Environmental Appraisal Report of the Transmission Development Plan 2012-2022

Contents

1. Introduction

EirGrid plc (EirGrid) is the national electricity Transmission System Operator (TSO). In its role of TSO in Ireland, EirGrid operates and maintains a safe, secure, reliable, economical and efficient transmission system, as well as developing key infrastructural projects which are vital for the socio-economic development of the State with due regard for the environment.

The Transmission Development Plan (TDP) 2012-2022 presents all the transmission projects that are progressing for the period 2012-2022. It is likely that, given the continuously changing nature of electricity transport requirements, that new developments will emerge that could impact the plan as presented. These changes will be identified in future studies and accommodated in future development plans which will also be subject to an Environmental Appraisal.

This Environmental Appraisal Report has been prepared to assess whether EirGrid's TDP 2012-2022 is in accordance with the provisions of the Grid25 Implementation Programme (IP) and its Strategic Environmental Assessment (SEA). The Grid25 IP 2011-2016 was subject to SEA as required by the SEA Directive (Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27 June 2001, on the Assessment of the Effects of Certain Plans and Programmes on the Environment). The IP is a practical overview of how the early stages of Grid25 are to be implemented and identifies those parts of the transmission system that are envisaged as likely to be developed over the period 2011-2016. The IP was based on information contained in the TDP 2010-2015.

An outcome of the SEA of the Grid25 IP was to conduct an environmental appraisal of each subsequent TDP, to identify any updates to these documents since the publication of the Grid25 IP and to assess ongoing monitoring measures and targets as set out in the SEA. This process is illustrated in Figure 1.1. Note that the assessment of monitoring measures and targets will form a separate report to this Environmental Appraisal Report of the TDP. The assessment of monitoring measures and targets will consist of a review of the suitability of the current targets and monitoring measures and reporting on the monitoring measures since the publication of the Grid25 IP and SEA in May 2012. This report will be published by May 2013.

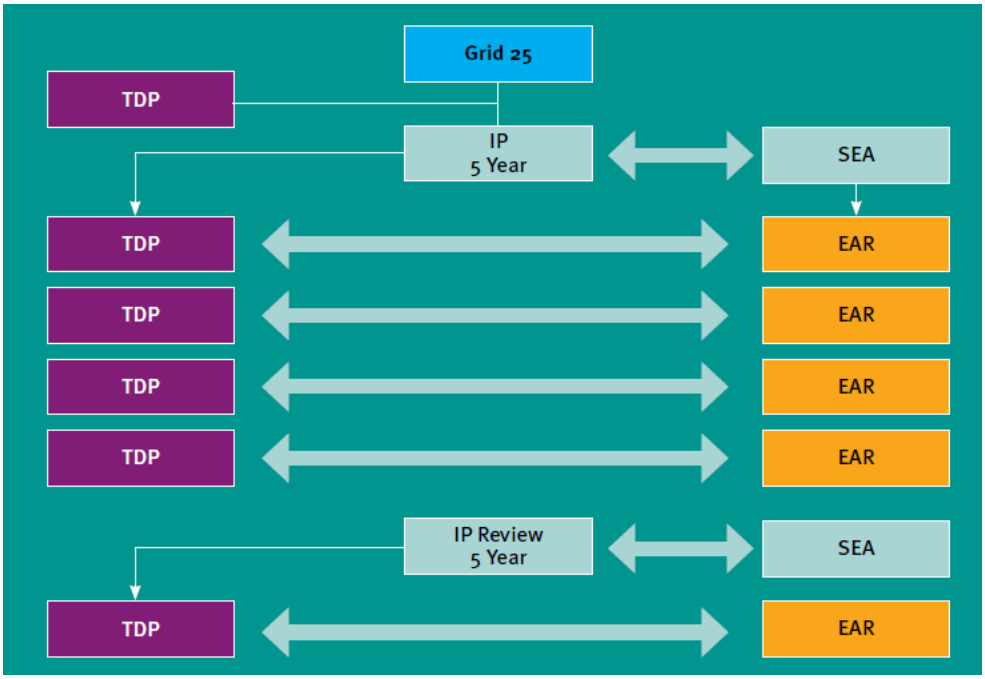

Figure 1.1 *Process of Environmental Appraisal of TDPs*

3. Update on Projects in TDP 2012-2022

To ensure adequate security of electricity supply, further market integration, and the integration of renewable energy sources, it is necessary to provide ongoing and timely reinforcement of the Irish electricity transmission system. These reinforcement needs can be divided into the following categories:

- Reinforcements to support changes in, or connection of, new demand;
- Reinforcements required to support changes in, or connection of, new generation;
- Reinforcements related to interconnection;
- Reinforcements to facilitate inter-regional power flows; and
- Reinforcements to address the condition of existing assets.

The TDP 2012-2022 includes 147 reinforcement projects that have been approved internally by EirGrid; of these, 136 are in progress, 2 are deferred, 1 is cancelled and there are 8 projects whose expected energisation dates have yet to be confirmed by the customer. Of the active 136 projects, 69 were presented in the TDP 2010, while the other 67 projects are new to the TDP 2012-2022. These 67 new projects are listed in Table A1.1 in Appendix 1. Tables 3.1 and 3.2 summarise the new projects by voltage and general equipment. Note that all information contained in the TDP, on which this Environmental Appraisal Report is based, is correct as of the end of March 2012.

