Culmullin 220kV Substation

Traffic and Transport Assessment

Energia Solar Holdings

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Quality information

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Table of Contents

Figures

Tables

1. Introduction

1.1 Background

This Transport Statement (TS) has been prepared by AECOM Ireland Limited (AECOM) on behalf of Energia Solar Holdings Limited (herein referred to as the 'Applicant').

The Applicant is a subsidiary of Energia Group, who are a major all-Ireland energy provider and infrastructure investor across renewable technologies.

This document presents the likely traffic and transport impacts associated with the 220 kilo Volt (kV) Air Insulated Switchgear (AIS) substation project, named Culmullin 220kV Substation (hereafter referred to as the 'Proposed Development').

Additional information on the Proposed Development is outlined in the following sections.

1.2 Site Location

The Site of the Proposed Development is located at Woodtown, Co. Meath (Coordinates: 53°29'33.15"N 6°38'37.32"W). The R154 (regional road) (Trim Road) is approximately 2.9 kilometers (km) north, R125 is approximately 2.5km east, R156 is approximately 3.3km south and the L2207 local road is approximately 2.7km to the west. Refer to Figure 1.1

The nearest residential settlements (towns and villages) to the Site are Summerhill, approximately 6km to the southwest, Trim approximately 12km to the northwest, Dunshaughlin, approximately 7km to the northeast, Dunboyne approximately 13.5km southeast.

The redline boundary of the Proposed Development covers an approximate area of 7.3 hectares (ha), with the substation boundary covering approximately 2.24ha, and the telecoms mast compound which is separate to the substation is 225m^2.

Figure 1.1 Site Location

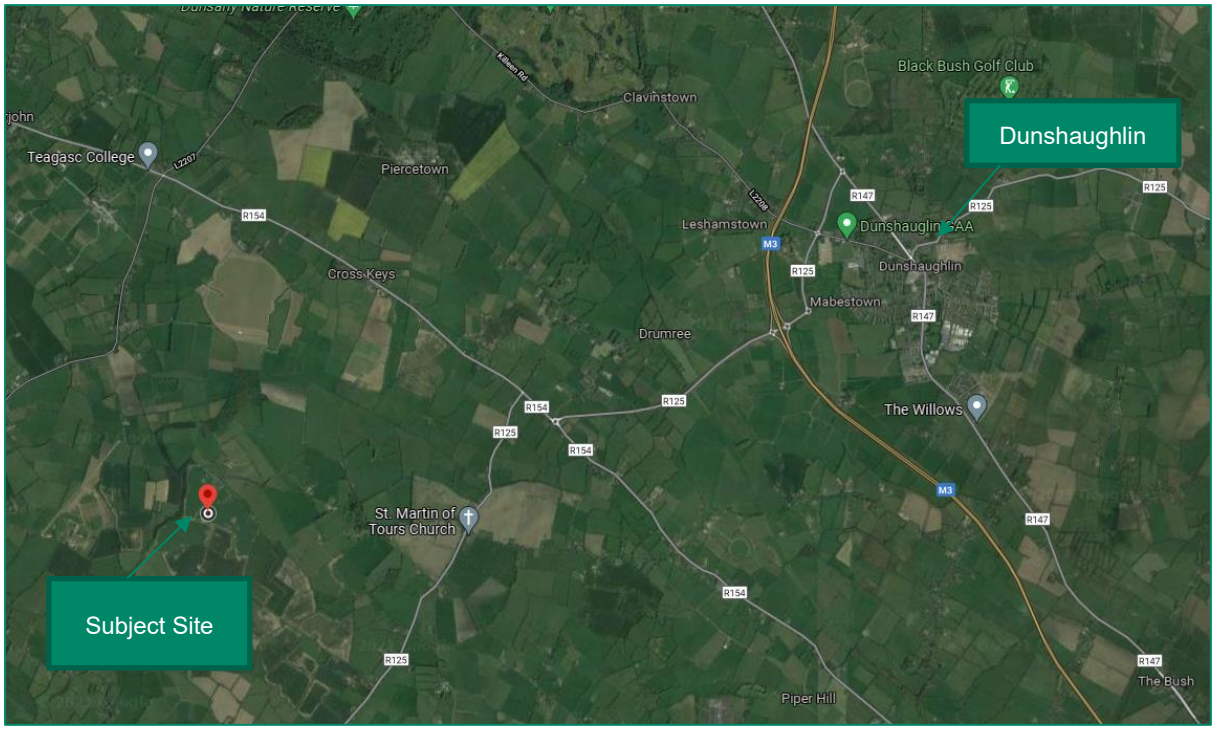

Figure 1.2 Indicative Site Location and Surrounding Areas

The Proposed Development will comprise a new 220kV AIS substation, named Culmullin 220kV Substation, looped into the existing Maynooth – Gorman 220kV overhead line (OHL) directly to the west. The Proposed Development is located at Woodtown, Co. Meath.

