.

'A fast deployment of renewable energy sources can help to mitigate the effects of the current energy crisis, by forming a defence against Russia's actions. Renewable energy can significantly contribute to counter Russia's weaponisation of energy by strengthening the Union's security of supply, reducing volatility in the market and lowering energy prices.'

Central to the regulation is the presumption that renewable energy development must be considered to be in the overriding public interest when addressing competing interests under the Habitats Directive (92/43/EEC), Birds Directive (2009/147/EEC) and the Water Framework Directive (2006/60/EC) and that renewable energy projects should be given priority when balancing legal interests in a given case – Article 3:

1) *'The planning, construction and operation of plants and installations for the production of energy from renewable sources, and their connection to the grid, the related grid itself and storage assets shall be presumed as being in the overriding public interest and serving public health and safety when balancing legal interests in the individual case, for the purposes of Article 6(4) and Article 16(1)(c) of Council Directive 92/43/EEC, Article 4(7) of Directive 2000/60/EC of the European Parliament and of the Council and Article 9(1)(a) of Directive 2009/147/EC of the European Parliament and of the Council....'*

2) *'Member States shall ensure, at least for projects which are recognised as being of overriding public interest, that in the planning and permit-granting process, the construction and operation of plants and installations for the production of energy from renewable sources and the related grid infrastructure development are given priority when balancing legal interests in the individual case... (emphasis added)'*

The Regulation was introduced as an emergency measure and included provision for the EU Commission to review the application of, and continued need for, the measures included in the Regulation. The Commission completed its review of the Regulation and furnished its report to the Council on the 28 November 2023. In its report the Commission recommended the prolongation of the validity of certain measures in the Regulation, including Article 3(2), and by Regulation 2024/223 of the 22 December 2023 the Council of the European Union, Regulation 2022/2577 was extended and amended, with Article 3 applying to the all permit-granting processes commenced up to the 30 June 2025 and therefore applies to the permitted solar farms associated with this proposed development.

The importance, continued need and effectiveness of Article 3(2) of Regulation 2022/2577 in aiding the accelerated deployment of renewable energy is explained in Recital 14 of Regulation 2024/223:

'...Article 3(2) of Regulation (EU) 2022/2577 requires priority to be given to projects that are recognised as being of overriding public interest whenever the balancing of legal interests is required in individual cases and where those projects introduce additional compensation requirements for species protection... The first sentence of Article 3(2) of Regulation (EU) 2022/2577 has the potential, in the current urgent and still unstable energy situation on the energy market which the Union is facing, to further accelerate renewable energy projects since it requires Member States to promote those renewable energy projects by giving them priority when dealing ***with different conflicting interests beyond environmental matters*** *in the context of Member States' planning and the permit-granting process. The Commission's report demonstrated the value of the first sentence of Article 3(2) of Regulation (EU) 2022/2577 which recognises the relative importance of renewable energy deployment in the current difficult energy context beyond the specific objectives of the derogations foreseen in the Directives referred to in Article 3(1) of Regulation (EU) 2022/2577. Given the particularly severe situation in the supply of energy which the Union is currently facing, it is appropriate to prolong the application of Article 3(2) of Regulation (EU) 2022/2577 in order to appropriately recognise the crucial role played by renewable energy plants to fight climate change and pollution, reduce energy prices, decrease the Union's dependence on fossil fuels and to ensure the Union's security of supply in the context of the balancing of legal interests carried out by permit-granting authorities or national courts. At the same time, it is also appropriate to keep the environmental safeguard that, for projects recognised as being of overriding public interest, appropriate species conservation measures, underpinned by sufficient financial resources, are adopted. (emphasis added)'*

It is clear from the urgency conveyed by the REPowerEU plan and the provisions set out in the Regulation (2022/2577) that the accelerated deployment of renewable energy is crucial, not least in order to address the climate crisis but also to mitigate the impact of the energy crisis, eliminate the European Union's dependency on imported Russian gas and provide energy security to Member States.

3.2.4 EU Solar Strategy

As part of the REPowerEU plan, the Commission adopted an EU solar energy strategy in May 2022. The solar strategy identifies the remaining barriers and challenges in the solar energy sector and outlines initiatives to overcome them and accelerate the deployment of solar technologies. It states the EU solar energy has a significant potential to rapidly become a mainstream part of our power and heat systems and a main lever to achieve the European Green Deal objectives while phasing out our dependence on Russian fossil fuels. Amid the energy crisis, the implementation of the Strategy and these key solar initiatives proposed for the EU and its Member States is of utmost urgency.

Alongside the REPowerEU plan, the Commission also presented a Recommendation on fast permitting for renewable energy projects and a legislative proposal on permitting that will contribute to the further acceleration of solar energy deployment in the EU. It acknowledged that slow and complex permitting processes are a key obstacle to unleashing the renewables revolution and for the competitiveness of the renewable energy industry.

3.3 National Context

3.3.1 Climate Action and Low Carbon Development (Amendment) Act 2021

The Climate Action and Low Carbon Development 2015 (as amended) ("the Climate Act") establishes a legislative precedent to reduce Ireland's carbon emissions. The Climate Act legally binds Ireland to achieve net-zero emissions no later than 2050, and to a 51% reduction in emissions by the end of this decade.

Under Section 15 of the Climate Act, a planning authority, and the Board is obliged to perform its decision-making function (in so far as practicable) in a manner consistent with:

- the most recent approved climate action plan,
- the most recent approved national long term climate action strategy,
- the most recent approved national adaptation framework and approved sectoral adaptation plans,
- the furtherance of the national climate objective, and
- the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State.

The implications of the obligations placed on planning authorities and the Board under Section 15 were recently the subject of a High Court Judgment, *Coolglass Wind Farm Limited v An Bord Pleanála* [2025] IEHC 1. The case highlights the imperative nature of the obligation placed on public bodies to exercise their discretionary powers in "*such a way as to support the outcome favouring climate goals*".

Delivering judgement in the case, Mr Justice Humphreys undertook a detailed consideration of the interpretation of Section 15 of the Climate Act and concluded that, when determining a planning application relevant to the achievement of climate plans and objectives under S.15 of the 2015 Act, a planning authority or an Bord Pleanála is required to:

i. Consider if granting permission would contribute to achieving our climate goals, and the Court concluded that in the case of renewable energy projects the answer is invariably yes.

ii. Where the answer to the first question is yes, consider whether granting permission is precluded by a *"mandatory and non-flexible legal requirement that confers no discretion or evaluative judgment on the [board]"*

iii. "If the answer to that is No, the board should then ask if its discretion or evaluative judgment can be exercised in such a way as to support the outcome favouring climate goals."

The Climate Act provides for a 51% reduction in greenhouse gases by 2030 compared to 2018 levels, and puts in place a rigorous governance structure, including a system of carbon budgeting, sectoral emissions ceilings, a national adaptation framework, sectoral adaptation plans, and annually updated Climate Action Plans, to ensure that Ireland achieves its national, EU and international climate commitments in the near- and long-term. However, in the near term those targets will not be achieved. In May 2025, the Environmental Protection Agency (EPA) published its emissions projections for 2030 which indicated that planned climate policies and measures, if fully implemented, could deliver up to 293per cent emissions reduction by 2030 compared to 2018. This is insufficient to meet the 51 per cent emissions reduction target in Ireland's Climate Act. In addition, the EPA has reported the following:

- To achieve a reduction of 23 per cent would require full implementation of a wide range of policies and plans across all sectors and for these to deliver the anticipated carbon savings.
- The first carbon budget and second carbon budget are projected to be exceeded with almost all sectors on a trajectory to exceed their national sectoral emissions ceilings for 2030.
- Ireland will not meet its EU Effort Sharing Regulation target of 42 per cent reduction by 2030, instead a maximum reduction of 22% is projected.
- Total emissions from the Land Sector are projected to increase by up to 95% and Ireland is unlikely to meet our European commitments in this area.

Laura Burke, Director General of the EPA stated:

"*As we get closer to 2030 and receive more information on the impact of agreed policies and measures, it is concerning to see projected reductions and lack of progress in the delivery of actions to reduce emissions including in the electrification of our transport sector and the expansion of renewable electricity powering our homes and businesses and the implementation of carbon reduction measures in agriculture. Momentum is building for Ireland's low carbon society, but we need to accelerate it and scale up the transition.*"

The above projections are worrying. Ireland is on course to fail to achieve its 2030 climate targets, having already failed to achieve our 2020 targets. We are directly contributing to the rise in temperatures referenced by the IPCC and to the global threat of climate change that this rise will impose on future generations. Reaching climate neutrality will mean that Ireland will have no further negative impacts on the climate system by mid-century. In the long term, this represents an extremely ambitious target for Ireland to meet over the next three decades to 2050.

3.3.2 Climate Action Plan 2025

The Department of the Environment, Climate and Communications published the Climate Action Plan 2025 in April 2025 which sets out a roadmap of actions which will ultimately lead us to meeting our national climate objective of pursuing and achieving, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy. The plan stresses that " renewables-led system is at the core of Ireland's plan to radically reduce emissions in the electricity sector, protect our energy security, and ensure our economic competitiveness. This requires the accelerated and increased deployment of new renewable electricity generation capacity and related infrastructure". It is planned to increase the proportion of renewable electricity to up to 80% by 2030, and a target of 8 GW from solar by 2030. Noting that the programme for large-scale offshore wind deployment is not expected to be to be realised towards

end decade, the Climate Action Plan 2025 stresses that deployment rates for onshore renewables will need to increase to match demand growth to ensure we keep electricity emissions within range of the carbon budgets.

3.3.3 Project Ireland 2040 – National Planning Framework

The Government published the National Framework (NPF) in 2018, which was revised in 2025. The plan will guide national, regional and local planning policies and investment decisions for the next two decades. It identifies the transition to a low carbon and climate resilient society as one of the key pillars (shared goals) of the Plan. Section 3.4 of the NPF states that

> *"Harnessing the potential of the region in renewable energy terms in accordance with the capacity allocation targets set out in Chapter 9: Climate Transition and Our Environment, across the technological spectrum from wind and solar, in addition to biomass and wave energy".*

is a key policy priority for the Southern Region.

National Policy Objective 30:

> *"Facilitate the development of the rural economy, in a manner consistent with the national climate objective, through supporting a sustainable and economically efficient agricultural and food sector, together with forestry, fishing and aquaculture, energy and extractive industries, the bio-economy and diversification into alternative on-farm and offfarm activities, while at the same time noting the importance of maintaining and protecting biodiversity and the natural landscape and built heritage which are vital to rural tourism.".*

National Policy Objective 70:

> *"Promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a climate neutral economy by 2050".*

National Policy Objective 71:

> *"Support the development and upgrading of the national electricity grid infrastructure, including supporting the delivery of renewable electricity generating development".*

The NPF also recognises that increases in population and economic growth in areas should be married with a transition to a more sustainable energy market and the achievement of conservation goals.

3.3.4 Programme for Government 2020 – Our Shared Future

The Programme for Government 2020 (PFG) establishes the strategic goals of the Irish Government over the next 5 years. The PFG supports the European Green Deal, which provides a roadmap for Europe to take advantage of the opportunities presented by moving to a low-carbon future. It states that the measures adopted in supporting the European Green Deal will be an important element of the National Economic Plan.

The PFG states that the Government are committed to an average 7% per annum reduction in overall greenhouse gas emissions from 2021 to 2030 (a 51% reduction over the decade) and to

achieving net zero emissions by 2050. The implementation of the Climate Action Bill and the establishment of the Climate Action Council will ensure these targets are met with renewable energies seen as a critical component in meeting these ambitious targets.

The PFG calls for a 'Revolution in Renewables' whereby a commitment is made to the rapid decarbonisation of the energy sector. To deliver on the stated target of at least 70% renewable electricity by 2030, the programme states it will:

- Develop a solar energy strategy for rooftop and ground-based photovoltaics to ensure that a greater share of our electricity needs are met through solar power.
- Strengthen the policy framework to incentivise electricity storage and interconnection.

3.3.5 Ireland's Transition to a Low Carbon Energy Future 2015-2030 – White Paper

The Government strategy calls for a radical transformation of Ireland's energy system to meet committed targets and achieve a low carbon energy system by 2050. These commitments included a then EU target to source 20 per cent of its energy needs from renewables such as wind, solar and biomass. Within this, Ireland committed to generating 16 per cent of its overall energy requirements from renewables by 2020 under the EU's plan. At the time of White Paper, about 8 per cent comes from renewables[6].

The strategy includes an objective to "accelerate the development and diversification of renewable energy generation" and increase the country's output of electricity from renewable sources of which we have a plentiful indigenous supply. It is stated that this will be achieved through a number of means including wind, solar PV and ocean energy. Specifically, Section 137 of the White Paper accentuates the role of solar PV as follows:

> *"Solar photovoltaic (PV) technology is rapidly becoming cost competitive for electricity generation, not only compared with other renewables but also compared with conventional forms of generation. The deployment of solar in Ireland has the potential to increase energy security, contribute to our renewable energy targets, and support economic growth and jobs. Solar also brings a number of benefits like relatively quick construction and a range of deployment options".*

3.3.6 Policy Statement on Energy Security in Ireland to 2030

In November 2023, the Government published a Policy Statement on Energy Security in Ireland to 2030 which outlined the key challenges to ensuring security of electricity supply such as having adequate electricity generation capacity, storage, grid infrastructure, interconnection and system services to meet both average and peak demand. It identifies the critical need to maintain security of supply throughout the transition to the target of up-to 80% of electricity consumption from renewable sources. It highlights the need for significant investment in additional flexible conventional electricity generation, electricity grid infrastructure, interconnection and storage in order to ensure security of electricity supply. It states also that the "majority of renewable energy generated by 2030 will be from wind and solar."

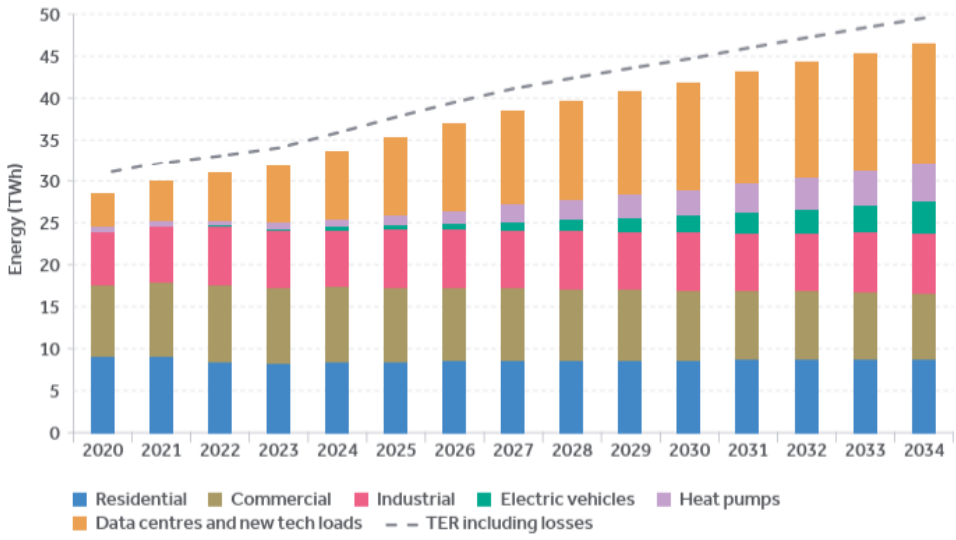
[6] As identified above, The Climate Action Plan 2024 includes an objective to generate up to 80% from renewables by 2030.

3.3.7 EirGrid Generation Capacity Statement 2025 – 2034

EirGrid is leading the secure transition of the electricity grid to a sustainable low-carbon future. Its publication, All-Island Resource Adequacy Assessment, looks at the balance between electricity demand and supply on the island of Ireland for the next 10 years. It is an evolution of the Generation Capacity Statement (GCS) published in previous years.

Throughout the 10-year study horizon, from 2025 to 2034, the demand for electricity is forecast to increase in line with government targets as set out in CAP 24. The closure of some older conventional fossil fuel burning generators, and the declining performance of other generators on the system mean that this assessment forecasts a challenging outlook for Ireland with capacity deficits identified in some years across the study horizon. The deficits are expected to reduce as new capacity comes forward through the Single Energy Market (SEM) capacity auctions, however the delivery of new capacity (i.e. more renewable electricity) remains challenging.

EirGrids analysis takes into account the targets from CAP 2024, including increased electrification in the heat and transport sectors. The median demand scenario assumes that 100% of the CAP 2024 targets will be met. Over the next ten years, demand is forecasted to grow considerably. In the median scenario, electricity demand is forecasted to increase 45% by 2034 from 2023 levels. The largest growth comes from data centres and new technology loads which will form 31% of all electricity demand by 2030.



Total Electricity Requirement for Ireland sector breakdown

Over the longer term, EirGrid state that it remains crucial that the capacity market delivers new capacity in a timely fashion, and the type and volume of capacity needed to underpin the energy transition. It is clear that additional renewable, and solar energy in particular, is required to be consented, constructed and operational in a timely manner to support this objective.

3.3.8 Renewable Electricity Support Scheme

The Renewable Electricity Support Scheme (RESS) will provide support subsidies to renewable electricity projects in Ireland. Operated by the Department of Communications, Climate Action and Environment, EirGrid and the CRU, RESS is designed as a series of renewable energy auctions which will take place on a regular basis between 2020 and 2030. Interacting closely with the Climate

Action Plan, the Scheme will provide for a renewable electricity ambition of up to 70% by 2030. Auction participants enter their renewable energy projects and competitively bid on the cost of electricity, where the lowest bidder wins the government subsidy. This system predominantly favours large scale developments, as cheaper construction and connection costs ensures that these projects can adopt a more competitive bid strategy.

In March 2023, the Government published a schedule of future RESS auctions shown below, which included a plan for three onshore RESS auctions to be run across 2023 (RESS-3), 2024 (RESS-4) and 2025 (RESS-5). This followed after the RESS-1 and RESS-2 auctions in 2020 and 2022 respectively. The size of these auctions were developed by the Government in order to enable the requisite amount of solar and wind projects to start construction in time for energisation by 2030.