Planned New Assets	**400 kV**	**220 kV**	**110 kV**	**Total**
Number of New Stations	1	1	6	8
Number of New Station Bays	10	24	70	104
New Circuit[1] (km)	386	0	7	393
Number of New Reactive Devices	0	2	0	2
Total New Reactive Power (Mvar)	0	100	0	100
	400/220 kV	**400/110 kV**	**220/110 kV**	**Total**
Number of New Transformers	4	1	4	9
Total New Transformer Capacity (MVA)	2,000	500	1,000	3,500

Table 3.1: *Summary of Planned New Assets by Voltage and Equipment (extracted from the TDP 2012-2022)*

Planned Uprates/Refurbishments/Upgrades	**400 kV**	**220 kV**	**110 kV**	**Total**
Circuit to be Uprated (km)	0	242	359	601
Circuit to be Refurbished (km)	0	172	204	376

[1] It is not possible at this early stage to split estimated new build line lengths between overhead line and underground cable

Number of Busbars to be Uprated	0	0	8	8
Number of Stations to be Refurbished/Replaced/Redeveloped	0	3	3	6
Number of Protection Systems to be Upgraded	0	1	3	4

Table 3.2: *Summary of Planned Uprates/Refurbishments/Upgrades of Assets by Voltage and Equipment (Extract from TDP 2012-2022)*

4 Strategic Environmental Objectives and Evaluation of TDP Provisions

4.1 Strategic Environmental Objectives

The SEA Environmental Report set out Strategic Environmental Objectives (SEOs). SEOs are methodological measures against which the environmental effects of the TDP can be tested, as was completed for the Grid25 IP. The SEOs are set out under a range of environmental topics and are used as standards against which the provisions of the TDP can be evaluated in order to help identify areas in which potential significant adverse impacts may occur. The SEOs are presented in Table 4.1. The new projects set out in the TDP 2012-2022 are then evaluated against these SEOs in Section 4.6.

SEO Code	Strategic Environmental Objective
B1	To ensure compliance with the Habitats Directive with regard to the protection of Natura 2000 Sites and Annexed habitats and species
B2	To ensure compliance with Article 10 of the Habitats Directive with regard to the management of other environmental features – which by virtue of their linear and continuous structure or they function, act as stepping stones – which are of major importance for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species[2]
B3	To avoid significant impacts on relevant habitats, species, environmental features or other sustaining resources in Wildlife Sites[3]
L1	To avoid significant adverse impacts on the landscape, especially with regard to those arising from impacts on the factors which comprise the Landscape Constraints Rating Map[4]
CH1	To avoid unauthorised impacts upon archaeological heritage (including entries to the RMP) and architectural heritage (including entries to the RPSs)
C1	To help to facilitate the achievement of higher level government targets contained in the Government's Energy White Paper *Delivering a Sustainable Energy Future for Ireland* – the Energy Policy Framework 2007-2020 and relating to the Kyoto Protocol
HH1	Minimise proximity of development to concentrations of population in order to reduce actual and perceived environmental effects
W1	To prevent impacts upon the status of surface waters in line with the recommendations outlined in the River Basin Management Plans
W2	To prevent pollution and contamination of groundwater in line with the recommendations outlined in the River Basin Management Plans
MS1	To minimise effects upon the sustainable use of land, mineral resources and soil
	[2] 'Annexed habitats and species' refers to those listed under Annex 1, II and IV of the EU Habitats Directive and Annex I of the EU Birds Directive [3] 'Wildlife Site' is as defined in the Planning and Development Act 2000 [4] The Landscape Constraints Rating mapping factors are: *Elevation > 200m; *Forestry landcover areas; *Slope > 30 degrees; *Lakes and estuaries; and *Other Natural Landcover Types

Table 4.1: *Strategic Environmental Objectives from the SEA Environmental Report*

The following sections 4.2-4.5 are synopses of the environmental sensitivities and details likely issues arising in each area, as described in the Grid25 IP Environmental Report.

4.2 Border, Midlands and West Areas

Within the Border, Midlands and West Areas there are 20 new projects in the TDP 2012-2022. Of these three projects are new builds; one is a refurbishment/replacement project and 16 are uprates/modifications. These projects are detailed in Table 4.2.

As detailed in the Grid 25 IP SEA Environmental Report, the following environmental sensitivities occurring and the likely issues arising are detailed below.

Environmental Sensitivities

The Border region contains some of Ireland's most important energy resources as well as high concentrations of environmental sensitivities.

In the Midlands area, environmental sensitivities increase along a diagonal axis from a very robust south-east to an increasingly sensitive north-west due to the presence of the Shannon system of rivers, lakes and wetlands.

The West area contains some of the country's highest concentrations of environmental designations – many of international and national significance.

Likely Issues Arising

Potential environmental conflicts could occur in the crossing of ecologically and scenically sensitive areas. Difficulties could emerge in meeting the provisions of the Habitats Directive in the border area (Donegal and parts of Sligo and Leitrim), Midlands Area (sensitive areas along the Shannon system) and in the West.