It is intended that three solar energy projects will connect to the proposed substation via underground cables with a maximum voltage of 33kV which are considered to be exempted development under Class 26 of the Planning and Development Regulations 2001, as amended. The substation is required to support, secure and transport the supply of electricity from these renewable energy developments, as part of its place on the wider solar scheme. Batterstown Clay Pigeon Club (CBC) shooting range is located approximately 750m to the north of the Site. The Maynooth-Gorman 220kV OHL transacts the Site to the east in a north to south direction.

The Substation and grid connection will be constructed by the applicant to EirGrid specifications and ownership will be transferred to Electricity Supply Board (ESB)/EirGrid following construction. All works will be contained within the boundary of the Site.

The Proposed Development comprises:

- A new 220kV substation compound (approximately 2.24ha) consisting of:
  - Outdoor AIS equipment rated for the system voltage of 220kV equipped with 4 number 220kV cable bays.
  - Two number single storey buildings including an EirGrid standard control building with ancillary services, and a customer Medium Voltage (MV) module.
  - Two 180 megavolt amperes (MVA) oil-filled step-down power transformers within bunded enclosures.
  - 14 lightning protection masts (25m in height).
  - A 2.6m tall palisade fence.
- Two new Line Cable Interface Mast (LCIMs), under existing OHL to facilitate the removal of a short section (approximately 60m) of the existing 220kV lines.
- Approximately 120m of new underground cables to connect the substation to the grid.
- Adjacent telecoms mast area (225m²) for substation communications between Maynooth and Gorman 220kV substations at either end of the existing 220kV OHL.

- Five passing bays on the L62051.

In addition to the above the Proposed Development will include the following:

- New site access off the L62051 and internal site access road.
- Car parking.
- Drainage infrastructure.
- All associated and ancillary site development works.

The land is predominately flat with hedgerows delineating field boundaries. One-off housing and agricultural buildings are present in the wider vicinity.

The Site is currently not zoned for development within the Meath County Development Plan (CDP) 2021-2027. The Site is zoned 'Rural Area' (RA), with the zoning objective – '*to protect and promote in a balanced way, the development of agriculture, forestry and rural-related enterprise, biodiversity, the rural landscape, and the built and cultural heritage'*.

The Site is not within or in the vicinity of a European Designated site. The nearest European sites are the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA, c. 9.5km to the north-west of the Site.

1.3 Programme and Construction Activities

The exact programme of works is yet to be finalised, but it is expected that:

- Application is made for Planning Permission in Q3 of 2023.
- Commence site enabling and construction works in Q4 of 2024 (subject to planning permission).
- Completion of construction and commissioning in Q4 of 2026.

Construction activities will include the following elements as shown in Table 1.1.

Table 1.1: Main Construction Elements and Associated Activities

Element	Description of activities
Site Preparation and Enabling Works	Site establishment. Site clearance works. Construction of temporary site drainage. Bulk earthworks including excavation and removal of topsoil/soil and berm construction. Minor earthworks at passing bay locations. Infilling of material for internal access road, site compound and laydown area. Landscaping/reinstatement.
Underground Cables	Trenching and installation of underground cables, cable joint bays and pulling pits. Installation of the associated above ground infrastructure (cable marker posts, communication boxes and access points).
LCIM Construction Loop-in	The site preparation required for the loop-in OHL will be limited with minimal site clearance required. Excavation and berm construction. Pouring of concrete foundations for mast structures. Backfill and tower body installation.
Substation Construction	Pouring of concrete foundations (potentially piling works if required). Erection of steel frame and cladding walls and roofs for any required buildings. Permanent foul and surface water drainage works. Installation of above ground and underground cabling. Electrical installation, commissioning and operation. Other miscellaneous civil works including erection of fencing, provision of site entrance, paving etc.