RESS Future Auction Schedule

Auction Type	Indicative Auction Volume (GWh)	Indicative Auction Dates	Indicative Auction Commercial Operation Dates
Offshore RESS 1	10,500-16,000	Q2 2023	2029
Onshore RESS 3	2,000-3,500	Q3 2023	2026
Offshore RESS 2	12,500-18,000	2024-2025	2030
Onshore RESS 4	2,000-5,500	2024	2027
Onshore RESS 5	2,000-5,500	2025	2028

RESS-3 only delivered 934 GWh of successful capacity (less than 50% of the target range) and RESS-4 only delivered 2071 GWh of successful capacity (just over the lower expected volume of 2,000GWh). RESS-5 recently occurred in 2025, and the provisional offers show that a similar trend is likely to prevail. Furthermore, it is commonly known that a large portion of the successful capacity from the RESS-1 and RESS-2 auctions has not connected to the national electricity grid system. The main reasons for this poor capacity delivery are that large numbers of projects cannot secure funding due to high grid connection costs, long connection lead times and projects which are sub-scale for their intended connection method. As a result, the Department of Environment, Climate and Communications have already commenced an EU State Aid engagement process to run further RESS auctions past RESS-5 in 2025 to make up this large shortfall.

As shown, RESS-4 and RESS-5 will be the biggest onshore auctions to be held which reflects the fact that there is a requirement for a large number of projects to still come through the RESS process and become operational in order to put our 2030 renewable electricity targets on the right course.

3.4 Regional Spatial and Economic Strategy for the Southern Region

The Regional Spatial and Economic Strategy (RSES) provides the framework through which the aspirations of the National Planning Framework will be implemented in the Southern Region. It reaffirms the objective to proactively work towards and achieve a low carbon economy. It includes a commitment to promote change across business, public and residential sectors to achieve reduced Green House Gas (GHG) emissions, improve energy efficiency and increase the use of renewable energy sources across the key sectors of electricity supply, heating, transport and agriculture. The strategy recognizes that local authorities must demonstrate leadership on related matters:

> *"Leadership is key to transition to renewable energy and the RSES supports the initiative by many local authorities to sign the Covenant of Mayors – a European*

cooperation movement involving local and regional authorities aimed at increasing energy efficiency and the use of renewable energy".

RPO 87 Low Carbon Energy Future:

"The RSES is committed to the implementation of the Government's policy under Ireland's Transition to a Low Carbon Energy Future 2015-30 and Climate Action Plan 2019. It is an objective to promote change across business, public and residential sectors to achieve reduced GHG emissions in accordance with current and future national targets, improve energy efficiency and increase the use of renewable energy sources across the key sectors of electricity supply, heating, transport and agriculture".

RPO 89 Sustainable Renewable Energy Generation:

"It is an objective to support measures to build resilience to climate change throughout the Region to address impact reduction, adaptive capacity, awareness raising, providing for nature-based solutions and emergency planning".

RPO 90 Regional Decarbonisation:

"It is an objective to develop a Regional Decarbonisation Plan to provide a framework for action on de-carbonisation across all sectors. The Plan shall include existing and future targets for each sector...'

Electricity: 'To achieve national and EU targets will require investment in measures to develop alternative renewable energies with greater interconnection to energy resources...".

RPO 95 Sustainable Renewable Energy Generation:

"It is an objective to support implementation of the National Renewable Energy Action Plan (NREAP), and the Offshore Renewable Energy Plan and the implementation of mitigation measures outlined in their respective SEA and AA and leverage the Region as a leader and innovator in sustainable renewable energy generation".

RPO 97 Power Stations & Renewable Energy:

"It is an objective to support the sustainable technology upgrading and conversion of power stations in the Southern Region to use energy efficient and renewable energy sources".

RPO 98 Regional Renewable Energy Strategy:

"It is an objective to support the development of a Regional Renewable Energy Strategy with relevant stakeholders".

RPO 100 Indigenous Renewable Energy Production and Grid Injection:

"It is an objective to support the integration of indigenous renewable energy production and grid injection".

3.5 Carlow County Development Plan 2022-2028

The Carlow County Development Plan 2022-2028 (CDP) outlines the vision and overall strategy for the proper planning and sustainable development of the County. The CDP contains several policies and objectives which will ensure that Carlow transitions to a low-carbon and climate resilient place. The importance of creating clean forms of renewable energy is enshrined in a number of policy objectives within the CDP.

It is an overarching policy of the CDP to:

> *"Support the transition of the County to a competitive, low carbon, climate-resilient and environmentally sustainable economy by 2050, by way of reducing greenhouse gases, increasing renewable energy, and improving energy efficiency".*

Chapter 7 of the CDP sets out the Council's approach to *'Climate Action and Energy'* and outlines a suite of policies and objectives in support of same. The Chapter acknowledges that:

> *"County Carlow has an abundance of natural resources that can be harnessed in a sustainable manner, without negatively impacting on the environment. There is potential for a range of renewable energy technologies, including . . . solar energy".*

The following policies and objectives contained within Chapter 7 are of particular relevance to the proposed development:

> ***Policy RE P1*** *– "Encourage and facilitate the production of energy from renewable sources, such as from wind, solar, bioenergy, hydroelectricity, and geothermal, subject to compliance with proper planning and environmental considerations."*
>
> ***Objective RE O1*** *– "Seek to achieve a minimum of 130MW of renewable electricity in the County by 2030, by enabling renewable energy developments, and through micro-generation including rooftop solar, wind, hydro-electric and bioenergy combined heat and power (CHP)."*
>
> ***Policy IF P1*** *– "Support the development, reinforcement, renewal, and expansion of key supporting infrastructure to facilitate renewable energy developments, subject to compliance with proper planning and environmental considerations."*
>
> ***Policy SE P2*** *– "Favourably consider the development of solar farms on agricultural lands which allow for farm diversification and multipurpose land use."*
>
> ***Objective SE O1*** *– "Increase the penetration of solar energy developments at appropriate locations subject to compliance with proper planning and environmental considerations."*

Chapter 7 of the CDP has been informed by Carlow's *'Renewable Energy Strategy'* (RES), which was prepared in support of the CDP. The RES outlines a vision and strategy for renewable energy in Carlow to ensure that national climate action targets for 2030 are achieved. Figure 6.6 of the RES identifies *'Solar Opportunity Areas'*. The substation is located in 'Available Areas With High Risk'.

The RES included a process of mapping potential solar resource. Firstly, environmental and geographical constraints were removed leaving "*755km^2 of land potentially available for solar farm development".* This land is identified in the RES as "available areas" with varying degrees of risk assigned to them in the Solar Opportunity Areas map. The pretext of this is clear, these lands, irrespective of risk, are available to be considered for solar farm development. Section 6.2.5 states that "the presence of a risk category in and of itself does not support nor preclude solar development; it is a tool which flags areas of having a higher or lower concentration/ distance from various sensitive receptors. A proposed solar development would be subject to detailed siting and environmental considerations and the outcomes of the planning process". The Renewable Energy Strategy goes on to state that the provision of future "*solar farms will be constrained by external factors such as grid capacity availability and the competitive RESS Auction process"* and *"within the county, the majority of the distribution network (LV and MV) is concentrated in the north of the county".* Under Carlow County Council reference No. 24/60043, An Coimisiún Pleanála granted planning permission for Ballyloo Solar Farm confirming there was no policy impediment to development of a solar farm in the subject RES area.

The strategy establishes the following objectives and supporting polices in relation to solar energy in relation to solar energy over the short (1 –2 years), medium (2 – 6 years), and long term (6 – 10 years)[7]:

Name	Description	Short-term	Medium-term	Long-term
Objective S1	Increase the penetration of commercial scale solar energy development in appropriate locations.	✓	✓	✓
Policy S1.1	To favourably consider the redevelopment of brown field sites for large solar PV projects.	✓	✓	✓
Policy S1.2	To favourably consider the development of solar farms on agricultural lands which allow for farm diversification and multipurpose land use.		✓	✓
Objective S2	To promote the integration of solar energy into existing and planned developments.	✓	✓	✓
Policy S2.1	To encourage the use of solar thermal or solar PV installations as part of the design and planning process for new developments and refurbishments.	✓	✓	✓
Policy S2.2	To promote and facilitate the use of solar technology across County Carlow including schools, public offices and for infrastructure, e.g. traffic lights, streetlights, road information signage etc.	✓	✓	✓

3.6 Carlow County Council Climate Action Plan

The Carlow County Council Climate Action Plan 2024-2029 has been prepared to facilitate the transition Carlow Town and County to a low carbon and climate resilient County. This will be achieved by delivering and promoting best practice in climate action at a local level. This aim is aligned to the Government's overall National Climate Objective, which seeks to pursue and achieve, by no later than the end of 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy. The plan emphasizes that addressing climate change has become a global priority and establishes a vision that "*Carlow County Council will be a climate resilient and low carbon organisation that inspires, leads, and facilitates ambitious and just climate action throughout the county".*

[7] Extract from Table 6-9 of Carlow County Development Plan 2022-2028 Renewable Energy Strategy.

04 //

Assessment of Planning Considerations

4.1 Principle of Development

4.1.1 Progress on Climate and Renewable Targets

Global Progress:

It is widely acknowledged that climate change is the greatest challenge facing humanity and that urgent action is needed to stem rapidly rising global temperatures to protect our planet and its inhabitants.

Global climate targets aim to limit global temperature increase and reduce greenhouse gas emissions to mitigate the effects of climate change. The Paris Agreement, a global agreement, sets a target of limiting global warming to below 2°C and pursuing efforts to limit it to 1.5°C. Countries have also pledged to align their national climate pledges with the 1.5°C goal. To limit global warming to 1.5°C, greenhouse gas emissions must peak before 2025 at the latest and decline 43% by 2030.

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing scientific climate change data. The IPCC publishes clear, evidence-based reports which synthesise the latest climate science. Its objective is to provide national governments with scientific information that they can use to develop climate policies.

In October 2018, the IPCC published the "Global Warming Above 1.5º C" report, which states;

> *"Climate-related risks to health, livelihoods, food security, water supply, human security and economic growth are projected to increase with global warming of 1.5ºC and increase further with 2ºC."*

In March 2023, the IPCC published its 'Climate Change 2023 – Synthesis Report', which states;

> *"Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. Human-caused climate change is already affecting many weather and climate extremes in every region across the globe."*
>
> *"Continued greenhouse gas emissions will lead to increasing global warming, with the best estimate of reaching 1.5°C in the near term in considered scenarios and modelled pathways. Every increment of global warming will intensify multiple and concurrent hazards (high confidence)".*

The report warns that it is likely that global warming will exceed 1.5ºC during the 21st Century, thus making it a significant challenge to limit warming below 2ºC. Without urgent actions to limit the global rise in temperature, climate change increasingly threatens ecosystems, biodiversity, livelihoods and the health and well-being of current and future generations. The report continues that a key mitigation to this climate threat is deployment of new energy systems, and that

decarbonization through renewable energy development such as wind energy and solar energy is urgently required.

The United Nations Environmental Programme's most recent annual Emissions Gap Report, published in November 2024, states that nations must deliver dramatically stronger ambition and action in the next round of Nationally Determined Contributions (NDCs) or the Paris Agreement's 1.5°C goal will be gone within a few years. The report states:

> *"A failure to increase ambition in these new NDCs and start delivering immediately would put the world on course for a temperature increase of 2.6-3.1°C over the course of this century. This would bring debilitating impacts to people, planet and economies.*
>
> *It remains technically possible to get on a 1.5°C pathway, with solar, wind and forests holding real promise for sweeping and fast emissions cuts. To deliver on this potential, sufficiently strong NDCs would need to be backed urgently by a whole-of-government approach, measures that maximize socioeconomic and environmental co-benefits, enhanced international collaboration that includes reform of the global financial architecture, strong private sector action and a minimum six-fold increase in mitigation investment. G20 nations, particularly the largest-emitting members, would need to do the heavy lifting".*

European Union Progress:

The European Commissions 'Climate Act 2024 – Progress Report' states Greenhouse gas emissions in the EU fell by 8% in 2023 compared to 2022. This is the largest annual fall in several decades excluding the year of pandemic, with emissions now 37% below their 1990 level. The emissions reduction in 2023 is linked to the acceleration of the energy transition, and it is mostly driven by the increase of renewable energy production. This increases the confidence that the EU can meet its climate targets in a fair and competitive manner. Notwithstanding, the report warns that global warming continues to accelerate with increasingly devastating effects, climate action needs to be sustained.

Ireland's Progress:

In Ireland, we are already experiencing weather and climate extremes. Met Eireann's Annual Climate Statement for 2024 states that seven of the top ten warmest years in this country have occurred since 2005; that Ireland is getting warmer, wetter and more prone to storm surges and coastal flooding; and that our country's warming trend continues in line with the wider global warming trend.

The Irish government knows that we urgently need to slow and eventually reverse the continuing impact of climate change. The country's next policy target is a total reduction of greenhouse gas emissions of 51% by 2030. A key feature of this policy is the decarbonization of Ireland's electricity system, with a target to increase the share of electricity generated from renewable sources to 80% by 2030.

It is now clear across Irish government and industry that neither of these targets will be met. The Environmental Protection Agency (EPA) published a report in May 2025 forecasting that Ireland would only achieve a 23% reduction in total greenhouse gas emissions by 2030 - a 28% shortfall on Ireland's target of 51%.

In its Energy in Ireland 2024 Report, the Sustainable Energy Authority of Ireland (SEAI) has stated that fossil fuel generation accounted for 48.9% of the electricity supply in Ireland in 2023 with renewables accounting for 40.7%. This is substantially short of the Climate Action Plan target to increase the share of renewable electricity to 80% by 2030. More recently in January 2025, the SEAI published the Decarbonised Electricity System Study (DESS) to forecast plausible rates of generation technology deployment in Ireland between 2024 – 2040. The report is focused on delivery of renewable electricity generators and features the opinion of thirty highly regarded industry experts. The report states:

> *"Expert pooled opinion deems 2030 target attainment for renewables either very unlikely (for onshore wind and solar PV) or unimaginable (for offshore wind)".*

The widely acknowledged shortfall in new renewable energy generators is even more alarming when mapped to Ireland's national electricity demand, which is expected to significantly increase. Published in March 2025, EirGrids "All Island Resource Adequacy Statement 2025 – 2034" assesses the balance of electricity demand and supply on the island of Ireland for the next ten years. The median demand forecast outlined in the report is EirGrids best estimate of what might happen in the future. The report states that:

> *"In the median scenario, the peak demand is forecast to increase 24% by 2034 from 2023 levels....driven by the growth in the data centre and new tech load along with the electrification of heat and transport."*

It is clear that Ireland's position in relation to climate action is very unstable. Scientific data shows that Irish temperatures are increasing and weather systems are changing. Ireland needs to decarbonise our electricity system to reduce CO2 emissions and stem the onset of climate change. Industry experts state that it is very unlikely that we will meet our targets in relation to renewable generation. Concurrently, Irish electricity demand is rapidly increasing. The development and renewal of the energy network in tandem with this is of critical importance as enshrined in current national and regional policy. The Regional Spatial and Economic Strategy recognises the pronounced need to decarbonise the southern region, and specifically in respect of electricity "to achieve national and EU targets will require investment in measures to develop alternative renewable energies with greater interconnection to energy resources...". Alongside commitments to improve energy efficiency and an increase in the use of renewable energy sources, it is an explicit objective under Regional Policy Objective (RPO) 100 "to support the integration of indigenous renewable energy production and grid injection". The proposed development will deliver directly on this, contributing to the security of energy supply.

4.1.2 Carlow County Development Plan 2022-2028

The preceding chapter of this statement provides a detailed summary of existing policies which underpin the need for the subject project. If Carlow is to achieve its stated objectives to enhance climate resilience and transition to a low carbon society, then projects such as that proposed must be positively supported. The CDP acknowledges that County Carlow needs to contribute to national renewable energy targets. It recognises that natural resources in Carlow can be harnessed in a sustainable manner and that solar energy projects provide real potential to realise this. The proposed substation / grid connection will increase the penetration of solar energy developments onto the national grid consistent with Objective SE.01 of the CDP. it will also contribute directly to the realisation of temporary agricultural diversification projects in accordance with Policy SE. P2. Based on a review of the CDP, there are no land use zoning or impediments which would inhibit the

proposed development and Carlow County Council have permitted similar substation / grid connection infrastructure in the local area[8].

The Carlow County Renewable Energy Strategy notes that the availability of supporting infrastructure can facilitate or constrain renewable energy developments. Under Policy IF P1, it is an objective of the Council to "support the development, reinforcement, renewal, and expansion of key supporting infrastructure to facilitate renewable energy developments, subject to compliance with proper planning and environmental considerations." As such, there is direct support for the provision of the proposed grid connection infrastructure for the renewable energy sector. As set out further below, the subject location is one where the facilitation of renewable energy can and should be supported to facilitate viable renewable energy projects.

4.1.3 Technical Justification

As set out in the submitted Ballyloo, Park and Ballybannon solar farm planning applications, there are key policy, landownership and technical attributes that have informed the appropriate location of these projects in this part of County Carlow. From an electrical grid capacity perspective, the suitability of locational factors also extends to proximity to and access to the transmission network. A key requirement for meeting electricity/renewable targets is prioritizing projects that can fit within the current national grid network and do not require significant upgrade works to be carried out by EirGrid (at the cost of time and public money). The proposed grid connection into the existing Kellis 220/110kV substation can achieve this. This type of substation is known as a "mesh node" and makes Kellis substation very suitable for accommodating large renewable generation projects. Its suitability is characterized by the following:

- Kellis substation has high voltage connections to counties Carlow, Waterford, Kilkenny and Kildare and can transmit large volumes of renewable electricity to these locations. This capability is shown in the low level of constraints that Eirgrid forecast for the substation; calculated as a percentage, a "constraint" represents the amount of annual solar generation that would be lost/foregone because the surrounding grid network is unable to accommodate the power flows at the time that the solar resource is available.
- Under the EirGrid ECP-2.4 constraint studies published on 31 March 2025, Kellis substation (Area H2) has a constraint forecast within the range of 1-6%. This compares to forecast levels of up to 45% in the west Dublin region (Area J). It is well known that west Dublin has a high concentration of data centres, and this is putting a significant strain on the electricity grid in that location. Conversely, the proposed grid connection is at a point where the grid system is not constrained and can accommodate a national strategic generation project which will transmit large volumes of electricity to the south and east of the country.
- The feasibility of the grid connection method was informed through the applicant's early engagements with EirGrid. A customer clinic was held between the applicant and EirGrid in December 2023, where EirGrid were supportive in principle of a strategic renewable project in this location. Facilitating energy generation through a single 'tail' connection into an existing bay in Kellis substation is a preference for EirGrid as it represents an efficient use of their existing network and also limits the outage disturbance/system downtime that would be required during construction compared to a connection into a substation where new bays may be required.

[8] Sample Reference ABP-313139-22

4.2 Landscape and Visual

The design of the proposed substation has been informed by relevant industry standards for the layout and management of such facilities, as well as detailed site analysis, which identified potential constraints and opportunities. This has shaped the final design response in relation to the local landscape and environment.