CP No.	Project Title	Type	km	County/Counties	Phase	ECD
CP0384	Lisdrum - Louth 110 kV Line Refurbishment	Refurbish / Replace	40.9	Monaghan, Louth	2	2013
CP0635	Corderry 110 kV Station - Busbar Uprate	Uprate / Modify	0	Leitrim	3	2012
CP0661	Cashla - Tynagh 220 kV Line Uprate	Uprate / Modify	39.7	Galway, Galway	3	2012
CP0704	Cathaleen's Fall - Golagh T 110 kV Line Uprate	Uprate / Modify	25.9	Donegal, Donegal	3	2012
CP0721	Grid West Electricity Scheme	New Build	0	Mayo, Sligo, Galway, Roscommon	2	2019
CP0723	Cushaling 110 kV Station - Busbar Uprate	Uprate / Modify	0	Kildare	2	2013
CP0724	Thornsberry 110 kV Station - Busbar Uprate	Uprate / Modify	0	Offaly	2	2013
CP0731	Bellacorick - Castlebar 110 kV Line Uprate	Uprate / Modify	38	Mayo, Mayo	2	2013
CP0734	Cathaleen's Fall 110 kV Station - Busbar Uprate	Uprate / Modify	0	Donegal	2	2014
CP0736	Cunghill - Sligo 110 kV Line Uprate	Uprate / Modify	24	Sligo, Sligo	2	2014
CP0737	West Galway, Uggool/Seacon New 110 kV Stations	New Build	7	Galway	2	2015
CP0739	Mount Lucas 110 kV New Station	New Build	1.2	Offaly	2	2013[2]
CP0745	Cathaleen's Fall - Srananagh No. 2 110 kV Line Uprate	Uprate / Modify	49.7	Donegal, Sligo	2	2013[3]
CP0764	Cathaleen's Fall - Drumkeen 110 kV Line Uprate	Uprate / Modify	30	Donegal, Donegal	2	2014[4]
CP0773	Bellacorick 110 kV Station - Busbar Uprate	Uprate / Modify	0	Mayo	2	2013
CP0404	Mullagharlin 110 kV Station – New 110 kV Bay	Uprate / Modify	0	Louth	2	2015

[2] Post data freeze date update: the Estimated Completion Date for this project is now 2014

[3] Post data freeze date update: the Estimated Completion Date for this project is now 2014

[4] Post data freeze date update: the Estimated Completion Date for this project is now 2015

CP0645	Portlaoise 110 kV Station – 2 New 110 kV Bays	Uprate / Modify	0	Laois	2	2015
CP0680	Castlebar 110 kV Station – Uprate 110 kV Bay	Uprate / Modify	0	Mayo	2	2015
CP0706	Cloon 110 kV Station – New 110 kV Bay	Uprate / Modify	0	Galway	2	2015
CP0740	Letterkenny 110 kV Station – Relocation of 110 kV Bay & 2 New Couplers	Uprate / Modify	0	Donegal	2	2015

Table 4.2: *New Projects in the Border, Midlands and West Areas (extracted from the TDP 2012-2022)*

4.3 South-East, Mid-East and Dublin Areas

Within the South-East, Mid-East and Dublin areas there are 21 new projects detailed in the TDP. Of these projects, four projects are new builds; six projects are refurbish/replace and 11 projects are uprates/modifications. These projects are detailed in Table 4.3.

As detailed in the Grid 25 IP SEA Environmental Report, the following environmental sensitivities occurring and the likely issues arising are detailed below.

Environmental Sensitivities

The environmental resources of the South-East comprise upland areas, river valleys and coastal areas. The lowlands generally have a high capacity to sustainably absorb development.

In the Dublin and Mid-East areas there is a mixture of areas with environmental sensitivity and areas with high levels of urbanisation. In the western parts are extensive areas of industrial peatlands, there are extensive upland areas of mountain bog and forestry in the south-east and the coast contains areas of ecological, scenic and cultural significance.

Likely Issues Arising

Most major routes in the South-East area follow the transition between upland and lowlands and cause little adverse environmental effect. If future development continues this general pattern there is a low potential for significant effects to arise. In the Mid-East and Dublin areas, few issues are likely to arise as environmental sensitivities in these areas are well protected in local authority Development Plans.