Construction activities will gradually phase out from pre-construction followed by commissioning and testing of the Substation and equipment. It is expected that the number of construction workers required throughout the duration of the construction phase will peak at approximately 50 persons (peak during construction). It is anticipated that the construction of the Proposed Development will be completed during normal construction hours i.e., 07.00 to 19.00, Monday to Friday and 08.00 to 13.00 on Saturday.

The proposed programme for the Culmullin works will be approximately 24 months from initial enablement works through to commissioning. It is expected that the civil works will take approximately 2-3 months, with a further

four weeks estimated for cable installation, jointing and testing and reinstatement. Construction works associated with the Substation will be 20 to 24 months.

An Outline Construction Environmental Management Plan (CEMP) is included as part of this planning application. All environmental protection measures contained within the ECR will be incorporated into a detailed Construction Environmental Management Plan (CEMP) by the appointed Contractor. Prior to commencement of construction works the contractor will draw up detailed Method Statements which will be informed by this Outline Construction Methodology, environmental protection measures included within the planning application, measures proposed within the CEMP, and the guidance documents and best practice measures to be implemented in full during the construction phase.

1.4 Materials Transportation

Access to the substation site is currently provided via an existing informal farm track. New access from the public road (R125), though the local L62051, will be provided, connecting to the new internal site road

Construction materials will be brought to site by road along the R125 and via the access road through the current farm access(off the L62051). Temporary access tracks will be constructed by stripping surface soils, placing geotextile reinforcement at subgrade level followed by a layer of granular material in accordance with the specification to form a working surface for vehicle. Roadside drains within the temporary works area will be culverted and check dams made from stone or sandbags covered with terram will be inserted upstream and downstream of these culverts to intercept any solids generated during the works.

Construction materials will be transported in clean vehicles and lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent escape of material along the public roadway.

1.5 Legislation Policy and Guidance

The following is a list of sources of information consulted for use in this chapter.

- Meath County Development Plan (CDP) 2021-2027.
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022).
- Guidelines on the Information to be Contained in Environmental Impact Statements, 2002.
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements, 2003.
- Traffic Signs Manual, (Department of Transport, Tourism and Sport, August 2019).
- PE-PDV-02045, Transport Assessment Guidelines, (TII, May 2014).
- PE-PAG-02016, Project Appraisal Guidelines for National Roads Unit 5.2 – Data Collection (Transport Infrastructure Ireland, October 2016).
- PE-PAG-02017, Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (Transport Infrastructure Ireland, May 2019).
- PE-PAG-02039, Project Appraisal Guidelines for National Roads Unit 16.1 – Expansion Factors for Short Period Traffic Counts (Transport Infrastructure Ireland, October 2016).
- DN-GEO-03031, Rural Road Link Design (Transport Infrastructure Ireland, June 2017).
- DN-GEO-03060, Geometric Design of Junctions (Priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions (Transport Infrastructure Ireland, June 2017).
- The Design Manual for Urban Roads and Streets, (Department of Transport, Tourism and Sport, May 2019).
- National Development Plan (Department of Public Expenditure and Reform, February 2018).

2. Traffic Impacts of Proposed Development

2.1 Existing Road Network

The subject Site is located in between the road networks of the M3 and M4 motorways. These motorways can be accessed through the R125 and the R156. Further details of these roads are listed below.

2.1.1 R125

The R125 is a single lane regional road. The R125 connects the R154 to the R156 within the study area the carriage way width is approximately 5.5m with no existing footpaths, cycle lanes or lighting column. The R125 is not a bus route. The R125 facilities access to a number of residential properties and farms. The speed limit along the R125 is 80km/hr.

2.1.2 R156

The R156 is a single lane regional road that connects the R158 to the L2215. Within the study area the carriageway width is approximately 6m with no existing footpaths, cycle lanes or lighting column. The R156 is not a bus route. The R156 facilities access to a number of residential properties and farms. The speed limit along the R156 is 80km/hr.

2.1.3 M3

The M3 is situated north of the proposed development and is approximately 26 metres in width. The M3 connects the M50 in Dublin to Kells Co. Meath the M3 is a dual lane motorway with a speed limit of 120km/hr. The M3 runs in a northwest direction from Dublin. There are no designated cycle lanes within the environs of the M3 and all junction to and from the M3 are non-signalised slip road junction points. There is no motorway lighting located along the M3, instead motorists depend on ‘cat’s eyes’ at evening and night travel time.