Macro Works Ltd, a chartered landscape architectural practice, were engaged to carry out a landscape and visual impact assessment (LVIA) of the proposed solar farm, which is submitted in support of this application. The assessment incorporates best practice methodologies prescribed in the Environmental Protection Agency (EPA) publication 'Guidelines on the Information to be contained in Environmental Impact Statements (2022) and the accompanying Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (2015), and Landscape Institute and the Institute of Environmental Management and Assessment publication entitled Guidelines for Landscape and Visual Impact Assessment (2013).

4.2.1 Site Context

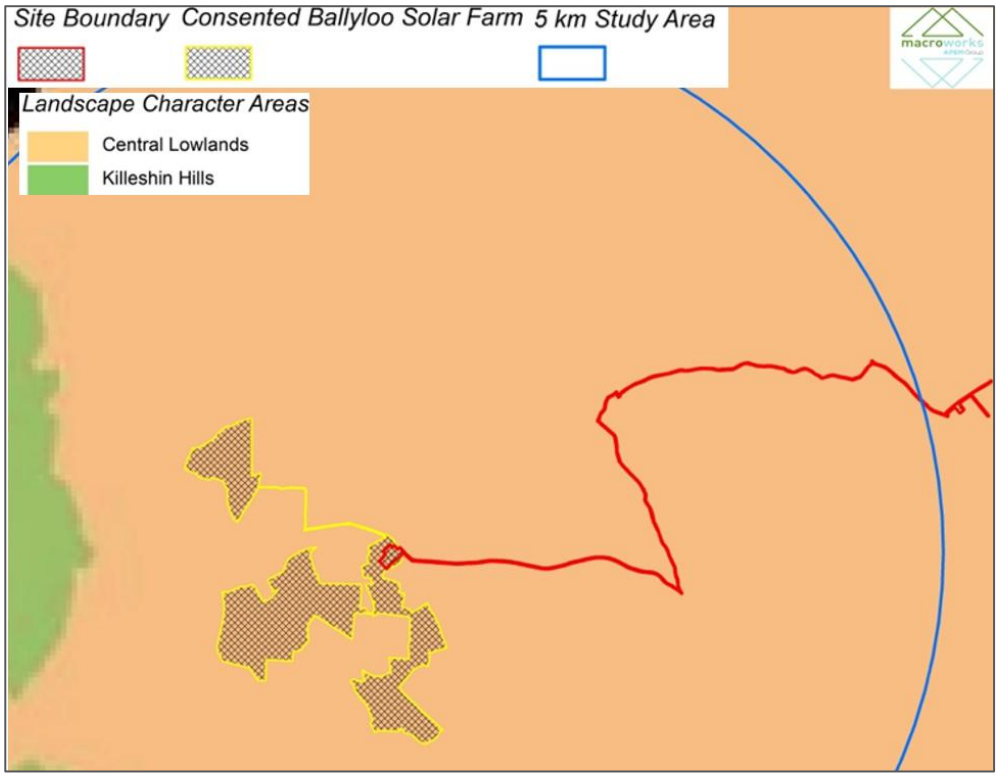


Figure 07: Landscape Character Area Context

A landscape Character Assessment has been incorporated in the Carlow County Development Plan. This separates the county into four specific landscape character types. The proposed development and wider solar farm are situated in the LCA 'Central Lowlands' which is described as "primarily rural...with medium to quite large fields defined by well maintained and generally low hedges and occasional to frequent hedgerow trees". The LCA 'central lowlands' is "*deemed to be moderately sensitive to development. It has capacity to absorb most types of development subject to the implementation of appropriate mitigation measures*". Whilst no direct reference is made to electrical infrastructure within the landscape character assessment, it does state that the LCA 'central

lowlands' has "*a relatively high capacity to accommodate wind farming*", which would constitute a more highly visible landscape form than solar farms and associated substations / grid connections.

The LVIA includes detailed zone of theoretical visibility mapping for the different substation options contained in the subject application. It confirms that, with the exception of some localised views, potential visibility of the substation is from the western part of the study area only. Modest increases of decreases in visibility apply to the different substation options. The grid connection cabling is underground and will not be visible once constructed.

4.2.2 Assessment

The LVIA process included a thorough review of the site, surrounding environs within a 5 km radius, and statutory documents for sensitive locations. All nearby scenic routes, protected structures, public facilities, walking routes, public roads and cultural, environmental and heritage areas were considered. This resulted in the selection of 5 no. viewpoint locations for detailed assessment[9], representing a variety of distances, angles and viewing contexts. The assessment confirms that none of the selected viewpoints were considered to have a visual impact significance greater than 'Slight to Moderate-slight' in the post mitigation scenario, with only 1 no. viewpoint representing this level of impact (VP3). The remaining viewpoints are deemed 'Imperceptible to Slight' to 'Slight', reflecting the partial visibility within the study area and the landscape context itself, which is a typical working rural landscape that is not highly rare or distinctive in any sense.

Overall, the substation options benefit from their siting, which is offset from the nearest surrounding visual receptors and afforded a notable degree of screening from the surrounding existing vegetation, some of which will be enhanced as part of the consented Ballyloo solar farm development. The proposed substation and grid connection is not considered to give rise to any significant residual effects.

4.3 Traffic Assessment

4.3.1 Traffic Volumes

This application is supported by a detailed Site Access Report by CSEA Engineering Advisors. The substation will be an unmanned facility once operational, with trips confined to maintenance staff accessing the site by light goods vans. These movements will be limited to 2-4 trips per month on average. As such, the operational development will give rise to a significant decrease in both the volume and scale of vehicles accessing the site comparable to existing agri-generated traffic.

Based on the low levels of operational visits, the potential for traffic impacts to occur will be limited to the temporary construction period for the subject lands. It is envisaged that the construction phase for the subject proposal will take 24 months. Subject to obtaining planning permission, the proposed substation will be constructed alongside the proposed Ballyloo Solar Farm. As outlined in Table 4.1 of the Site Access Report, the volume of vehicular movements will vary across this period with an average of c. 10 no. trips per day (equivalent of 1 trips per hour). This number includes 10% contingency in traffic volumes as part of a precautionary approach.

4.3.2 Site Access/Sightlines

It is proposed to access the site via a single entrance from the L3050. This is a new entrance which will be formed by the removal of c.30 linear metres of existing hedgerow. The entrance will be

[9] This represents a subset of a larger number of views assessed as part of the solar farm application.

suitably splayed and has been subject to sight line and autotrack analysis, with the latter including modelling of abnormal load delivery for the transformer. The entrance will include a linear drain to ensure there is no potential for runoff to the public road.

Special delivery measures will be put in place for the delivery of the abnormal load consistent with now standard abnormal load convoys for wind farm projects. This will include a detailed route plan, risk assessment and transport management plan to be agreed in full with Carlow County Council. This will be prepared in accordance with the European Best Practice Guidelines for Abnormal Road Transports. The remainder of deliveries to the site during the construction phase will be via standard HGV deliveries.

The proposed delivery route to the site from Dublin Port via the M7 and then M9, before exiting the motorway network via the R448 and accessing the site via the L3050 local road. This route has been informed by a detailed review process conducted in relation to key assessment criteria for projects of this nature, including the carriageway widths, sightlines, road surface conditions, and existing and proposed traffic volumes. A series of swept path analyses were undertaken which verified that no works are required to facilitate route passage by articulated vehicles, with existing vertical and horizontal alignment capable of supporting traffic movements.

The Applicant has engaged with Transport Infrastructure Ireland (TII) as part of the Ballyloo Solar Farm (Carlow County Council Register Reference: 24/60043) and Park Solar Farm (Carlow County Register Reference: 24/60205). TII provided details of construction stage considerations for the implementation of any permission related to the national road network. These relate to the content of a future Construction Traffic Management Plan (CTMP) and will include:

- A requirement to consult with PPP Companies, MMaRC Contractors and road authorities in respect of the construction haul route.
- Any proposed works to the national road network including signage shall comply with TII publications and shall be subject to a road safety audits. All necessary licences or agreements shall be secured from TII, PPP Concession, Motorway Maintenance, MMaRC Companies, local road authorities, as necessary.
- Any proposals or agreements referred to above will be shared with TII;
- Any damage caused to the pavement of the existing national road shall be rectified in accordance with TII Pavement Standards.

The Applicant can confirm that it will reference the above requirements in the final CTMP and will consult with TII, and other parties where necessary, prior to the commencement of development.

Section 10 of the Site Access Report includes a number of focused mitigation measures to minimize the impact on existing road users arising from the temporary construction phase. These include a temporary manual-controlled stop/go system, advance warning signage and a booking system for site deliveries to avoid potential access conflicts.

In summary, the existing road network can adequately cater for the proposed development. Once operational, the solar farm project will give rise to a decrease in vehicular movements to/from the subject lands which are currently accessed frequently for agricultural purposes. The construction phase will be short in duration and it has been demonstrated that HGVs can access the site in a safe manner.

4.4 Archaeology and Heritage

4.4.1 Archaeology

A detailed Archaeological, Architectural and Cultural Heritage Impact Assessment of the proposal has been prepared by Rubicon Archaeology and is enclosed with this application. The assessment included a study of the archaeological and historical background of the proposed development site and the surrounding environs. This included information from the Record of Monuments and Places of County Carlow, the topographical files within the National Museum and all available cartographic and documentary sources for the area. A number of site and field inspections were also conducted with the aim of identifying any previously unrecorded features of archaeological or historical interest. The proposed substation is located within the boundary of the permitted Ballyloo Solar Farm (Carlow County Council Reference 24/60043 / An Coimisiún Pleanála 322347-25). A meeting took place with the National Monument's Service in January 2025. In a statement issued by the National Monument Service in March 2025 as part of the Ballyloo Solar Farm application, the NMS confirmed that the proposed substation location was acceptable in principle. There were two previous excavations (CH037–CH038) including one carried out within the footprint of the proposed substation (CH038). The location of the proposed substation was also the subject of a preceding geophysical survey which identified two anomalies, (CH050–CH051). There was a single area of archaeological potential (CH049) identified by landscape characteristic. As currently laid out, there are no RMPs located within the proposed substation or any Zones of Notification crossed by the proposed substation. In addition, there are no RMPs located within the route of the proposed grid connection. However, the proposed grid connection will cross the Zone of Notification for six RMPs (CH021, CH024–CH028). Where the proposed grid connection crosses the Zone, it will comprise an underground cable within the existing public road, which is previously disturbed ground. No impacts are envisaged.

Having regard to previous engagement with the NMS and the archaeological assessment completed for the Ballyloo solar farm, a suite of mitigation measures were put forward previously and agreed. These measures are recommended again as part of the submitted Archaeological, Architectural and Cultural Heritage Impact Assessment for the subject application to An Coimisiún Pleanála[10]. These include a programme of advance archaeological works prior to construction (a combination of further geophysical survey and testing trenching to be completed under license), archaeological monitoring and strict reporting requirements. The applicant is fully committed to completing all identified mitigation measures and requests that this be secured by means of any appropriately worded planning condition.

Based on the above, we respectfully request that a suitably worded condition be applied which will provide for the positive conclusion and resolution of all archaeological considerations in respect of the subject application. This approach will ensure that there will be no significant archaeological impacts and provides the National Monuments Service and Carlow County Council with the necessary safeguards to ensure this is the case. This approach is fully in accordance with the National Monuments Services own Solar Farm Developments – Internal Guidance Document (2016).

[10] Refer to Section 5 of the submitted Archaeological, Architectural and Cultural Heritage Impact Assessment by Rubicon Archaeology.

4.5 Water and Drainage Considerations

4.5.1 Flood Risk

All matters relating to potential flood risk and drainage have been investigated in detail as part of the subject proposal, with available resources from the Office of Public Works (OPW) consulted to establish the potential for any impacts.

The submitted report prepared by IE Consulting has identified that minor and limited area of the proposed grid connection route may be susceptible to an extreme flood event associated with the Kilmeany Stream. However, the proposed connection and cables are to be constructed underground within the public road network and designed in a manner to prevent the ingress of water. A horizontal directional drill (HDD) shall be used to cross under the Kilmeany Stream. The site of the substation component of the proposed does not fall within any within an indicative, predictive, historic or anecdotal flood zone., and therefore the potential flood risk of the overall proposed development is considered to be low.

Overall, and in consideration of the type and form of development proposed, this Site Specific Flood Risk Assessment indicates that the proposed substation and grid connection development is not predicted to result in an adverse impact to the hydrological regime of the area or increase flood risk elsewhere and is therefore considered to be appropriate from a flood risk perspective.

4.5.2 Drainage

Surface water drainage proposals for the proposed development have been developed to mimic the natural drainage patterns of the site and thereby be in accordance with the best management practices of Sustainable Drainage Systems (SuDS). Specifically, this includes the following:

- The proposed access track to the substation compound will be permeable allowing rainwater to infiltrate through the stone structure to the subsoil below;
- The compound construction is formed with permeable stone thus mimicking a soakaway scenario. ESB compound stone is single sized for the first 150mm for safety purposes. It then changes to a graded 6F2 material;
- The area to be drained includes the roofs and the bunded plinths. These are relatively minor in comparison to the overall compound area[11];
- Assuming even the most basic of infiltration rates down through the permeable compound stone, it is clear that the existing greenfield situation will be easily maintained;

The surface water generated in the hardstanding and bunded areas will discharge to the soakaway via a Class 1 Full Retention Oil Separator. The electrical transformer in the substation is oil filled equipment and, as such, is protected with impermeable bunds. Surface water generated in this bund will be pumped out by an oil sensitive pump ensuring that only non-contaminated water enters the site drainage network.

All storm water management measures will be subject to periodic testing, review and maintenance.

[11] Quantified as 1,592m² for the 110kV AIS substation option and 2,023m² for the 220kV AIS substation option, or 2,746m² for the potential GIS substation. Refer to the submitted Ballyloo Substation & Grid Connection - Construction Methodology.

4.6 Ecology

The application is supported by an Ecological Impact Assessment Report (EcIA) prepared by Ecology Ireland which provides a detailed overview of ecology within the proposed development site and the planned substation/interconnector cables, as well as identifying, quantifying and evaluating the potential effects arising from the construction and operation of the development on habitats, species and ecosystems in the surrounding area. The investigation of associated matters has been subject to extensive survey work, inclusive of winter bird surveys.

4.6.1 EcIA Findings

Field surveys of the proposed development site were carried out to inform the submitted Ecological Impact Assessment (EcIA). The proposed substation development site is currently considered to be of Local Importance (lower level) as it contains intensively managed agricultural land and regularly occurring species. There will be no permanent impacts on semi-natural habitats. The development footprint is confined to open intensively managed agricultural fields, which are considered to be of lower local ecological value.

With the exception of a potential section of the final underground cable route on private agricultural land, the grid connection is predominantly within the local road (Buildings and Artificial Surfaces – BL3). Any potential effects on ecology as a result of the proposed development are confined to the construction phase, which will be relatively short in duration (approximately 2 years) and will be insignificant due to the minor nature of the earthworks involved combined with the implementation of standard environmental controls as part of the project. The HDD crossing of the Kilmeany removes the requirement for works in or adjacent to a watercourse which is distantly upstream of the River Barrow and River Nore SAC (>9.5km upstream). No significant effects on designated sites, habitats, flora or fauna have been identified as a result of the proposed development.

Taking the above into consideration, it is deemed that the proposed development will result in a neutral effect on ecology overall.

4.6.2 Appropriate Assessment / Natura Impact Assessment

A Natura Impact Statement (NIS) also accompanies this application. The proposed development site has potential hydrological connectivity to the River Barrow and River Nore SAC and potential for significant effects during the project construction phase cannot be discounted without the implementation of best practice construction and operational design and control measures. Therefore, it cannot be concluded, that the proposed project will not have a significant effect on these Natura 2000 sites, without the consideration and analysis of further information. Therefore a Stage 2 NIS is required. This has considered the relevant qualifying interests indicated as having a potential impact-receptor pathway and identified best practice measures to ensure that potential pollutant sources are not released from the proposed development to the receiving environment such that there will be no risk of adverse effects on these Qualifying Features.

The report objectively concludes that the proposed development will not adversely affect the integrity of any Natura 2000 sites, and there is no reasonable scientific doubt in relation to this conclusion.

4.6.3 Biodiversity

The proposed substation / grid connection is component part of the permitted Ballyloo and Park Solar Farms, as well as the proposed Ballybannon Solar Farm. All three applications include focused Biodiversity Management Plans which were prepared as an integral part of these planning

applications. These BMPs have been tailored to reflect local ecological survey work completed, contributing positively to the protection and enhancement of the local ecosystems around the solar farm sites. These include specific management techniques like planting native wildflowers, creating pollinator habitats, and installing bat and bird boxes to support biodiversity, while also addressing potential impacts on existing habitats and species. These plans are underpinned landscape and maintenance management schedules for ongoing monitoring towards the achievement of biodiversity goals commensurate with the provision of a clean form of renewable energy.

The following table summarizes landscape figures for the three solar farm projects to be serviced by the subject substation / grid connection. They confirm that areas of small localized hedgerow removal will be offset by considerable landscaping planting in support of the principle of biodiversity gain across the local area.

Project	Hedgerow Removal	Planting
Ballyloo Solar Farm	47 linear metres	3,523 new linear metres of hedgerow. 13,425 linear metres of bolstered hedgerow. 2,611sqm native woodland.
Park Solar Farm	37 linear metres	392 new linear metres of hedgerow. 3,841 linear metres of bolstered hedgerow. 24,512sqm native woodland.
Ballybannon Solar Farm	240 linear metres[12]	441 new linear metres of hedgerow. 7,100 linear metres of bolstered hedgerow. 9,188 sqm of native woodland.
Total	324 linear metres	4,356 new linear metres of hedgerow. 25,983 linear metres of bolstered hedgerow. 36,311 sqm of native woodland.

4.7 EIA Screening

Under the Planning and Development Regulations 2001, current government and EU guidance, An Coimisiún Pleanála must screen the proposed development for Environmental Impact Assessment (EIA) and decide if the planning application for the proposed development does or does not require the preparation of an Environmental Impact Assessment Report (EIAR). This application includes an EIA Screening Statement made in support of the screening process. The proposed development has been screened for EIA having regard to relevant thresholds and it has been objectively concluded that the preparation of an Environmental Impact Assessment Report is not required.

[12] 180 metres of this relates to the removal of hedgerow to facilitate a sightline, as requested by Carlow County Council.

4.8 Noise

The application is accompanied by a Noise Impact Assessment Report by Wave Dynamics which has been prepared having regard to Statutory Instrument No. 549/2018 of the European Noise Regulations; BS 8233:2014; World Health Organisation noise guidelines, and the EPA guidance note for noise: NG4 Guidelines. The noise impact assessment included attended noise measurements on the proposed development lands. This included measurements of background noise at the noise sensitive locations.