CP No.	Project Title	Type	km	County/Counties	Phase	ECD
CP0508	Shelton Abbey 110 kV Station - Protection Upgrade	Refurbish / Replace	0	Wicklow	3	2012
CP0623	Great Island 220 kV Station Replacement	Refurbish / Replace	0	Wexford	3	2014
CP0668	Corduff - Ryebrook 110 kV Line Uprate & Ryebrook 110 kV Station Busbar Uprate	Uprate / Modify	8	Dublin, Kildare	2	2013[5]
CP0708	Navan 110 kV Station - Busbar Uprate & New Coupler	Uprate / Modify	0	Meath	2	2013
CP0715	Great Island 220 kV Station – New 220 kV Bay	Uprate / Modify	0	Wexford	2	2013
CP0720	Cahir - Thurles 110 kV Line Resagging	Refurbish / Replace	36	Tipperary South, Tipperary North	3	2012
CP0728	Kill Hill 110 kV New Station	New Build	0	Tipperary South	2	2013[6]
CP0729	Great Island 110 kV Station Replacement	Refurbish / Replace	0	Wexford	2	2015
CP0732	Grid Link 400 kV Project	New Build	230	Cork, Tipperary, Waterford, Kilkenny, Wexford, Laois, Carlow, Wicklow, Kildare	2	2020
CP0733	Cloghran 110kV New Station	New Build	0	Dublin	2	2013
CP0744	Cahir - Tipperary 110 kV Line Uprate & Tipperary 110 kV Station Busbar Uprate	Uprate / Modify	18.1	Tipperary South, Tipperary South	2	2014
CP0747	Maynooth - Ryebrook 110 kV Line Uprate	Uprate / Modify	9	Kildare, Kildare	2	2013
CP0755	Cauteen - Killonan 110 kV Line Uprate	Uprate / Modify	27.9	Tipperary South, Limerick	2	2014
CP0756	Cauteen - Tipperary 110 kV Line Uprate	Uprate / Modify	13	Tipperary South, Tipperary South	2	2014
CP0760	Installation of 100 MVar Reactive Support in the Dublin Region	New Build	0	Dublin	2	2015
CP0768	Kellis - Kilkenny 110 kV Line Refurbishment	Refurbish / Replace	34.3	Carlow, Kilkenny	2	2013
CP0769	Dunstown - Kellis 220 kV Line Refurbishment	Refurbish / Replace	60	Kildare, Carlow	2	2013

[5] Post data freeze date update: the Estimated Completion Date for this project is now 2014

[6] Post data freeze date update: the Estimated Completion Date for this project is now 2014

CP0558	Ballydine - Cullenagh 110 kV Line Uprate	Uprate / Modify	21.8	Tipperary South, Waterford	3	2012
CP0490	Great Island 220/110 kV Station – New 110 kV Bay for Knockmullen 110 kV New Station	Uprate / Modify	0	Wexford	2	2015
CP0486	Wexford 110 kV Station – New 110 kV Bay & New Coupler	Uprate / Modify	0	Wexford	2	2015
CP0693	Baroda 110 kV Station – 2 New 110 kV Bays	Uprate / Modify	0	Kildare	2	2015

Table 4.3: *New projects in the South-East, Mid-East and Dublin areas (extracted from the TDP 2012-2022)*

4.4 South-West and Mid-West Areas

Within the South-West and Mid-West areas there are 24 new projects detailed. Of these three projects are new builds; eight projects are refurbishment/replacement projects and 13 projects are uprates/modifications. These projects are detailed in Table 4.5.

As detailed in the Grid 25 IP SEA Environmental Report, the following environmental sensitivities occurring and the likely issues arising are detailed below.

Environmental Sensitivities

In the South-West area in general, sensitivity decreases in the east, except in the vicinity of the coast and major rivers. Outside of upland areas the centre of this area is generally robust. The Mid-West area contains a number of very different environmental sensitivities. The Burren and Galway Bay would be the most sensitive. The Hills of Clare also contain extensive areas of sensitivity and significance. The Shannon Estuary and the Lower Shannon contain highly sensitive and significant ecological, cultural and scenic resources.

Likely Issues Arising

In the South-West area potential conflicts could occur in the crossing of ecologically and scenically sensitive areas – principally located on bog landscapes – but also in upland, lake, wetland and river habitats. In the west of this area, where sensitivities increase, difficulties could emerge with regard to meeting the provisions of the Habitats Directive. With the exception of the coastal areas of Clare and Galway, parts of the Clare uplands and parts of the Shannon estuary, this area is the least environmentally sensitive part of Ireland's west coast. There is considerable precedence for development in parts of the Mid-West.

4.5 Additional Projects

There are an additional two projects which cannot be assigned to the previous areas described as they relate to multiple locations. These are refurbishment/replacement projects as described in Table 4.4.

CP No.	Project Title	Type	km	Phase	ECD
CP0727A (NEW)	Balteau 220 kV CT Replacement at Various Stations	Refurbish / Replace	0	3	2016
CP0727B (NEW)	Balteau 110 kV CT Replacement at Various Stations	Refurbish / Replace	0	3	2016

Table 4.4: Refurbishment projects on a national basis

CP No.	Project Title	Type	km	County/Counties	Phase	ECD
CP0054	Ardnacrusha 110 kV Station Replacement	Refurbish / Replace	0	Clare	2	2015[7]
CP0605	Booltiagh 110 kV Station Modification	Uprate / Modify	0	Clare	3	2012
CP0624	Killonan 220/110 kV Station Refurbishment	Refurbish / Replace	0	Limerick	2	2016[8]
CP0640	Bandon - Dunmanway 110 kV Line Refurbishment	Refurbish / Replace	26	Cork, Cork	3	2013
CP0657	Ikerrin T - Thurles 110 kV Line Uprate & Thurles 110 kV Station - Busbar Uprate & New Coupler	Uprate / Modify	25.9	Tipperary North, Tipperary North	2	2013
CP0675	Clashavoon 220/110 kV Station - New 220/110 kV 250 MVA Transformer	New Build	0	Cork	3	2012
CP0695	Killonan - Tarbert 220 kV Line Refurbishment	Refurbish / Replace	70.6	Limerick, Kerry	3	2012
CP0710	Reamore 110 kV New Station	New Build	14	Kerry	2	2013
CP0714	Clonkeen 110 kV Station Reconfiguration	Uprate / Modify	0	Kerry	2	2013
CP0716	Carrigadrohid - Macroom 110 kV Line Uprate	Uprate / Modify	2.41	Cork, Cork	2	2013
CP0717	Clashavoon - Knockraha 220 kV Line Uprate	Uprate / Modify	45	Cork, Cork	2	2013
CP0719	Inniscarra - Macroom 110 kV Line Uprate	Uprate / Modify	18.1	Cork, Cork	2	2013
CP0746	Moneypoint - Prospect 220 kV Line Refurbishment	Refurbish / Replace	13	Clare, Clare	2	2013
CP0748	Cashla - Prospect 220 kV Line Resagging	Refurbish / Replace	88.6	Galway, Clare	2	2013