2.1.4 M4

The M4 is situated south of the proposed development and is approximately 26m in width. The M4 connects the M50 in Dublin to Kinegead county Westmeath the M4 is a dual lane motorway with a speed limit of 120km/hr. The M4 runs in a west direction from Dublin. There are no designated cycle lanes within the environs of the M4 and all junction to and from the M4 are non-signalised slip road junction points. There is no motorway lighting located along the M4, instead motorists depend on ‘cat’s eyes’ at evening and night travel time.

2.2 Traffic Generation Numbers and Expected Traffic Volumes at the Site

Construction of the site is anticipated to take 24 months additional traffic movements are expected to peak at 80 vehicles per day, with 30 of those movements being Heavy Goods Vehicle (HGV). All construction related traffic will be managed in accordance with the Construction Traffic Management Plan.

2.3 Summary

Overall, it is considered that the traffic generations will be low due to the nature of the proposed site. Furthermore, the peak traffic generated by the development will be during the construction period and negligible traffic when the site is in operation will be created, as this would be for occasional maintenance traffic

3. Measures to Influence Travel to the Site

3.1 Walking Infrastructure

There are no footways in the vicinity of the Proposed Development site access or along the R125. Within the extents of the study area no footpaths are located in the rural environs situated near the Site. Due to the nature of the development, there are unlikely to be any trips to the site by foot.

3.2 Cycling Infrastructure

There are no designated cycling facilities provided within the extent of the study area. Due to the nature of the Proposed Development, there are unlikely to be any trips to the site by bicycle.

3.3 Mitigation Measures

As part of embedded mitigation, the Proposed Development includes improvement works on the L62051. These works will involve the construction of five passing bays on the L62051. The locations of these improvements will be spaced at appropriate intervals so as to reduce the distances between two-way sections and passing bays, and in order to allow opposing drivers to see each other in sufficient time to give way at one-way.

A Construction Traffic Management Plan (CTMP) will be developed in consultation with Meath County Council (MCC), the Applicant and other stakeholders should consent be granted. Likely headings to be included in a CTMP would include but is not limited to the following.

Mitigation Measures for the site include but are not restricted to the below.

- An agreed route for construction traffic.
- An Abnormal Load Assessment (ALA) for any abnormal loads including horizontal swept path analysis and mitigation measures, if required, for any identified pinch points on the delivery route. The assessment will also consider escort arrangements and relevant signage.
- The necessary agreements and timing restrictions for construction traffic, for example Monday to Friday working only, prohibition during school drop off and pick up times and prohibition during loading times at commercial premises.
- Details of a proposed condition survey on access routes.
- Proposals for maintenance of the agreed routes for the duration of the construction phase.
- Proposals for monitoring and agreeing maintenance costs.
- Route signage.
- Maintaining access to commercial/business premises. For example, temporary accommodation works and additional information signage.
- Details of the advanced notification to the general public warning of any construction transport movements, specifically abnormal loads.
- Preparation of a travel plan for staff.
- Details of information road signage warning road users of construction traffic movements.
- Arrangements for regular road maintenance and cleaning, e.g. road sweeping in the vicinity of the site access point as necessary, wheel cleaning/dirt control arrangements.
- Contractor speed limits.
- Community and emergency services liaison details.

Further mitigation measures to reduce the traffic impact of the development construction would also be considered subject to further investigation and landowner agreements. These include:

- The use of Park and Share facilities for construction staff.
- The promotion of electric vehicles for general car/van access.

4. Summary and Conclusions

The Proposed Development will utilise the existing regional road network, comprising the R125 and R156 for the proposed development construction activities. Traffic volumes associated with the proposed development are low in number and relate primarily to the delivery of construction equipment and materials and cable installation operations. The implementation of an approved traffic management plan will minimise the potential for traffic and transport impacts during construction activities and the residual impact will be negligible.

The Proposed Development will be maintained throughout its design life and periodic upgrading undertaken over a long lifetime to meet future demand and upgrade in technology. If the Proposed Development is no longer required over the long term, then full decommissioning in accordance with prevailing best practice will be undertaken.

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