The noise generating plant associated with the solar farm project are the inverters and the substation. As illustrated on the site layout plans, this plant is located centrally, away from local receptors. This is reflected in the findings of the noise assessment with the modelled noise levels (free field façade noise levels) are well below the recommended EPA/WHO/BS8233 guidelines of 55dB during day time and 45dB at night time.

The construction phase of development due to its nature is temporary and therefore any potential noise impacts will be short term. All construction works will be carried out during the day-time period between the 8.00am to 6.00pm Monday to Friday and 8.00am to 1.00pm on Saturday. No construction activities will occur outside these hours unless agreed in writing 24 hours prior by Carlow County Council. Potential noise impact will be controlled in accordance with all relevant British Standards Codes of practices such as: BS 5228-1: 1997 “Noise Control on Construction and Open Sites -Part 1”; BS 5228:2009 and AI:2014 “Code of practice for noise and vibration control on construction and open sites”. The applicant is happy to accept a condition limiting construction phase noise to 70dB for construction as per BS5228.

4.9 Lighting and CCTV

As detailed in the substation drawings by Ballyloo Solar Farm Limited, a number of external lights are proposed for safety purposes in the electrical compound to meet EirGrid requirements. This lighting will be operated manually from the substation building and used infrequently as needed for inspections during periods when natural light is unavailable. The lights will be designed to restrict any potential light scatter.

4.10 Health and Safety

There will be no electromagnetic health impacts from the project. Magnetic fields are produced through both natural and man-made means, with electromagnetic fields a by-product of electricity. Exposure to this is an everyday occurrence with typical household electromagnetic field levels summarised in. The key underlying principle is that the strength of a magnetic field reduces greatly as you move away from its source.

Solar farm projects, inclusive of substations / grid connections, can emit low levels EMF from transformers and underground cabling; however, the levels of EMF emitted are substantially lower than the basic restriction level which is the level at which radiation is potentially harmful to humans. The figure below shows a comparison of AC electric fields from common sources.

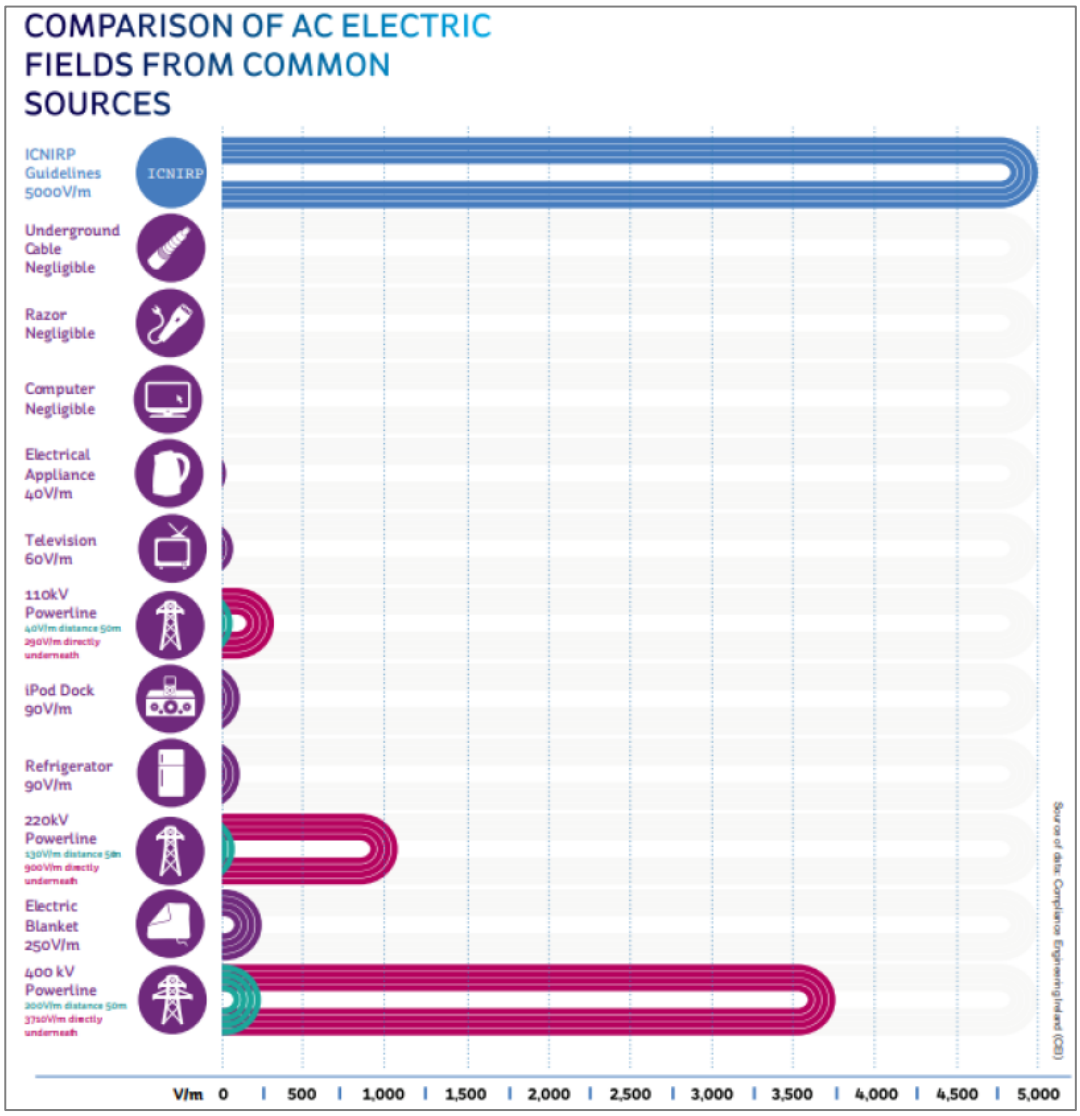


Figure 08: Comparison of AC electric fields from common sources

There are established guidelines for the control of electromagnetic fields:

- International Commission on Non-Ionising Radiation Protection (ICNIRP) Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300GHz). Health Physics 74 (4): 494-522; 1998
- EU Council Recommendation on the limitation of exposure of the general public to electromagnetic fields (0Hz to 300GHz) 1999/519/EC
- ICNIRP Guidelines for limiting exposure to time varying electric and magnetic fields (1Hz–100kHz) Health Physics 99(6):818-836; 2010
- Directive of the European Parliament and of the Council on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) 2013/35/EU

Irish government policy is to comply with the 1998 ICNIRP guidelines. Electromagnetic fields are measured using units of microtesla (μT) and the public limit advised by the EU EMF Recommendation and ICNIRP 1998 guidelines is 100 microtesla.

EMF strength decreases with distance relatively quickly. This is illustrated below which shows how exposure to EMF decreases with distance. As shown, when directly on top of a 220 kV cable the magnetic field is 2.32 µT, which is well below the 100 µT public limit. The EMF levels from the proposed development will be considerably lower than the ICNIRP recommendation of 100 µT. As the highest cable voltages at the proposed solar farm project are 220kV, the EMF levels will be considerably lower than the ICNIRP recommendation of 100 µT. At the 33kV/220kV transformer the expected level of EMF is less than 5 µT, which is also considerably lower than the ICNIRP recommendation of 100 µT. An EMF/EMC Impact Assessment Report was prepared for Ballyloo Solar Farm which considered a substation / grid connection in the local area. No potential for EMC or EMF impacts were identified.

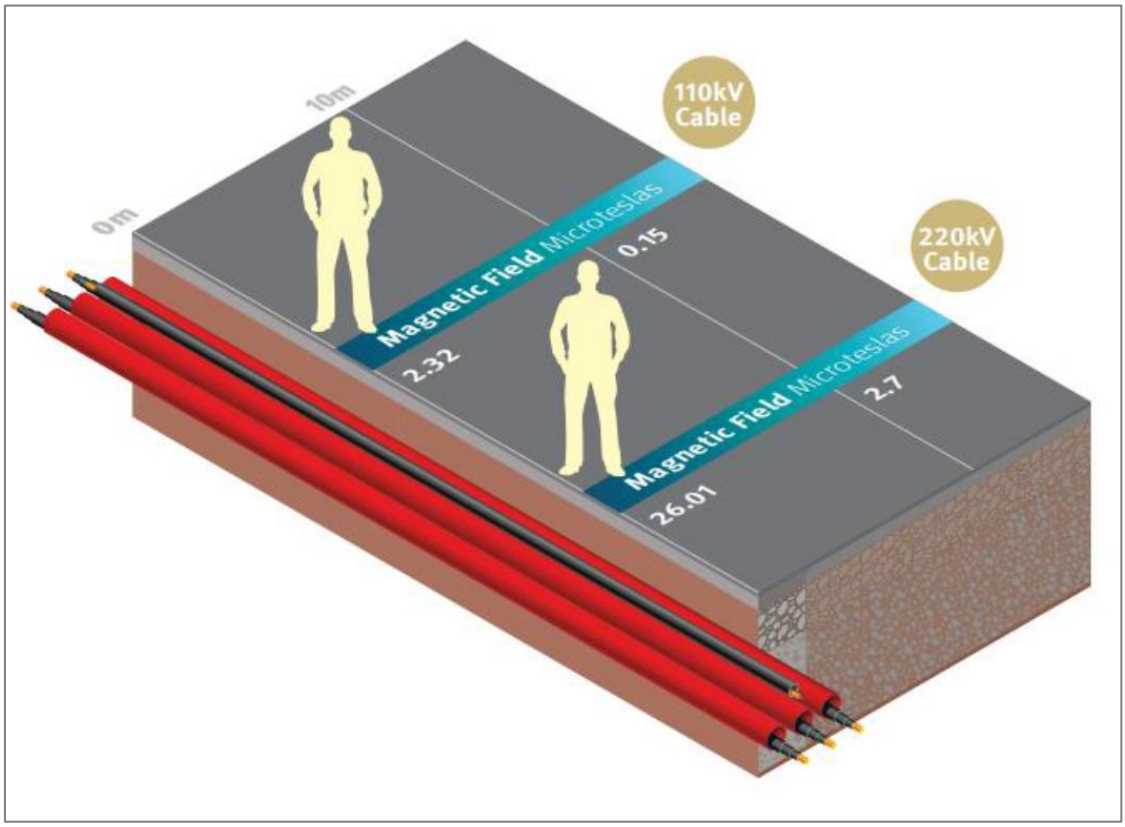


Figure 09: Illustration of decreasing scale of EMF exposure

Solar photovoltaic systems can emit low levels of EMFs from inverters/transformers and underground cabling. Recognised European studies have shown that the electromagnetic levels at inverters and transformers within solar photovoltaic farms such as the proposed development are considerably lower than the ICNIRP recommendation of 100 microtesla.

Elsewhere, An Coimisiún Pleanála precedent demonstrates that fire risk is not deemed to be a significant issue in the assessment of solar farm development. We note the comments contained within the Inspectors report for a solar farm development at Knockglass and Kilberrihert, Coachford, Co. Cork, whereby it was stated "there are no reasons to believe that there are fire risks associated with the proposed solar panels". This opinion is repeated within the inspectors report for a solar development in Coolroe, Tintern, Co. Wexford whereby the inspector states:

> *"there is no information available to suggest that a fire at the subject site would be a significant risk. The proposed arrays are comprised largely of glass and metal, and as such could not reasonably be considered as potential fuel for a fire, in my opinion."*

The collective issue of potential health and safety issues arising from solar farm developments was explored in detail as part of the Oral Hearing held for the Coolroe solar development. The Wexford County Council Planning Official who dealt with the file gave evidence that he engaged a number of local planning authorities in England to scope the extent of planning issues, including health and safety considerations. He advised that the potential for related issues was limited. In dealing with the file, the inspector's report corroborated this view:

> *"The planning officer discounts the issue of impacts on public health on the basis of UK documentation available. I concur with this position".*

In addition, in relation to the inverters, it should be noted that the correct design, construction and commissioning by suitably competent and experienced personnel, in accordance with cross disciplinary technical standards and best practice guidance will ensure the potential for fire is minimised. The following mitigations are standard measures for reducing fire risk for such infrastructure:

- Avoid negative earthing unless unavoidable
- Install DC (direct current) insulation monitors in inverters with connection through solar park monitoring system and a default setting to disconnect supplies if operator intervention is not forthcoming.
- Design of HV areas to IEC 62271-202.
- With regard to the inverter and transformer system, install both AC and DC insulation monitors with connection through solar park monitoring system and a default setting to disconnect supplies if there is no operator intervention after a set time period.

4.10.1 Communications

Both international academic and industry practitioner research confirms that Electromagnetic interference (EMI) from solar PV installations are very low risk, with appropriate siting of proposals and use of certified equipment rendering the potential for impacts on radio/television and mobile phone networks as negligible.

Within the European Union, all technical devices, including inverters for PV systems must comply with the requirements of the EMC Directive 89/336/EEC in terms of electromagnetic properties. As such, these components are certified to industrial standards where interference-free stability is a pre-condition for television, radio and mobile receptors.

Alongside the use of certified equipment and best-practice electrical design measures, the incorporation of suitable setback distances from communications equipment itself is recognised to negate residual potential for EMI. In April 2015, the National Laboratory of the U.S. Department of Energy (NREL) published a white paper on the deployment of solar PV near naval airfields and its potential for electromagnetic interference on communications infrastructure. It confirmed that emissions are typically low strength from such developments with "little to no EMI impact on communications or telemetry (transmission) equipment". In the UK, solar farms have been permitted immediately adjacent to mobile phone base stations/antennae without any quantifiable impacts on commercial operations. An independent assessment of Sudbrook Solar Farm, Severn Estuary, Monmouthshire, included a recommendation that a 15 m separation distance be maintained between the solar farm and an onsite mobile base station, with no further mitigation required. In the case of the subject proposal, the site boundary is c.2.1 km from the nearest telecommunications

mast site (Graiguenaspidogue) to southeast of substation. Based on technical tests, the proposal will not give rise to any impacts on telecommunications infrastructure in the local area.

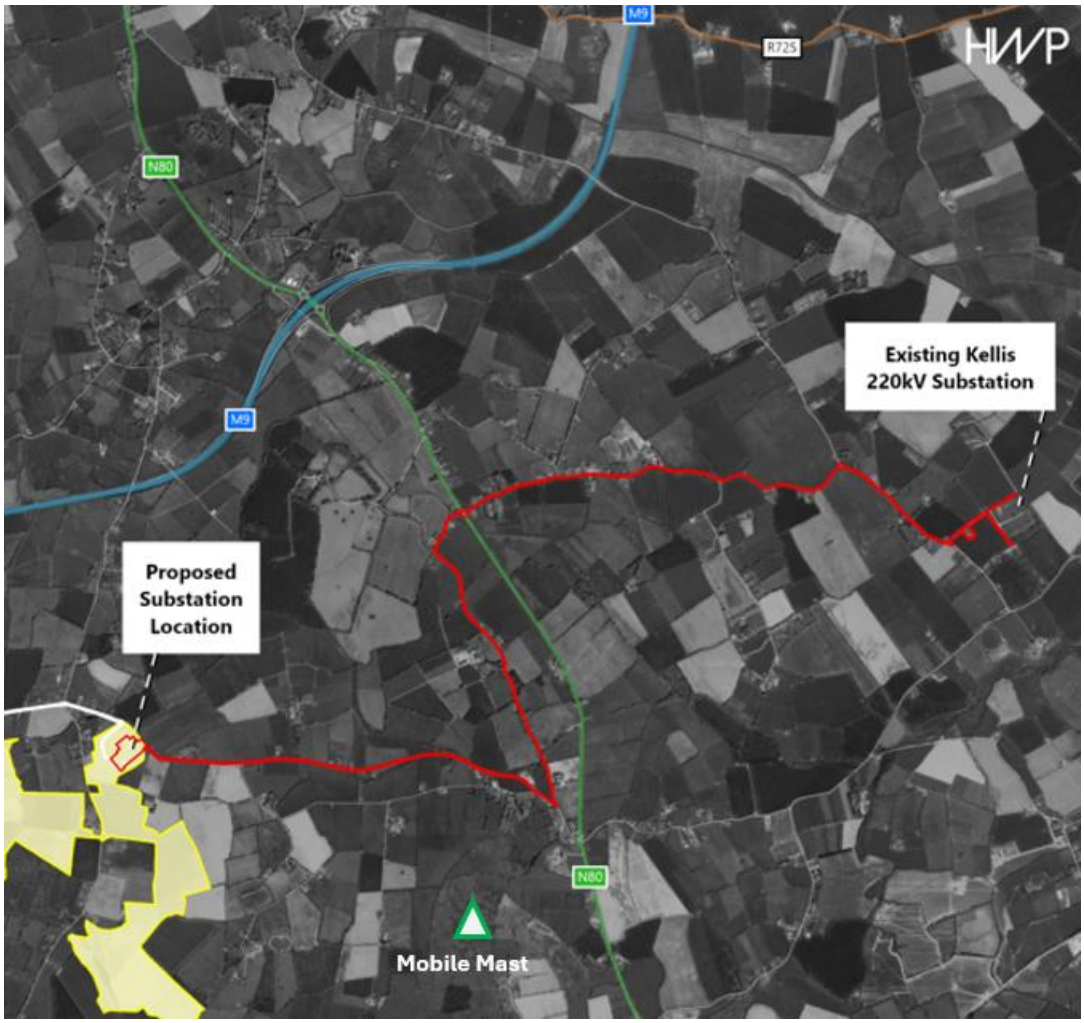


Figure 10: Location of nearest telecommunications mast site (Graiguenaspidogue) to southeast of substation

4.11 Project Implementation

4.11.1 Duration of Planning Permission

The solar farms associated with the subject substation and grid connection are expected to have an operational lifetime of up to 40 years. In the event that the solar farm is decommissioned at the end of this period, it is envisaged that the substation will remain in situ as valuable functioning infrastructure on the national electricity transmission network. As such, and in the event of a grant of planning permission, it is requested that the operational life of the substation not be time limited by means of an imposed planning condition.

4.11.2 Construction Management

As outlined, it is envisaged that the proposed substation and grid connection will be constructed as part of the proposed Ballyloo solar farm. The construction stage will last for 24 months and the process will be governed by strict environmental controls, as well as health and safety procedures. The civil works themselves are non-invasive, reflecting the temporary nature of the proposed development. A Construction Method Statement (CMS) for the substation / grid connection accompanies this application. It sets out a detailed suite of environmental protection measures to be

implemented on site during the construction phase. The CMS identifies all the potential issues which are relevant to the project, such as construction safety; traffic management; environmental risk assessment and management; waste management; and environmental management. The CMS specifically outlines how to address these and to provide solutions which are satisfactory to all concerned. The final CEMP will be further developed by the appointed contractor and will include a detailed traffic management plan and risk assessed method statements. The document will be agreed, where relevant, with the Council prior to the commencement of any development.