[7] Post data freeze date update: the Estimated Completion Date for this project is now 2016

[8] Post data freeze date update: the Estimated Completion Date for this project is now 2018

CP0751	Aughinish - Tarbert 110 kV Line Resagging	Refurbish / Replace	33.9	Limerick, Kerry	3	2012
CP0761	Lisheen 110 kV Station – New 110 kV Bay	Uprate / Modify	0	Tipperary North	2	2014
CP0762	Charleville - Mallow 110 kV line uprate	Uprate / Modify	22.5	Cork, Cork	2	2013
CP0763	Clashavoon - Tarbert 220 kV Line Uprate	Uprate / Modify	97.3	Cork, Kerry	2	2015
CP0765	Aughinish - Moneteen 110 kV Line Resagging	Refurbish / Replace	28.7	Limerick, Limerick	2	2012
CP0754	Raffeen – Trabeg 110 kV No. 1 Line Uprate	Uprate / Modify	10.4	Cork, Cork	2	2014
CP0726	Moneypoint - North Kerry 400 kV Project	New Build	26	Clare, Kerry	2	2019
CP0713	Kilbarry 110 kV Station – New 110 kV Bay for Blackpool 110 kV New Station	Uprate / Modify	0	Cork	2	2015
CP0741	Trabeg 110 kV Station – Uprate 2 110 kV Bays	Uprate / Modify	0	Cork	2	2015
CP0743	Cow Cross 110 kV Station – New 110 kV Bay	Uprate / Modify	0	Cork	3	2015

Table 4.5: *New projects in the South-West and Mid-West areas (extracted from the TDP 2012-2022)*

4.6 Evaluation of Reinforcement Projects against SEOs

As detailed in tables 4.2-4.4, there are three types of new reinforcement projects in the TDP – new builds, refurbishment/replacement projects and uprate/modifications projects.

With regard to new builds, the status of SEO C1 is likely to improve as the building of new transmission infrastructure would help to facilitate the achievement of higher level government targets contained in higher level national and international energy and greenhouse gas emission policies. New builds have the potential to conflict with SEO L1 as there is potential for significant effects on the landscape. Conflicts with B1, B2, B3, CH1, HH1, W1, W2 and MS 1 are likely to be mitigated for. Mitigation measures as detailed in the SEA Environmental Report, which remain relevant for this environmental appraisal of the TDP, are presented in Appendix 2.

For refurbishment/replacement projects and uprate/modifications projects, the status of SEO C1 is likely to improve. Also, when compared with new builds, refurbishment and uprate projects are also likely to improve the status of all SEOs as the associated impacts of a new build are prevented.

However, in their own right, refurbishments and uprates may conflict with SEOs B1, B3, W1 and W2 but are likely to be mitigated for and SEOs L1, B2, CH1, HH1 and MS1 are likely to be unaffected by these works. Table 4.5 details the evaluation of SEOs against the three different types of reinforcement projects.

Reinforcement Type	Likely to improve status of SEOs	Probable conflict with status of SEOs – unlikely to be mitigated	Potential conflict with status of SEOs – likely to be mitigated	No likely interaction with status of SEOs
New Build	C1	L1	B1, B2, B3, CH1, HH1, W1, W2, MS1	
Refurbish/Replace	C1 (B1, B2, B3, W1, W2, CH1, HH1, MS1, L1)[5]		B1, B3, W1, W2	L1, B2, CH1, HH1, MS1
Uprate/Modify	C1 (B1, B2, B3, W1, W2, CH1, HH1, MS1, L1)[2]		B1, B3, W1, W2	L1, B2, CH1, HH1, MS1

Table 4.5: *Evaluation of Reinforcement Projects against SEOs.*

All new build projects will be subject to lower tier environmental assessment as part of the planning process for these projects. Refurbishment/replacement/uprate and modification projects are generally considered to be exempted development under Sections 4(1)g and 4(1)h of the Planning and Development Act, however, as EirGrid is now a Public Authority under the European Communities (Birds and Natural Habitats) Regulations 2011, it is required to conduct a Stage 1 Screening Appropriate Assessment for all plans or projects. In the event that the Stage 1 Screening Appropriate Assessment concludes that the process should proceed to Stage 2 Appropriate Assessment, the project is no longer exempt and planning permission must be sought from the relevant authorities.

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[2] Compared with new builds, the status of these SEOs is likely to improve due to the fact that uprating the existing lines will prevent the associated impacts of a new build.

5 Conclusion

The TDP 2012-2022 has been assessed to determine if the TDP is in accordance with the provisions of the SEA of the Grid25 Implementation Programme. 67 new projects have been identified within the TDP 2012-2022 which are additional to those projects identified in the Grid25 IP. These projects consist of new builds, refurbishment/replacement projects and uprates/modification projects.

These three categories of projects have been assessed against the Strategic Environmental Objectives from the SEA and it has been determined that following the implementation of mitigation measures the SEOs will generally be achieved.

One SEO that cannot be determined with certainty at this strategic level is L1 in relation to new builds (L1: *To avoid significant adverse impacts on the landscape, especially with regard to those arising from impacts on the factors which comprise the Landscape Constraints Rating Map)*. There is always potential for new build overhead transmission line projects to have an impact on the landscape; however, the significance of such impact depends upon its visibility, and the extent to which such visibility would cause “visual injury”, a negative consequence. In this context, EirGrid’s Project Development and Consultation Roadmap is a clear and structured process which identifies environmental and other constraints, for example a scenic route designation of a Development Plan, at an early stage of project development, with route corridor and line route identification always seeking to avoid, or minimise impact upon those identified constraints. The Project Development and Consultation Road Map is illustrated in Figure 5.1.

Lower tier environmental assessments, as part of Environmental Reports or Environmental Impact Assessments in respect of specific projects, will seek to minimise and where possible avoid significant adverse effects on the landscape.

Figure 5.1: EirGrid's Project Development and Consultation Road Map

Appendix 1: New Projects in TDP 2012-2022

CP No.	Project Title	Type	km	County/Counties	Phase	ECD
CP0723 (NEW)	Cushaling 110 kV Station - Busbar Uprate	Uprate / Modify	0	Kildare	2	2013
CP0724 (NEW)	Thornsberry 110 kV Station - Busbar Uprate	Uprate / Modify	0	Offaly	2	2013
CP0739 (NEW)	Mount Lucas 110 kV New Station	New Build	1.2	Offaly	2	2013[9]
CP0635 (NEW)	Corderry 110 kV Station - Busbar Uprate	Uprate / Modify	0	Leitrim	3	2012
CP0661 (NEW)	Cashla - Tynagh 220 kV Line Uprate	Uprate / Modify	39.7	Galway, Galway	3	2012
CP0704 (NEW)	Cathaleen's Fall - Golagh T 110 kV Line Uprate	Uprate / Modify	25.9	Donegal, Donegal	3	2012
CP0745 (NEW)	Cathaleen's Fall - Srananagh No. 2 110 kV Line Uprate	Uprate / Modify	49.7	Donegal, Sligo	2	2013[10]
CP0773 (NEW)	Bellacorick 110 kV Station - Busbar Uprate	Uprate / Modify	0	Mayo	2	2013
CP0731 (NEW)	Bellacorick - Castlebar 110 kV Line Uprate	Uprate / Modify	38	Mayo, Mayo	2	2013
CP0384 (NEW)	Lisdrum - Louth 110 kV Line Refurbishment	Refurbish / Replace	40.9	Monaghan, Louth	2	2013

[9] Post data freeze date update: the Estimated Completion Date for this project is now 2014

[10] Post data freeze date update: the Estimated Completion Date for this project is now 2014

CP0734 (NEW)	Cathaleen's Fall 110 kV Station - Busbar Uprate	Uprate / Modify	0	Donegal	2	2014
CP0764 (NEW)	Cathaleen's Fall - Drumkeen 110 kV Line Uprate	Uprate / Modify	30	Donegal, Donegal	2	2014[11]
CP0736 (NEW)	Cunghill - Sligo 110 kV Line Uprate	Uprate / Modify	24	Sligo, Sligo	2	2014
CP0737 (NEW)	West Galway, Uggool/Seacon New 110 kV Stations	New Build	7	Galway	2	2015
CP0721 (NEW)	Grid West Electricity Scheme - TYNDP/82	New Build	0	Mayo, Sligo, Galway, Roscommon	2	2019
CP0605 (NEW)	Booltiagh 110 kV Station Modification	Uprate / Modify	0	Clare	3	2012
CP0675 (NEW)	Clashavoon 220/110 kV Station - New 220/110 kV 250 MVA Transformer	New Build	0	Cork	3	2012
CP0695 (NEW)	Killonan - Tarbert 220 kV Line Refurbishment	Refurbish / Replace	70.6	Limerick, Kerry	3	2012
CP0765 (NEW)	Aughinish - Moneteen 110 kV Line Resagging	Refurbish / Replace	28.7	Limerick, Limerick	2	2012
CP0751 (NEW)	Aughinish - Tarbert 110 kV Line Resagging	Refurbish / Replace	33.9	Limerick, Kerry	3	2012
CP0710 (NEW)	Reamore 110 kV New Station	New Build	14	Kerry	2	2013
CP0714 (NEW)	Clonkeen 110 kV Station Reconfiguration	Uprate / Modify	0	Kerry	2	2013

[11] Post data freeze date update: the Estimated Completion Date for this project is now 2015