4.11.3 Operational Maintenance

Once operational, the collective solar farm projects will be run in accordance with a management plan prepared to ensure the development site is maintained in a manner which allows for its optimal technical operation and the meeting of any commitments made during the planning stage of the project. Alongside system performance, this will include routine inspection and monitoring in relation to ongoing planning compliance requirements. This will include implementation of landscape and habitat/biodiversity management plans and monitoring of ecology enhancements installed on the site to ensure their maintenance and improvement. The drainage regime for the substation will be subject to regular inspection and cleaning/clearing as necessary.

05 //

Community Consultation Report

5.1 Introduction

There is no formal obligation under statutory planning provisions to undertake community engagement in advance of lodging a planning application of this nature, however, the applicants have a proactive and strong track record of engaging with local communities.

In advance of submitting the local authority planning applications for Ballyloo, Park and Ballybannon Solar Farms, the Applicant Ballyloo Solar Farm Limited sought to inform and engage with interested parties in the local community. A community engagement programme was developed to inform this process of disseminating information on the respective solar farm projects, including the subject planned substation / grid connection, to gain an insight into local issues. A robust and inclusive community engagement process has been undertaken, providing valuable key insights to local concerns. This has informed the project design process.

5.2 Consultation Objectives

The main objectives of the programme of consultation was to:

- Encourage people who live locally, to have a say in the development of the proposals;
- Ensure that local people have access to accurate and factual information on all aspects of the proposals which may be of particular interest or concern to them;
- Provide the local community with the opportunity to shape the proposals, ensuring that any pertinent outcomes of community engagement have been reflected in the proposals as far as is possible;
- Ensure people have access to information detailing why the site was identified as suitable for solar PV development;
- Enable Ballaysallagh Solar Farm Limited to gauge public opinion regarding the proposals.

5.3 Consultation Undertaken

The process of identifying landowners and establishing the commercial and technical feasibility of a solar farm is critical to understanding the layout options and corresponding planning and environmental assessments which need to be completed. Early environmental surveys were ongoing on available lands in parallel with landowner discussions.

Once the planning boundary was agreed, the next stage considered the types of engagement that would be most effective to provide an opportunity for local households and businesses to air views on the proposed solar farm and discuss any issues or concerns they may have. To meet these objectives, it was resolved that the best means of engagement was to undertake door-to-door calls to individual properties immediately in the environs of the subject site to discuss the proposed solar farm development. While this would be more time consuming that holding an open forum ‘town-hall’

type meeting, it was considered that it would enable more meaningful discussion where everyone would get the opportunity to comment freely on proposals.

A Community Information Leaflet was produced to inform this process and distributed by hand to local residents. The leaflet, which is included at the end of this report, included summary information on the following:

- Overview of the proposed Ballyloo Solar Farm (and subsequent Park and Ballybannon Solar Farms);
- Energy in Ireland;
- Benefits of solar farms;
- Why this location was chosen for a solar farm;
- What the solar farm will look like;
- Planning application details;
- Client contact details.

The clear intent of this information was to generate an increased awareness of the project within the local community and encourage positive and meaningful engagement.

The consultation for the respective solar farms was undertaken as follows:

1. Ballyloo Solar Farm (16th January – 1st February 2024 and 4th June – 13th June 2024)
2. Park Solar Farm (22nd June – 10th July 2024)
3. Ballybannon Solar Farm (24th March – 17th April 2025)

They consisted of a personal visit from the applicants Community Liaison Officer (CLO) to 173 no. households in the area. These households were identified as being potentially impacted primarily on the basis of proximity, visual impact, construction traffic and other environmental issues. Each household visited was given the solar farm brochure and the CLO provided an overview of the solar farm, answered any queries households had and agreed to provide additional information where this was requested.

During the consultations, any concerns raised were discussed in detail. In a number of cases, feedback fed into design revisions including provision of additional focused landscaping screening measures. Every effort was made by the CLO to provide details on the proposed solar farms including the subject substation, including addressing any technical queries that arose.

5.4 Residential Amenity

The layout of the proposed substation / grid connection has considered proximity to existing residential properties in full. The proposed substation is an inland development, set back from public roads and residential properties. The nearest third party dwellings to the substation compound area are approximately 152 metres to the west, 160 metres to the north, and 259 metres away to the east. The application includes representative photomontage viewpoints from these locations which present the different substation options. VP1 (north) and VP2 (east) confirm no material visibility of any of the substation options from these properties. VP3 from the pubic road from the west confirms the top of substation compound for substation Options A and B will be part visible at the setback

distance. The GIS substation (Option C) presents as a singular structure resembling a large agricultural shed. As illustrated, no material visibility impacts will be experienced.

*Figure 11: Extract from photomontage VP 3, local road showing Substation Option A (Top) and Option C (Bottom_*

06 //

Conclusions

6.1 Summary

6.1.1 International and National Policy

Having regard to the commentary set out in this Planning and Environmental Statement, we consider the proposed development to be wholly acceptable in planning terms.

European policy is unequivocal that we are in the midst of climate and energy crises as reflected in the significant scaling up of renewable energy targets in recent years under REPowerEU. In addition to the need for decisive action to address key environmental challenges such as reduction in carbon emissions, there is a pronounced requirement to rapidly reduce the EU's dependence on Russian fossil fuels well before 2030 by accelerating the clean energy transition.

Critically, Ireland is one of the most energy import dependent countries in the EU which carries significant risks in relation to security of energy supply. To reduce its dependency, Ireland must increase the level of energy from renewable energy sources. This is one of the core strategies of the National Planning Framework, the Climate Action Plan and other national climate and energy policies.

Ireland has challenging climate and renewable electricity targets for 2030 including achieving a 51% reduction in overall greenhouse gas emissions by 2030 and to reach net-zero emissions by no later than 2050. Demand for electricity is forecast to increase by between 19% and 50% above existing capacity in the next decade in line with economic forecasts. As EirGrid has warned in its Generation Capacity Statement (2024) there is a challenging outlook for Ireland with capacity deficits identified during the 10 years to 2032. The deficits will increase up to 2025 due to the deteriorating availability of power plants, resulting in their unavailability ahead of intended retirement dates as well as increasing electricity demand. In later years, the deficits are expected to reduce as new capacity comes forward through the SEM capacity auctions. Ensuring we build renewable, rather than fossil fuel generation capacity to help meet this demand is essential. It is planned to increase the proportion of renewable electricity to up to 80% by 2030, and a target of 8 GW from solar by 2030.

The CRUs Enduring Connection Policy sets the terms and conditions of electricity generators' access to the electricity system and "prioritises, in the first instance, large renewable energy projects" in locations with viable grid connectivity. The proposed substation / underground grid connection will deliver a viable grid connection for 2 no. permitted solar farm projects (Ballyloo Solar Farm and Park Solar Farm), as well as for the proposed Ballybannon Solar Farm. It is important enabling infrastructure with significant environmental benefits.

The proposed development responds directly to all aforementioned policies as well as regional and local policy as set out in this report and other supporting reports prepared as part of the planning application. The transition to a low carbon economy, which includes decarbonisation as one its key pillars, is a national challenge. As we transition to a climate neutral future, we must ensure the

pathway to decarbonisation is underpinned by affordability and security in how we access and use energy in our everyday lives. Having a reliable source of energy is vital for consumers to have confidence in the transition.

6.1.2 Environmental Impact

The proposed substation and underground grid connection options have been designed in accordance with best practice industry standards to achieve optimum environmental conditions. The infrastructure will contribute positively to the achievement of renewable energy targets in an area of significant energy demand. Based on a review of the Carlow County Development Plan 2022-2028, there are no land use or policy-based designations which preclude favourable consideration of the proposed substation at this location. The prepared landscape and visual impact assessment has confirmed that that the substation will not give rise to any significant impacts. Traffic access during the construction phase will be managed in close consultation with the Area Engineer's Office and local residents. The Ecological Impact Assessment and Appropriate Assessment/Natura Impact Statement reports objectively conclude that the proposal will not result in any significant effects in relation to designated Natura 2000 sites, rather the collective solar farm projects will result in significant biodiversity gains to the receiving environment. Elsewhere, a review of historical records and detailed site investigations have confirmed that there are no issues with respect to flooding and site drainage. It has been objectively determined that the proposal will not have any adverse impacts with respect to noise, and a precautionary approach has been exercised in the design with generous buffers to existing residences in the local area. It has been demonstrated that the project will not have an adverse impact on archaeological heritage and a programme of survey investigations and/or testing will be completed prior to commencement of development in full consultation with the Department of Housing, Local Government and Heritage.

Overall, we consider that the subject proposal will not detract from the residential or visual amenities in the area or impact on the local environment, and instead, that it will contribute positively to the realisation of policy objectives in full accordance with the proper planning and sustainable development of the area.

07 //

Appendices

Appendix A – Schedule of Local Planning Applications

Summary of relevant planning applications in the area

Ref. Number	Distance from Subject Site	Status	Description
24/60205	0km	Granted Permission – 24/04/2025	A 10 Year planning permission for a solar farm with a total area of circa 73 hectares in the townlands of Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Linkardstown, Park and Tinryland in County Carlow. The solar farm will consist of solar panels on ground mounted frames, 11 no. single storey electrical inverter/transformer stations, 3 no. single storey spare parts containers, 2 no. Ring Main Units, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L1010, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 3 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and L3050), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. entrances from the L1022 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farm proposed under Carlow County Council Reference 24/60043, but will not alter infrastructure proposed under that application. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application
24/60043	0km	Granted Permission – 05/09/2025	A 10 Year Planning Permission for a solar farm with a total area of circa 192 hectares. The solar farm will consist of solar panels on ground mounted frames, 30 no. single storey electrical inverter/transformer stations, 4 no. single storey spare parts containers, 4 no. Ring Main Units, 8 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 2 no. stream deck crossings and 1 no. horizontal directional drill, temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 4 no. entrances from the L3051, L3052 and L3050. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application

25/60137	0km	Notification to grant – 31/10/25	A 10 Year Planning Permission for a solar farm with a total area of circa 57 hectares. The solar farm will consist of solar panels on ground mounted frames, 8 no. single storey electrical inverter/transformer stations, 2 no. single storey spare parts containers, 1 no. Ring Main Unit, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L4038, L8185, R448, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 5 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and the Dublin - Waterford railway), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. existing entrances from the R448 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farms proposed under Carlow County Council References 24/60043 and 24/60205, but will not alter infrastructure proposed under these applications. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application.
24/60410	0.1km	Granted Permission – 06/06/25	The replacement ("restringing") of the existing overhead line circuit conductor wires with a new higher capacity conductor • the strengthening of foundations at 7no. locations • shear block remedial works at 77no. locations • the strengthening of towers (i.e., member replacement) at 34no. locations • the replacement of 5.1km of earthwire • the painting of all structures • the replacement of insulating and ancillary hardware at structures • all associated works within the existing Kellis 220kV substation to accommodate the uprated 220kV OHL including uprating of the Great Island bay in Kellis 220kV substation.
24/60223	0.1km	Granted Permission – 20/09/2024	110kV underground electricity cabling and all associated ancillary site development works. The cabling will extend from and connect with permitted 110kV underground electricity cabling (under An Bord Pleanála reference ABP-313139-22) on the L30535 public road to a line bay in the Kellis 220kV substation.

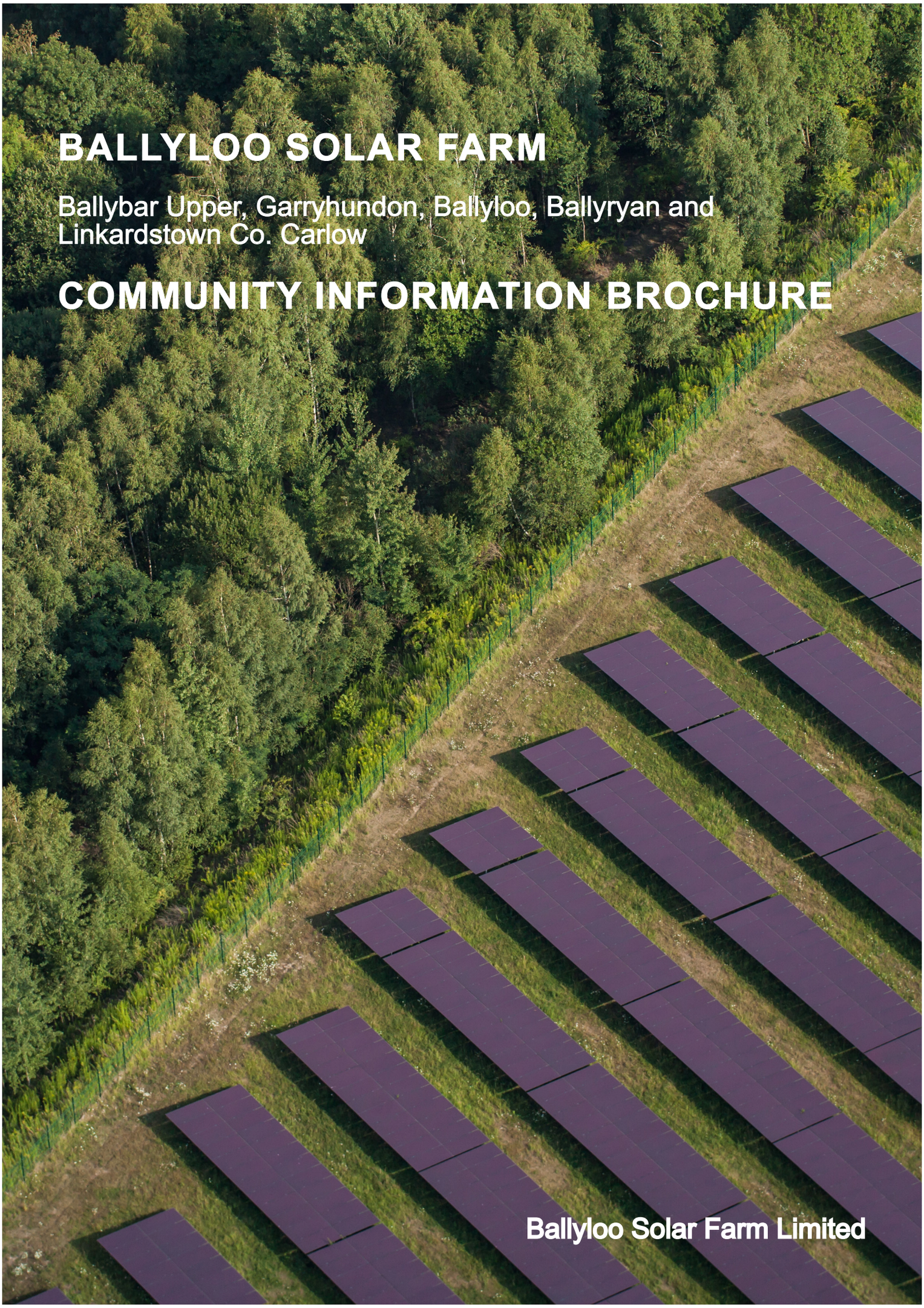
313139-22	0.1km	Granted Permission – 03/11/2022	Proposed 110kV substation and underground grid connection.
20143	0.1km	Granted Permission – 2/09/2021	A 10 year Planning Permission for a solar farm.
24/60295	2.0km	Live Application, Decision Due – 07/01/2026	Ten year planning permission for renewable energy development comprising of the construction of a solar farm.
ABP-303821	0.2km	Granted Permission – 23/09/2019	10 year permission for an up to 100MW Battery Energy Storage Facility providing energy services to the National Grid consisting of construction and operation of up to 34 metal containers.
ABP-320354	c. 5.5km	Live Application, Decision Due – 04/12/2024 (Decision delayed at Board)	Permission for the construction of 7 wind turbines and all associated works. A 10 year planning permission and 35 year operational life of the wind farm from the date of commissioning is sought. Environmental Impact Assessment Report and Natura Impact Statement submitted with application.
24/60295	c.2.4km	Live Application, Decision Due – 7/01/2026	Ten year planning permission for renewable energy development comprising of the construction of a solar farm.
24/60332	c. 1.8km	Granted Permission – 12/12/2024	the demolition of all existing structures within the Tinryland Wastewater Treatment Plant and the construction on an extended site (0.09 ha in total) which will consist of a new pumping station (17m2), new below-ground storm tank (total storage of 123m^3), replacement welfare facility (33m2), ground-mounted photovoltaic array (83 m2), new palisade perimeter fencing (2.4m high) and associated works; the construction of a new rising main and gravity main (3.7km in length) along the Nurney Road, L1023 and N80, connecting to the existing wastewater sewer at Ballinacarrig; and all ancillary and associated temporary works. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application

ABP-318295	c. 3.7km	Granted Permission – 21/11/2024	Construction of five wind turbines, meteorological mast, electricity substation and associated site works. The application is accompanied by a Planning Report, Environmental Impact Assessment Report and a Natura Impact Statement.
24/60149	c. 1.4km	Granted Permission – 27/09/2024	The expansion of the existing commercial store into the adjoining agricultural use buildings including raised roof height to the unit to the east and the provision of a retention pond and all associated ancillary works, the buildings will be repurposed as whiskey maturation warehouses
ABP-318475	c. 8km	Granted Permission – 04/06/2024	A ten year planning permission for a solar energy development with a total site area of 77 hectares and all associated site works.
ABP-315063	c. 0.1km	Granted Permission – 02/05/2024	Development of a synchronous condenser grid support facility and all associated works
ABP-315365	c. 5.5km	Granted Permission – 21/11/2023	Wind energy development consisting of 7 no. wind turbines and all associated works.
ABP-322690	c.0km	Live Application - due to be decided by 01/12/2025	Proposed 110kV electrical substation and grid connection.
ABP-321416	c.3km	Live Application – undetermined at present	Proposed development along a section of the N80 Road known as the N80 Leagh Bends Scheme.
21/23	c.3.75km	Granted 26/10/21	Construction of a Solar PV development and all associated site works.

23/92	c.3.85km	Granted 04/06/2024	A ten year planning permission for a solar energy development with a total site area of 77 hectares and all associated site works.
22/142	c.3km	Granted Permission – 22/03/2023	Clonmacshane Solar Farm.
ABP-314421	c. 460m	Granted Permission – 26/07/2022	To construct a 30m multi-user lattice telecommunications support structure, carrying antenna and dishes enclosed within a 2.4 metre high palisade fence compound together with associated ground equipment cabinets and associated site works including new access track and to replace existing gated access. The installation will form part of eir mobile telecommunications network. A Natura Impact Statement (N.I.S.) will accompany the planning application.