CP0657 (NEW)	Ikerrin T - Thurles 110 kV Line Uprate & Thurles 110 kV Station - Busbar Uprate & New Coupler	Uprate / Modify	25.9	Tipperary North, Tipperary North	2	2013
CP0716 (NEW)	Carrigadrohid - Macroom 110 kV Line Uprate	Uprate / Modify	2.41	Cork, Cork	2	2013
CP0719 (NEW)	Inniscarra - Macroom 110 kV Line Uprate	Uprate / Modify	18.1	Cork, Cork	2	2013
CP0717 (NEW)	Clashavoon - Knockraha 220 kV Line Uprate	Uprate / Modify	45	Cork, Cork	2	2013
CP0762 (NEW)	Charleville - Mallow 110 kV line uprate	Uprate / Modify	22.5	Cork, Cork	2	2013
CP0746 (NEW)	Moneypoint - Prospect 220 kV Line Refurbishment	Refurbish / Replace	13	Clare, Clare	2	2013
CP0748 (NEW)	Cashla - Prospect 220 kV Line Resagging	Refurbish / Replace	88.6	Galway, Clare	2	2013
CP0640 (NEW)	Bandon - Dunmanway 110 kV Line Refurbishment	Refurbish / Replace	26	Cork, Cork	3	2013
CP0754 (NEW)	Raffeen – Trabeg 110 kV No. 1 Line Uprate	Uprate / Modify	10.4	Cork, Cork	2	2014
CP0761 (NEW)	Lisheen 110 kV Station – New 110 kV Bay	New Build	0	Tipperary North	2	2014
CP0054 (NEW)	Ardnacrusha 110 kV Station Replacement	Refurbish / Replace	0	Clare	2	2015[12]
CP0763 (NEW)	Clashavoon - Tarbert 220 kV Line Uprate	Uprate / Modify	97.3	Cork, Kerry	2	2015

[12] Post data freeze date update: the Estimated Completion Date for this project is now 2016

CP0624 (NEW)	Killonan 220/110 kV Station Refurbishment	Refurbish / Replace	0	Limerick	2	2016[13]
CP0726 (NEW)	Moneypoint - North Kerry 400 kV Project - TYNDP/81	New Build	26	Clare, Kerry	2	2019
CP0508 (NEW)	Shelton Abbey 110 kV Station - Protection Upgrade	Refurbish / Replace	0	Wicklow	3	2012
CP0720 (NEW)	Cahir - Thurles 110 kV Line Resagging	Refurbish / Replace	36	Tipperary South, Tipperary North	3	2012
CP0728 (NEW)	Kill Hill 110 kV New Station	New Build	0	Tipperary South	2	2013[14]
CP0715 (NEW)	Great Island 220 kV Station – New 220 kV Bay	New Build	0	Wexford	2	2013
CP0733 (NEW)	Cloghran 110kV New Station	New Build	0	Dublin	2	2013
CP0558 (NEW)	Ballydine - Cullenagh 110 kV Line Uprate	Uprate / Modify	21.8	Tipperary South, Waterford	3	2012
CP0668 (NEW)	Corduff - Ryebrook 110 kV Line Uprate & Ryebrook 110 kV Station Busbar Uprate	Uprate / Modify	8	Dublin, Kildare	2	2013[15]
CP0708 (NEW)	Navan 110 kV Station - Busbar Uprate & New Coupler	Uprate / Modify	0	Meath	2	2013
CP0747 (NEW)	Maynooth - Ryebrook 110 kV Line Uprate	Uprate / Modify	9	Kildare, Kildare	2	2013

[13] Post data freeze date update: the Estimated Completion Date for this project is now 2018

[14] Post data freeze date update: the Estimated Completion Date for this project is now 2014

[15] Post data freeze date update: the Estimated Completion Date for this project is now 2014

CP0768 (NEW)	Kellis - Kilkenny 110 kV Line Refurbishment	Refurbish / Replace	34.3	Carlow, Kilkenny	2	2013
CP0769 (NEW)	Dunstown - Kellis 220 kV Line Refurbishment	Refurbish / Replace	60	Kildare, Carlow	2	2013
CP0623 (NEW)	Great Island 220 kV Station Replacement	Refurbish / Replace	0	Wexford	3	2014
CP0744 (NEW)	Cahir - Tipperary 110 kV Line Uprate & Tipperary 110 kV Station Busbar Uprate	Uprate / Modify	18.1	Tipperary South, Tipperary South	2	2014
CP0755 (NEW)	Cauteen - Killonan 110 kV Line Uprate	Uprate / Modify	27.9	Tipperary South, Limerick	2	2014
CP0756 (NEW)	Cauteen - Tipperary 110 kV Line Uprate	Uprate / Modify	13	Tipperary South, Tipperary South	2	2014
CP0729 (NEW)	Great Island 110 kV Station Replacement	Refurbish / Replace	0	Wexford	2	2015
CP0732 (NEW)	Grid Link 400 kV Project - TYNDP/83 	New Build	230	Cork, Tipperary, Waterford, Kilkenny, Wexford, Laois, Carlow, Wicklow, Kildare	2	2020
CP0760 (NEW)	Installation of 100 MVar Reactive Support in the Dublin Region	New Build	0	Dublin	2	2015
CP0404 (NEW)	Mullagharlin 110 kV Station – New 110 kV Bay	Uprate / Modify	0	Louth	2	2015
CP0645 (NEW)	Portlaoise 110 kV Station – 2 New 110 kV Bays	Uprate / Modify	0	Laois	2	2015
CP0680 (NEW)	Castlebar 110 kV Station – Uprate 110 kV Bay	Uprate / Modify	0	Mayo	2	2015