Appendix B – Community Consultation Leaflets

1. Ballyloo Solar Farm
2. Park Solar Farm
3. Ballybannon Solar Farm



BALLYLOO SOLAR FARM

Ballybar Upper, Garryhundon, Ballyloo, Ballyryan and Linkardstown Co. Carlow

COMMUNITY INFORMATION BROCHURE

Ballyloo Solar Farm Limited

Introduction

Ballyloo Solar Farm Limited is preparing a planning application for a proposed solar farm in the townlands of Ballybar Upper, Garryhundon, Ballyloo, Ballyryan and Linkardstown Co. Carlow. The site is circa 474 acres, located approximately 1.9 kilometres southwest of Tinryland, 5.1 kilometres northeast of Leighlinbridge and is situated on agricultural lands. This brochure is intended to provide information about the proposed development and a way to contact us with any queries you may have.

What is proposed as part of Ballyloo Solar Farm?

The Ballyloo Solar Farm will use solar panels to convert sunlight into electrical energy and can be characterised as follows:

- The panels will be placed onto support structures that are positioned south facing towards the sun.
- The structures are fixed and have no moving parts.
- Other equipment and works proposed as part of the solar farm includes modular containers which will include equipment such as inverters / transformers stations and spare parts, weather stations and new and refurbished access tracks.
- A new substation is proposed which will be located within the solar farm approximately 8.4km from the existing ESB Kellis substation. An underground cable grid connection will transport electricity from the new solar farm substation to the existing ESB Kellis substation.
- The solar farm does not include any battery storage and all electrical cables will be located underground.

The solar farm is proposed to have an electrical export capacity of 155 MW to the national electricity grid network. This is the equivalent of enough electricity to power almost 36,000 homes which may otherwise be powered by electricity from power stations using fossil fuels like coal, gas and oil.

Energy in Ireland

Ireland has very ambitious climate and energy targets. The ‘Climate Action Plan 2023’ sets out a major programme of change to achieve its primary target of net zero emissions by 2050. Demand for electricity is forecast to increase by approximately 37% within the next decade. The demand will be led by increasing population, the growth of data centres, industry and the use of electric vehicles and heat pumps.

The Climate Action Plan aims to increase the proportion of renewable electricity up to 80% by 2030 and sets out a target of 8,000 MW from solar farms by 2030. Renewables currently account for 38.6% of the electricity mix in Ireland. Ballyloo Solar Farm will generate up to approximately 155 MW and make a valuable contribution to our national targets as well as providing part of the solution to our growing electricity demand.

The Irish government is now providing subsidy support to solar farms in Ireland as a means of replacing fossil fuels and imported energy for use in electricity generation. Construction of the first wave of solar farms has already begun, with many expected to open in the coming months. Millvale Solar Farm (pictured below) in Ashford, Co. Wicklow opened in May 2022 and is the country’s first large-scale solar farm to supply electricity to Irish homes.

Millvale Solar Farm in Co. Wicklow

However, there remains substantial risks to achieving Irelands energy targets. EirGrid has forecasted that there will be a deficit in electricity generation from the mid 2020s up to and potentially beyond 2031. This means more imports as well as reliance on fossil fuels including gas, heavy fuel oil and coal. EirGrid has advised there is a real current and future risk of electricity supply disruption to homes and industry, stating:

“There is no question that the current outlook, based on the best information available, is serious. It is likely that in the coming years we will experience system alerts and will need to work proactively to mitigate the risk of more serious impacts”.

The Sustainable Energy Association of Ireland (SEAI) has advised that in 2021 almost 60% of our electricity generation still came from fossil fuels like gas, coal and oil. The Environmental Protection Agency’s (EPA) current emissions modelling shows that Ireland is not on target to achieve its key climate targets for 2030. These are worrying trends. We are now facing a global crisis that means our environment is under threat and can no longer be taken for granted. Climate change is the greatest challenge of our times and urgent action is required to prevent irreversible damage to our planet. The Ballyloo Solar Farm is part of a global shift towards sustainable electricity production and lower emissions aimed at combatting this challenge.

What are the benefits of the solar farms?

Solar farms have a number of advantages that make it particularly suitable to meet today's energy challenges.

- Solar energy is derived from light from the sun which is a free natural resource. Ireland is ideally suited to solar energy as we have sunlight up to 10pm during the summer months.
- Solar farms, when constructed, are benign, unobtrusive, non-invasive, silent and allow agricultural activities to continue on the lands.
- Solar is one of the cheapest sources of electricity available.
- The sector not only creates renewable electricity; it also creates jobs, new business models and start-ups.
- Solar farms can be constructed and operational very quickly and have very low maintenance requirements.
- In Europe there has been heavy reliance on gas imports from Russia for electricity generation. The European Union strategy is to replace this gas with renewables including solar energy.
- In Ireland, our energy system is dependent on fossil fuel imports such as gas, oil and coal which are used for generating electricity in power stations. Energy markets have proven volatile in recent years and in Ireland there is a real and urgent need to secure energy self-sufficiency and not be dependent on other countries. Solar farms are key for achieving this objective.

Why choose this location for a solar farm?

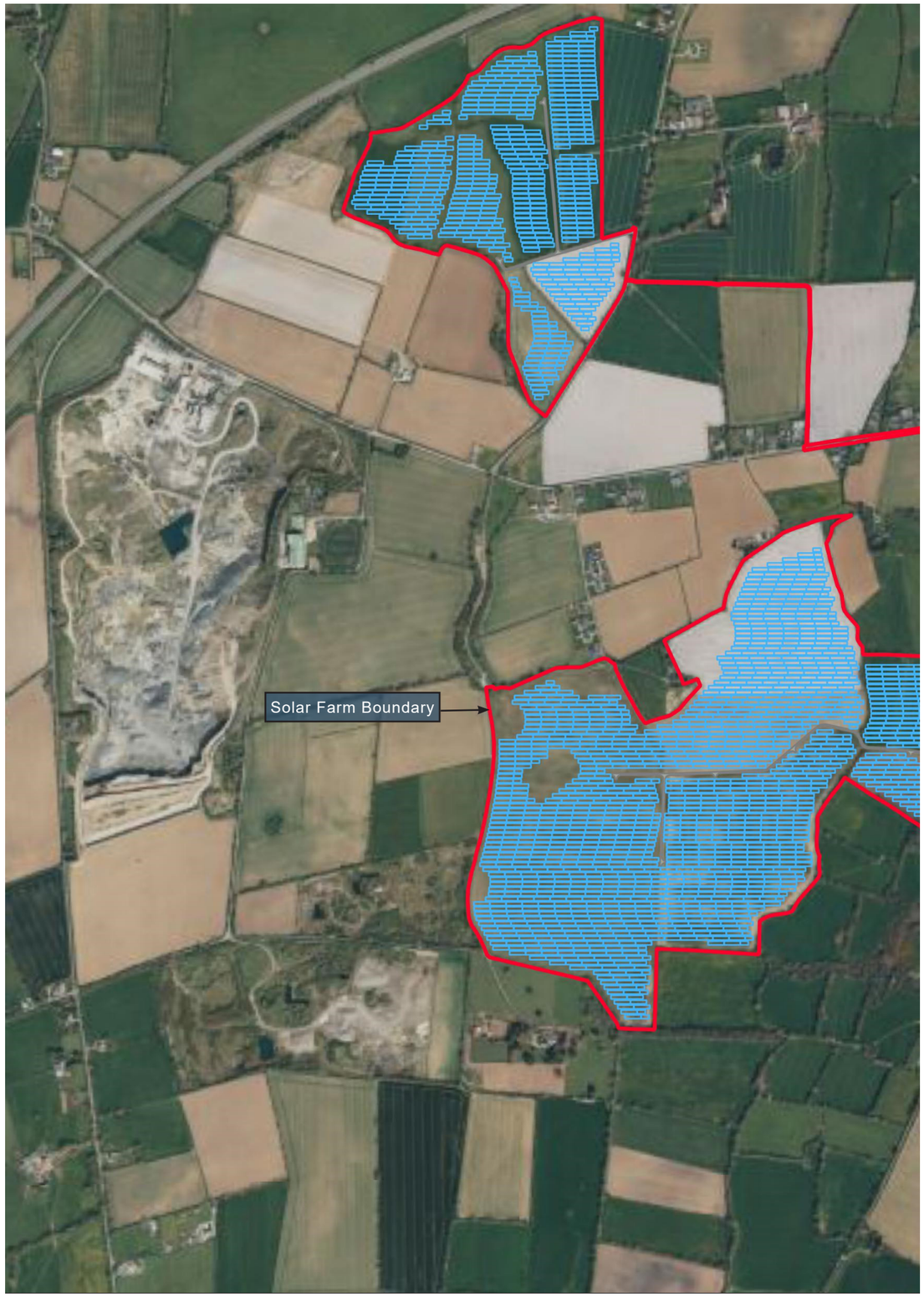
The process of identifying a solar farm site is influenced by a number of factors including:

- **Land:** available and suitable lands are the starting point for any solar farm. We are partnering with landowners who are supportive of renewables and solar development.
- **Solar irradiance:** a site with good irradiance or sunlight energy has higher capacity to generate electricity than sites with poor irradiance.
- **Planning policy:** local planning policy in relation to climate, renewables and solar is one of the key factors which can influence the decision to progress with a solar farm development. In this case, the planning policies in the Carlow County Development Plan 2022-2028 contain substantial support in these areas.
- **Grid connection:** a connection to the national grid to export electricity from the solar farm is also of crucial importance. The existing Kellis 220kV substation is located in proximity to Ballyloo Solar Farm and has available capacity to accept renewable electricity from this development.

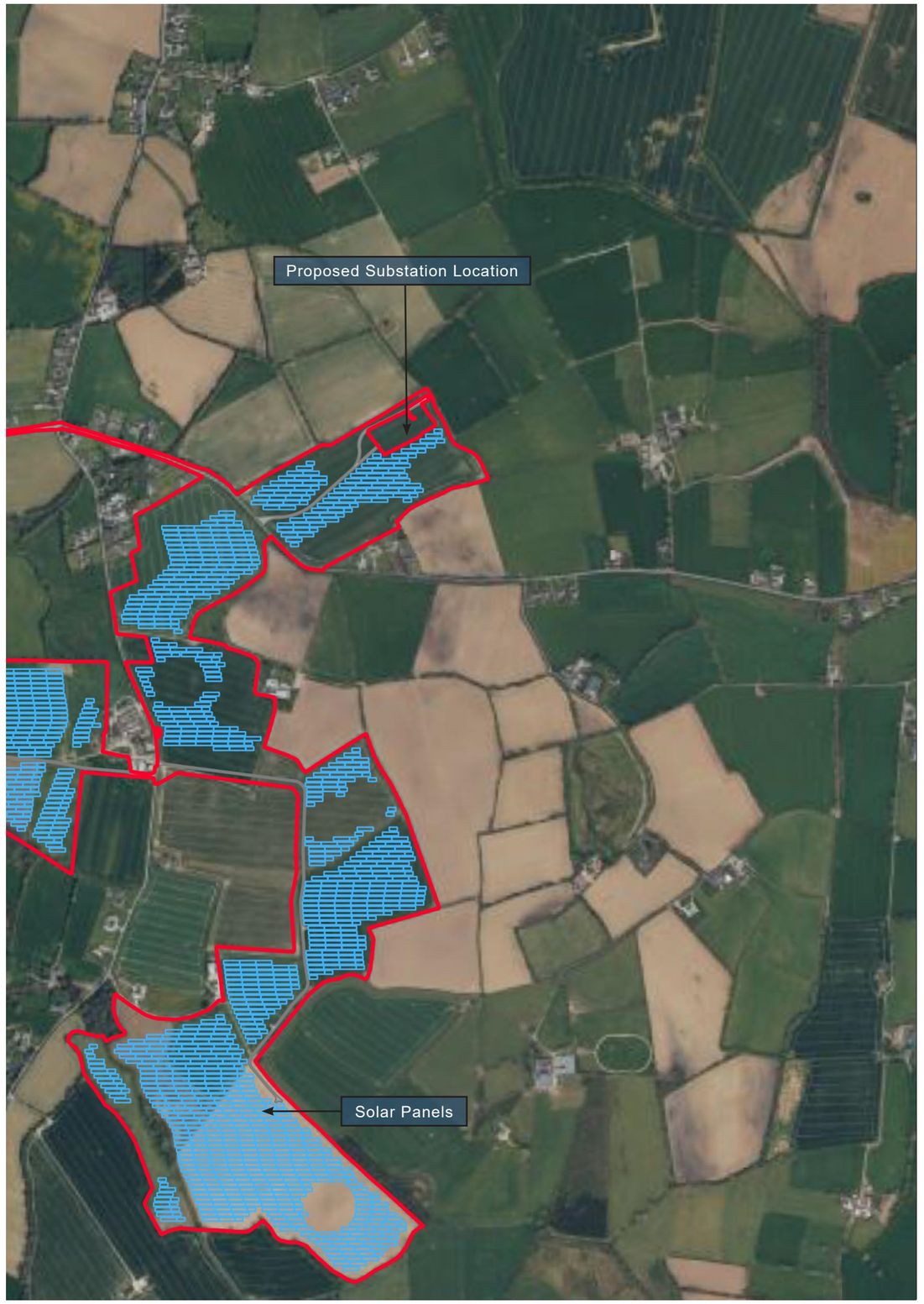
What will the solar farm look like?

- The panels will reach a maximum height of 3.25 metres so would rarely be glimpsed beyond the site's surrounding hedgerows and trees. Each solar panel will be placed onto a pre-erected frame, tilted up to 30 degrees and will face south towards the sun. The frames are arranged into a series of rows with up to 4 metres of clear space between the panel rows.
- There will be minimal ground disturbance during the construction of the project. The land can continue to be used for agricultural activity such as sheep grazing.
- The solar farm layout has been designed to minimise impact on local plants and animals. Mammal friendly fencing will allow local fauna to move freely across the site undisturbed. The wide field margins and areas of open grassland will be managed to create and enhance habitats for local birds and other wildlife.
- The existing field boundaries will be maintained, and the existing hedgerows will be supplemented with new planting to aid in panel screening. Hedgerows will be maintained to ensure a minimal effect on current views.
- The operation of the solar farm will be of minimal disturbance to local residents, walkers or motorists. The solar panels are specifically designed to absorb daylight so any reflection of light is dull and minimal.
- Security fencing up to 2.4m height and CCTV cameras directed internally within the solar farm only (i.e. there will be no camera directed on other properties). These will ensure no unauthorised access is possible.

Example of Solar Arrays on Solar Farm



Ballyloo Solar Farm: Site Layout (Sheet 1)



Ballyloo Solar Farm: Site Layout (Sheet 2)

Is planning permission required?

Yes, a planning application for the solar farm will be submitted to Carlow County Council and there will be an opportunity to make a submission on the application if you wish. The planning application will be available to view on the Council's planning website https://www.eplanning.ie/CarlowCC/SearchExact. Several site notices will be erected in the community to advise of the application. The substation and underground cable grid connection will require an application to An Bord Pleanála at a later date and again, notices will be erected in line with statutory requirements.

In support of the solar farm planning application, we appointed an experienced team of independent consultants to prepare reports relating to different environmental and engineering aspects of the development. These reports included landscape and visual, noise, glint and glare, archaeology, ecology etc. All reports will be included in the planning application to Carlow County Council.

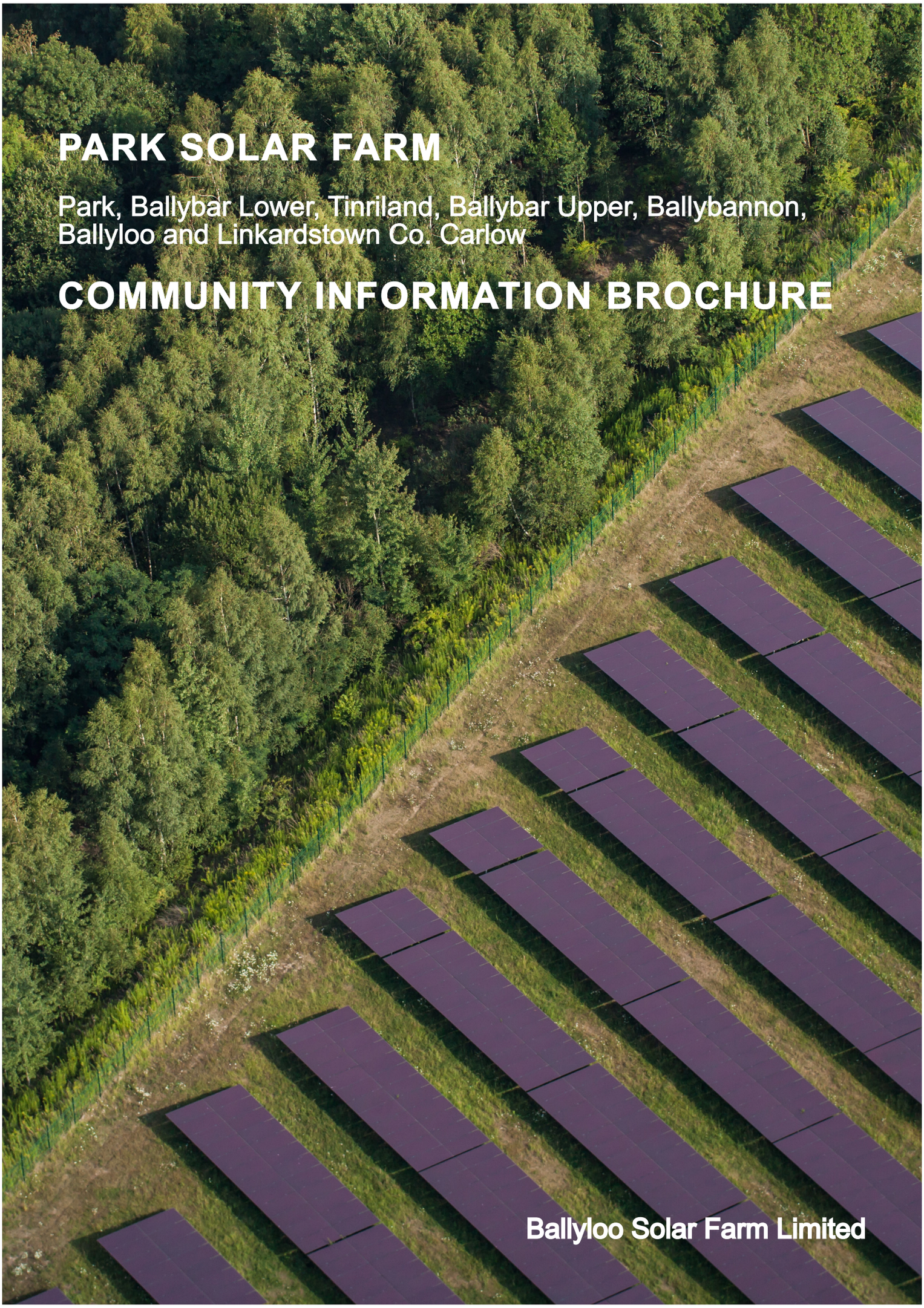
The operational lifetime of the solar farm will be 40 years. At the end of 40 years the solar farm will be removed in consultation with Carlow County Council and the land reinstated where it can continue to be used for agricultural purposes. The planning permission will specify the operational lifetime of the solar farm.

About Ballyloo Solar Farm Limited

Ballyloo Solar Farm Limited is a company set up by Terra Solar. Terra Solar was established in 2015 to develop, finance, construct and operate solar farms in Ireland. To date we have consented approximately 35 solar farms in Ireland. We are committed to developing well designed solar farms which will contribute towards Ireland's ambitious renewable and climate targets for 2030 and beyond.

How do we get in touch?

For further information on Ballyloo Solar Farm, please contact Community Liaison Officer Paul Stack on his mobile at 087 275 1612 or by email: paulstack@terrasolar.ie



PARK SOLAR FARM

Park, Ballybar Lower, Tinriland, Ballybar Upper, Ballybannon, Ballyloo and Linkardstown Co. Carlow

COMMUNITY INFORMATION BROCHURE

Ballyloo Solar Farm Limited

Introduction

Ballyloo Solar Farm Limited is preparing a planning application for a proposed solar farm in the townlands of Park, Ballybar Lower, Tinriland, Ballybar Upper, Ballybannon, Ballyloo and Linkardstown Co. Carlow. The site is circa 182 acres, located approximately 0.5 kilometres northwest of Tinryland, 3.4 kilometres south of Carlow town and is situated on agricultural lands. This brochure is intended to provide information about the proposed development and a way to contact us with any queries you may have.

What is proposed as part of Park Solar Farm?

The Park Solar Farm will use solar panels to convert sunlight into electrical energy and can be characterised as follows:

- The panels will be placed onto support structures that are positioned south facing towards the sun.
- The structures are fixed and have no moving parts.
- Other equipment and works proposed as part of the solar farm includes modular containers which will include equipment such as inverters / transformers stations and spare parts, weather stations and new and refurbished access tracks.
- The solar farm will connect into the same porposed substation as the adjacent Ballyloo Solar Farm which is currently the subject of a planning application to Carlow County Council. An underground cable grid connection will transport electricity from the new substation to the existing ESB Kellis substation.
- The solar farm does not include any battery storage and all electrical cables will be located underground.

The solar farm is proposed to have an electrical export capacity of up to 50 MW to the national electricity grid network. This is the equivalent of enough electricity to power 18,000 homes which may otherwise be powered by electricity from power stations using fossil fuels like coal, gas and oil.

Energy in Ireland

Ireland has very ambitious climate and energy targets. The ‘Climate Action Plan 2024’ sets out a major programme of change to achieve its primary target of net zero emissions by 2050.

The Plan aims to increase the proportion of renewable electricity up to 80% by 2030 and sets out a target of 8,000 MW from solar farms by 2030. Renewables currently account for 38.6% of the electricity mix in Ireland. Park Solar Farm will generate up to approximately 50 MW and make a valuable contribution to our national targets as well as providing part of the solution to our growing electricity demand.

The Irish government is now providing subsidy support to solar farms in Ireland as a means of replacing fossil fuels and imported energy for use in electricity generation. Construction of the first wave of solar farms has already begun, with many expected to open in the coming months. Millvale Solar Farm (pictured below) in Ashford, Co. Wicklow opened in May 2022 and is the country’s first large-scale solar farm to supply electricity to Irish homes.

Millvale Solar Farm in Co. Wicklow

According to EirGrid, demand for electricity is forecast to increase by approximately 43% within the next decade. The demand will be led by increasing population, the growth of data centres, electrification of heating and transport as well as the electrification of industrial demand processes. However, there remains substantial risks to achieving Irelands energy targets. EirGrid has forecasted that there will be a deficit in electricity generation in the mid 2020s up to and potentially beyond 2030 unless ambitious climate targets in the Climate Action Plan are achieved. Managing the deficit also relies on short term emergency measures proposed by the Commission for the Regulation of Utilities including the extended operation of power plants which rely on fossil fuels for operations. EirGrid has advised there is a real risk of electricity supply disruption to homes and industry, stating there is a tightness between electricity supply and demand and an increased risk of system alerts in the coming years.

The Environmental Protection Agency’s (EPA) current emissions modelling shows that Ireland is not on target to achieve its key climate targets for 2030. These are worrying trends. We are now facing a global crisis that means our environment is under threat and can no longer be taken for granted. Climate change is the greatest challenge of our times and urgent action is required to prevent irreversible damage to our planet. The Park Solar Farm is part of a global shift towards sustainable electricity production and lower emissions aimed at combatting this challenge.

What are the benefits of the solar farms?

Solar farms have a number of advantages that make it particularly suitable to meet today's energy challenges.

- Solar energy is derived from light from the sun which is a free natural resource. Ireland is ideally suited to solar energy as we have sunlight up to 10pm during the summer months.
- Solar farms, when constructed, are benign, unobtrusive, non-invasive and allow agricultural activities to continue on the lands.
- Solar is one of the cheapest sources of electricity available.
- The sector not only creates renewable electricity; it also creates jobs, new business models and start-ups.
- Solar farms can be constructed and operational very quickly and have very low maintenance requirements.
- In Europe there has been heavy reliance on gas imports from Russia for electricity generation. The European Union strategy is to replace this gas with renewables including solar energy.
- In Ireland, our energy system is dependent on fossil fuel imports such as gas, oil and coal which are used for generating electricity in power stations. Energy markets have proven volatile in recent years and in Ireland there is a real and urgent need to secure energy self-sufficiency and not be dependent on other countries. Solar farms are key for achieving this objective.

Why choose this location for a solar farm?

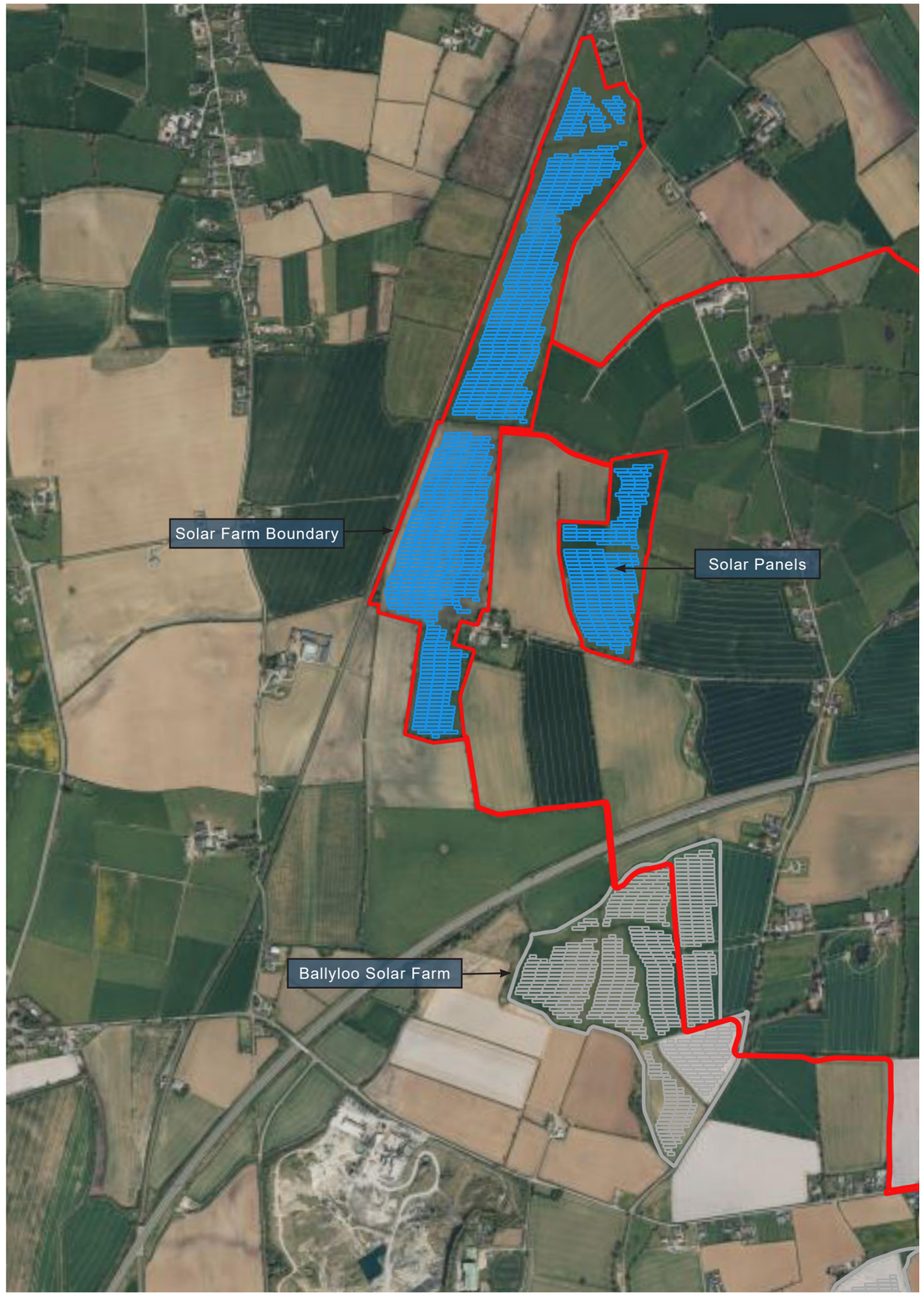
The process of identifying a solar farm site is influenced by a number of factors including:

- **Land:** available and suitable lands are the starting point for any solar farm. We are partnering with landowners who are supportive of renewables and solar development.
- **Solar irradiance:** a site with good irradiance or sunlight energy has higher capacity to generate electricity than sites with poor irradiance.
- **Planning policy:** local planning policy in relation to climate, renewables and solar is one of the key factors which can influence the decision to progress with a solar farm development. In this case, the planning policies in the Carlow County Development Plan 2022-2028 contain substantial support in these areas.
- **Grid connection:** a connection to the national grid to export electricity from the solar farm is also of crucial importance. The existing Kellis 220kV substation is located in proximity to Park Solar Farm and has available capacity to accept renewable electricity from this development.

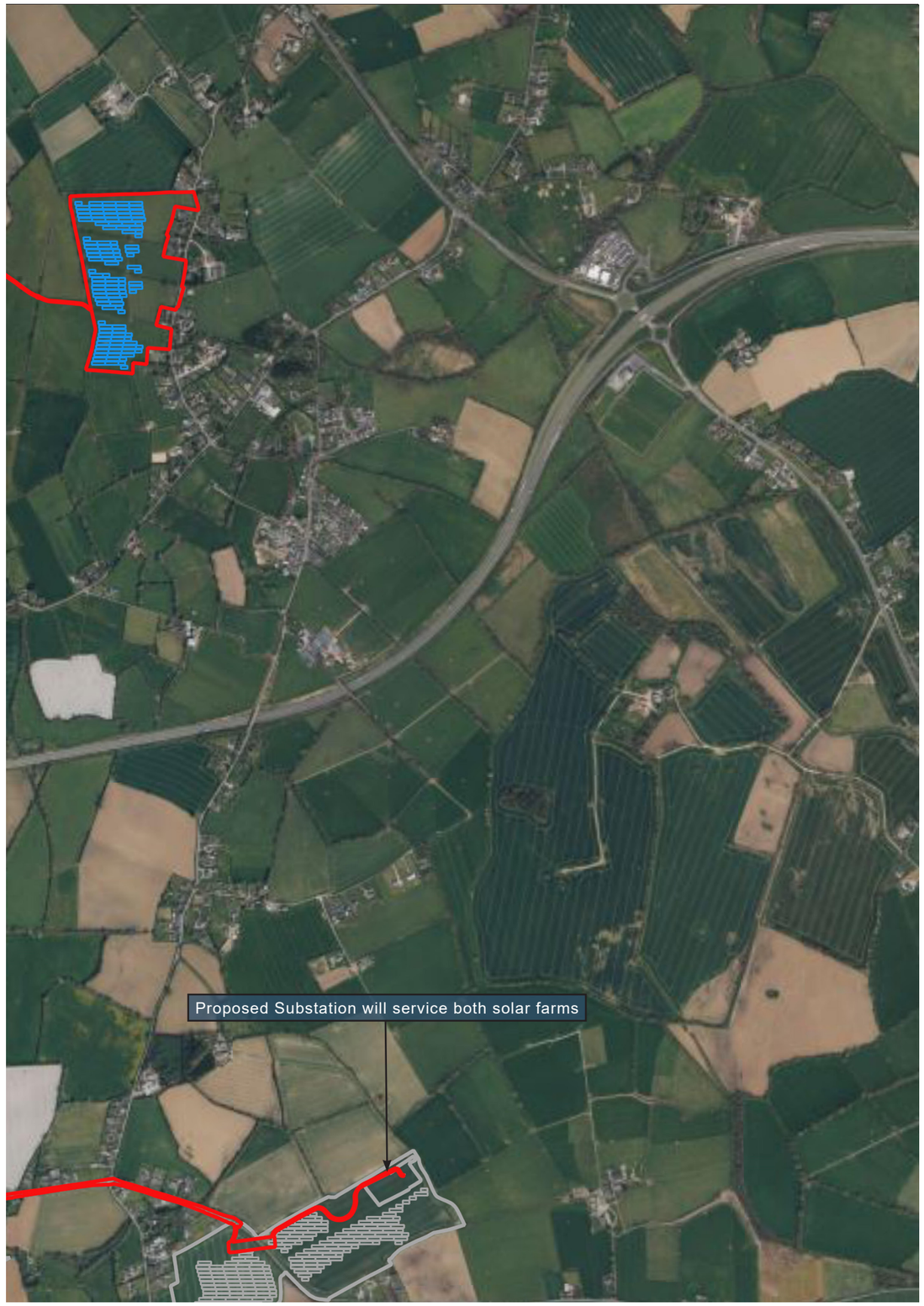
What will the solar farm look like?

- The panels will reach a maximum height of 3.25 metres so would rarely be glimpsed beyond the site's surrounding hedgerows and trees. Each solar panel will be placed onto a pre-erected frame, tilted up to 25 degrees and will face south towards the sun. The frames are arranged into a series of rows with up to 4 metres of clear space between the panel rows.
- There will be minimal ground disturbance during the construction of the project. The land can continue to be used for agricultural activity such as sheep grazing.
- The solar farm layout has been designed to minimise impact on local plants and animals. Mammal friendly fencing will allow local fauna to move freely across the site undisturbed. The wide field margins and areas of open grassland will be managed to create and enhance habitats for local birds and other wildlife.
- The existing field boundaries will be maintained, and the existing hedgerows will be supplemented with new planting to aid in panel screening. Hedgerows will be maintained to ensure a minimal effect on current views.
- The operation of the solar farm will be of minimal disturbance to local residents, walkers or motorists. The solar panels are specifically designed to absorb daylight so any reflection of light is dull and minimal.
- Security fencing up to 2.4m height and CCTV cameras directed internally within the solar farm only (i.e. there will be no camera directed on other properties). These will ensure no unauthorised access is possible.

Example of Solar Arrays on Solar Farm



Park Solar Farm: Site Layout (Sheet 1)



Park Solar Farm: Site Layout (Sheet 2)

Is planning permission required?

Yes, a planning application for the solar farm will be submitted to Carlow County Council and there will be an opportunity to make a submission on the application if you wish. The planning application will be available to view on the Council's planning website https://www.eplanning.ie/CarlowCC/SearchExact. Several site notices will be erected in the community to advise of the application. The substation and underground cable grid connection to the existing Kellis substation will require an application to An Bord Pleanála at a later date and again, notices will be erected in line with statutory requirements.

In support of the solar farm planning application, we appointed an experienced team of independent consultants to prepare reports relating to different environmental and engineering aspects of the development. These reports included landscape and visual, noise, glint and glare, archaeology, ecology etc. All reports will be included in the planning application to Carlow County Council.

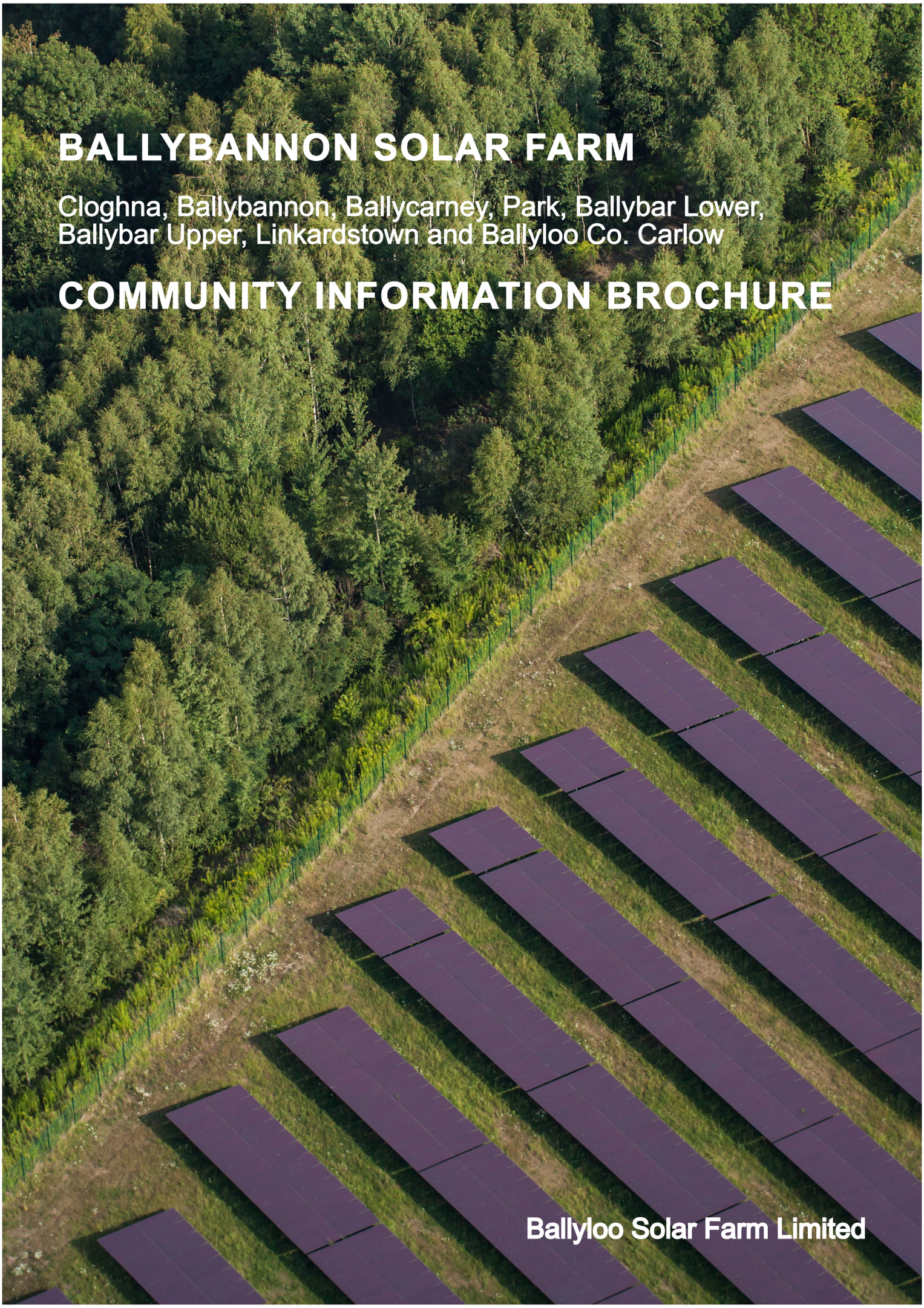
The operational lifetime of the solar farm will be 40 years. At the end of 40 years the solar farm will be removed in consultation with Carlow County Council and the land reinstated where it can continue to be used for agricultural purposes. The planning permission will specify the operational lifetime of the solar farm.

About Ballyloo Solar Farm Limited

Ballyloo Solar Farm Limited is a company set up by Terra Solar. Terra Solar was established in 2015 to develop, finance, construct and operate solar farms in Ireland. To date we have secured full planning permission on over 4,000 acres across 35 solar farms in Ireland. We are committed to developing well designed solar farms which will contribute towards Ireland's ambitious renewable and climate targets for 2030 and beyond.

How do we get in touch?

For further information on Park Solar Farm, please contact Community Liaison Officer Paul Stack on his mobile at 087 275 1612 or by email: paulstack@terrasolar.ie



BALLYBANNON SOLAR FARM

Cloghna, Ballybannon, Ballycarney, Park, Ballybar Lower, Ballybar Upper, Linkardstown and Ballyloo Co. Carlow

COMMUNITY INFORMATION BROCHURE

Ballyloo Solar Farm Limited

Introduction

Ballyloo Solar Farm Limited is preparing a planning application for a proposed solar farm in the townlands of Cloghna, Ballybannon, Ballycarney, Park, Ballybar Lower, Ballybar Upper, Linkardstown and Ballyloo Co. Carlow. The site is circa 125 acres, located approximately 2.1 kilometres west of Tinryland, 3.4 kilometres south of Carlow town and is situated on agricultural lands. This brochure is intended to provide information about the proposed development and a way to contact us with any queries you may have.

What is proposed as part of Ballybannon Solar Farm?

The Ballybannon Solar Farm will use solar panels to convert sunlight into electrical energy and can be characterised as follows:

- The panels will be placed onto support structures that are positioned south facing towards the sun.
- The structures are fixed and have no moving parts.
- Other equipment and works proposed as part of the solar farm includes modular containers which will include equipment such as inverters / transformers stations and spare parts, weather stations and new and refurbished access tracks.
- The solar farm will connect into the same proposed substation as the adjacent Park Solar Farm, as well as the Ballyloo Solar Farm, which are currently the subject of ongoing planning applications. An underground grid connection cable will transport electricity from the new substation which is located near the Ballyloo Solar Farm to the existing ESB Kellis substation.
- The solar farm does not include any battery storage and all electrical cables will be located underground.

The solar farm is proposed to have an electrical export capacity of up to 38 MW to the national electricity grid network. This is the equivalent of enough electricity to power 18,000 homes which may otherwise be powered by electricity from power stations using fossil fuels like coal, gas and oil.

Energy in Ireland

Ireland has very ambitious climate and energy targets. The ‘Climate Action Plan 2024’ sets out a major programme of change to achieve its primary target of net zero emissions by 2050.

The Plan aims to increase the proportion of renewable electricity up to 80% by 2030 and sets out a target of 8,000 MW from solar farms by 2030. Renewables currently account for 40.76% of the electricity mix in Ireland. Ballybannon Solar Farm will generate up to approximately 38 MW and make a valuable contribution to our national targets as well as providing part of the solution to our growing electricity demand.

The Irish government is now providing subsidy support to solar farms in Ireland as a means of replacing fossil fuels and imported energy for use in electricity generation. Construction of the first wave of solar farms has already begun. Millvale Solar Farm (pictured below) in Ashford, Co. Wicklow opened in May 2022 and is the country’s first large-scale solar farm to supply electricity to Irish homes.

Millvale Solar Farm in Co. Wicklow

According to EirGrid, demand for electricity is forecast to increase by approximately 43% within the next decade. The demand will be led by increasing population, the growth of data centres, electrification of heating and transport as well as the electrification of industrial demand processes. However, there remains substantial risks to achieving Irelands energy targets. EirGrid has forecasted that there will be a deficit in electricity generation in the mid 2020s up to and potentially beyond 2030 unless ambitious climate targets in the Climate Action Plan are achieved. Managing the deficit also relies on short term emergency measures proposed by the Commission for the Regulation of Utilities including the extended operation of power plants which rely on fossil fuels for operations. EirGrid has advised there is a real risk of electricity supply disruption to homes and industry, stating there is a tightness between electricity supply and demand and an increased risk of system alerts in the coming years.

The Environmental Protection Agency’s (EPA) current emissions modelling shows that Ireland is not on target to achieve its key climate targets for 2030. These are worrying trends. We are now facing a global crisis that means our environment is under threat and can no longer be taken for granted. Climate change is the greatest challenge of our times and urgent action is required to prevent irreversible damage to our planet. Ballybannon Solar Farm is part of a global shift towards sustainable electricity production and lower emissions aimed at combatting this challenge.

What are the benefits of the solar farms?

Solar farms have a number of advantages that make it particularly suitable to meet today's energy challenges.

- Solar energy is derived from light from the sun which is a free natural resource. Ireland is ideally suited to solar energy as we have sunlight up to 10pm during the summer months.
- Solar farms, when constructed, are benign, unobtrusive, non-invasive and allow agricultural activities to continue on the lands.
- Solar is one of the cheapest sources of electricity available.
- The sector not only creates renewable electricity; it also creates jobs, new business models and start-ups.
- Solar farms can be constructed and operational very quickly and have very low maintenance requirements.
- In Europe there has been heavy reliance on gas imports from Russia for electricity generation. The European Union strategy is to replace this gas with renewables including solar energy.
- In Ireland, our energy system is dependent on fossil fuel imports such as gas, oil and coal which are used for generating electricity in power stations. Energy markets have proven volatile in recent years and in Ireland there is a real and urgent need to secure energy self-sufficiency and not be dependent on other countries. Solar farms are key for achieving this objective.

Why choose this location for a solar farm?

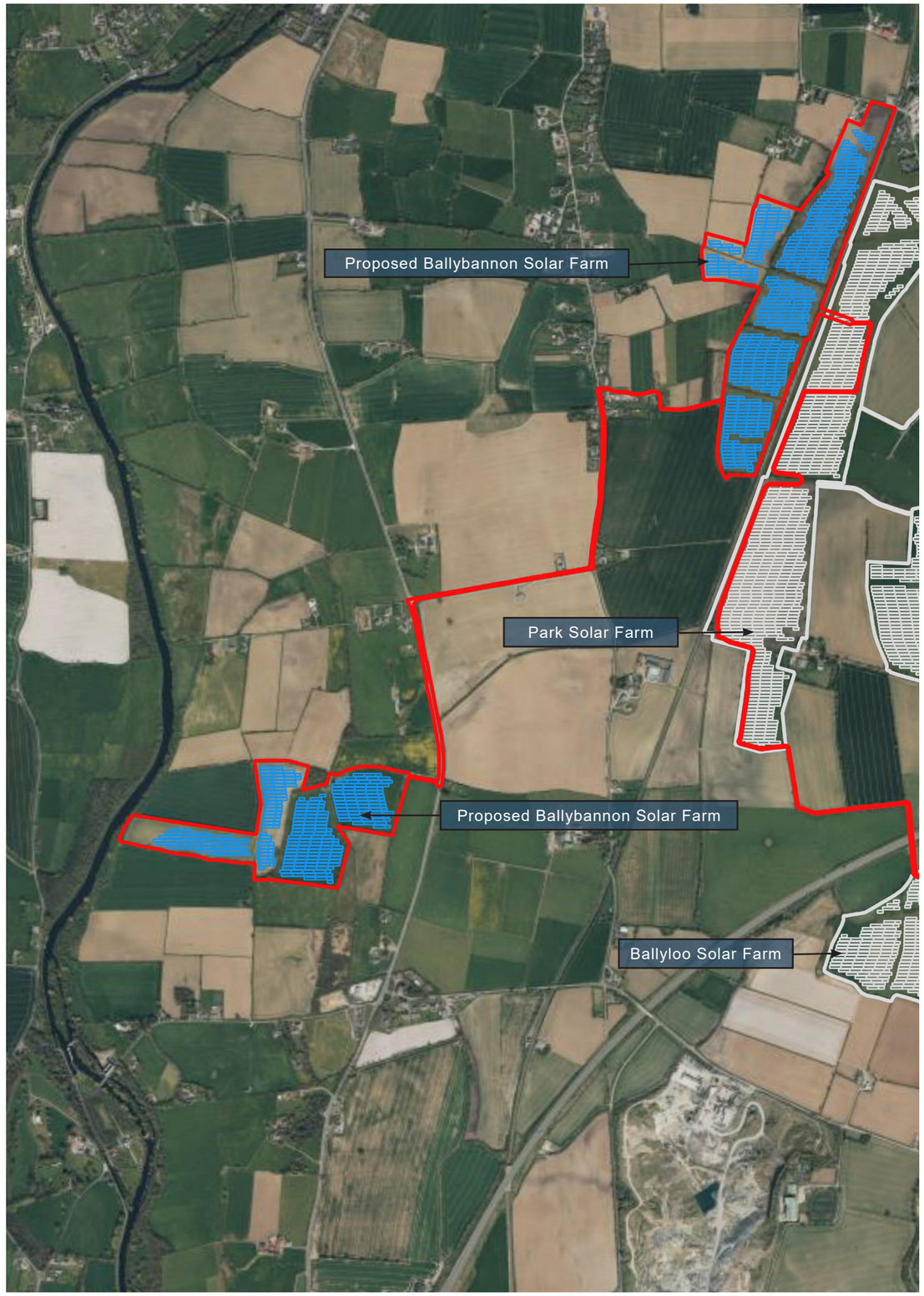
The process of identifying a solar farm site is influenced by a number of factors including:

- **Land:** available and suitable lands are the starting point for any solar farm. We are partnering with landowners who are supportive of renewables and solar development.
- **Solar irradiance:** a site with good irradiance or sunlight energy has higher capacity to generate electricity than sites with poor irradiance.
- **Planning policy:** local planning policy in relation to climate, renewables and solar is one of the key factors which can influence the decision to progress with a solar farm development. In this case, the planning policies in the Carlow County Development Plan 2022-2028 contain substantial support in these areas.
- **Grid connection:** a connection to the national grid to export electricity from the solar farm is also of crucial importance. The existing Kellis 220kV substation is located in proximity to Ballybannon Solar Farm and has available capacity to accept renewable electricity from this development.

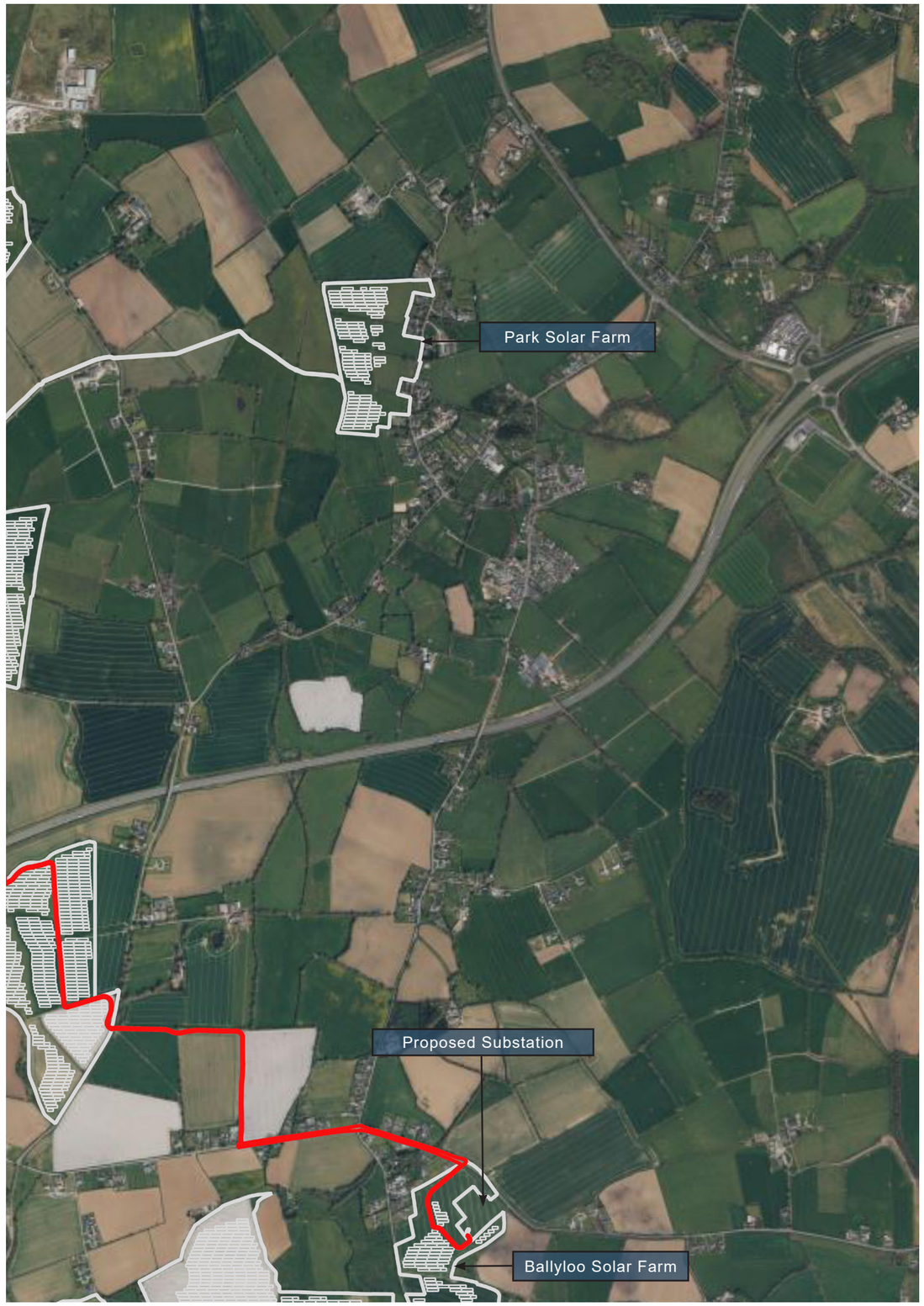
What will the solar farm look like?

- The panels will reach a maximum height of 3.25 metres so would rarely be glimpsed beyond the site's surrounding hedgerows and trees. Each solar panel will be placed onto a pre-erected frame, tilted up to 25 degrees and will face south towards the sun. The frames are arranged into a series of rows with up to 4 metres of clear space between the panel rows.
- There will be minimal ground disturbance during the construction of the project. The land can continue to be used for agricultural activity such as sheep grazing.
- The solar farm layout has been designed to minimise impact on local plants and animals. Mammal friendly fencing will allow local fauna to move freely across the site undisturbed. The wide field margins and areas of open grassland will be managed to create and enhance habitats for local birds and other wildlife.
- The existing field boundaries will be maintained, and the existing hedgerows will be supplemented with new planting to aid in panel screening. Hedgerows will be maintained to ensure a minimal effect on current views.
- The operation of the solar farm will be of minimal disturbance to local residents, walkers or motorists. The solar panels are specifically designed to absorb daylight so any reflection of light is dull and minimal.
- Security fencing up to 2.4m height and CCTV cameras directed internally within the solar farm only (i.e. there will be no camera directed on other properties). These will ensure no unauthorised access is possible.

Example of Solar Arrays on Solar Farm



Ballybannon Solar Farm: Site Layout (Sheet 1)



Ballybannon Solar Farm: Site Layout (Sheet 2)

Is planning permission required?

Yes, a planning application for the solar farm will be submitted to Carlow County Council and there will be an opportunity to make a submission on the application if you wish. The planning application will be available to view on the Council's planning website https://www.eplanning.ie/CarlowCC/SearchExact. Several site notices will be erected in the community to advise of the application. The substation and underground grid connection cable to the existing Kellis substation will require an application to An Bord Pleanála at a later date and again, notices will be erected in line with statutory requirements.

In support of the solar farm planning application, we appointed an experienced team of independent consultants to prepare reports relating to different environmental and engineering aspects of the development. These reports included landscape and visual, noise, glint and glare, archaeology, ecology etc. All reports will be included in the planning application to Carlow County Council.

The operational lifetime of the solar farm will be 40 years. At the end of 40 years the solar farm will be removed in consultation with Carlow County Council and the land reinstated where it can continue to be used for agricultural purposes. The planning permission will specify the operational lifetime of the solar farm.

About Ballyloo Solar Farm Limited

Ballyloo Solar Farm Limited is a company set up by Terra Solar. Terra Solar was established in 2015 to develop, finance, construct and operate solar farms in Ireland. To date we have secured full planning permission on over 4,000 acres across 35 solar farms in Ireland. We are committed to developing well designed solar farms which will contribute towards Ireland's ambitious renewable and climate targets for 2030 and beyond.

How do we get in touch?

For further information on Ballybannon Solar Farm, please contact Community Liaison Officer Paul Stack on his mobile at 087 275 1612 or by email: paulstack@terrasolar.ie

HW Planning
5 Joyce House,
Barrack Square,
Ballincollig,
Cork
P31 KP84

www.hwplanning.ie
info@hwplanning.ie +353
(0)21 487 3250

Directors:
Harold Walsh
Conor Frehill

Company Reg. No. 486211

Accreditations
ISO 9001:2015
ISO 14001:2015
ISO 45001:2018