CP0706 (NEW)	Cloon 110 kV Station – New 110 kV Bay	Uprate / Modify	0	Galway	2	2015
CP0740 (NEW)	Letterkenny 110 kV Station – Relocation of 110 kV Bay & 2 New Couplers	Uprate / Modify	0	Donegal	2	2015
CP0490 (NEW)	Great Island 220/110 kV Station – New 110 kV Bay for Knockmullen 110 kV New Station	Uprate / Modify	0	Wexford	2	2015
CP0486 (NEW)	Wexford 110 kV Station – New 110 kV Bay & New Coupler	Uprate / Modify	0	Wexford	2	2015
CP0693 (NEW)	Baroda 110 kV Station – 2 New 110 kV Bays	Uprate / Modify	0	Kildare	2	2015
CP0713 (NEW)	Kilbarry 110 kV Station – New 110 kV Bay for Blackpool 110 kV New Station	Uprate / Modify	0	Cork	2	2015
CP0741 (NEW)	Trabeg 110 kV Station – Uprate 2 110 kV Bays	Uprate / Modify	0	Cork	2	2015
CP0743 (NEW)	Cow Cross 110 kV Station – New 110 kV Bay	Uprate / Modify	0	Cork	3	2015
CP0727A (NEW)	Balteau 220 kV CT Replacement at Various Stations	Refurbish / Replace	0	Various	3	2016
CP0727B (NEW)	Balteau 110 kV CT Replacement at Various Stations	Refurbish / Replace	0	Various	3	2016

Table A1.1: New Projects in TDP 2012-2022

Appendix 2: Mitigation Measures

Mitigation Measure Code	Mitigation Measure Title	Status
EMM1	Full Integration of Planning and Environmental Considerations in EirGrid's Transmission System Planning	Has already occurred; changes will continue to be implemented.
EMM2	Preparation of Strategic Environmental Constraints Mapping	Has already occurred; will be updated on an ongoing basis, as appropriate, to include most up-to-date, relevant environmental data.
EMM3	Preparation of Evidence-based Environmental Guidelines	Has begun; Guidelines to be published in 2012.
EMM4	Consideration of the Broadest Possible Range of Alternatives in all Future Energy Transmission Strategies	Measure to be adhered to as relevant on adoption of IP.
EMM5	Preparation of Transmission Development Plan Environmental Appraisal Report	Measure to be adhered to as relevant on adoption of IP.
EMM6	Ongoing Co-operation in preparation of Renewable Energy Generation Guidelines and Strategies	Measure to be adhered to as relevant on adoption of IP.
EMM7	Integrating Offshore Grid connectivity requirements and environmental considerations in EirGrid's Strategic Environmental Framework (SEF)	Measure to be adhered to as relevant on adoption of IP.
EMM8 (A to K)	Other measures integrated into the IP	Measures to be adhered to for new projects as relevant and as appropriate on adoption of IP. Measures to be extended and augmented by the output from the Environmental Benchmarking Studies and Evidence-Based Environmental Design Guidelines

EMM8 Other Measures Integrated into the IP

Mitigation measures described below have been worded to facilitate direct transcription and incorporation into the Implementation Programme.

Note that the following mitigation measures will be extended and augmented by the output from the Environmental Benchmarking Studies and Evidence-Based Design Guidelines described above.

EMM8A Biodiversity and Flora and Fauna

EMM8A(i) Designated European and National Sites of Nature Conservation Interest

Every effort will be made to avoid designated sites of conservation importance. However, where this is not possible, routing will be selected to ensure no significant impacts on the integrity of the site. Restricted working areas will be imposed to ensure minimal disturbance to sensitive habitats.

Sensitive construction techniques will be used such as the use of bog mats for machinery access, particularly if underground cables are proposed or in remote bogland areas. Aerial access will be considered - for both materials and workforce - in exceptionally sensitive sites.

Ecological monitoring will be undertaken at sensitive sites during construction as appropriate. Such sites will be identified on a base by case basis.

EMM8A(ii) General Habitat Loss and Disturbance

- Where possible, direct habitat loss within designated sites will be avoided.
- When construction occurs within a designated site, sensitive construction techniques will be used such as the use of bog mats for machinery access, particularly if underground cables are proposed or in remote bogland areas. Aerial access will be considered - for both materials and workforce - in exceptionally sensitive sites.
- Use of bog-mats to minimise the impact of heavy machinery on vegetation and soils.
- Minimise extent of works areas.
- Re-distribute vegetation and soil stripped from the construction areas to provide a seedbank and do not re-seed with Perennial Ryegrass.
- Land within the working area will be reinstated as near as possible to its former condition.

EMM8A(iii) Bogs and Peatland areas

- Areas of deep and active peat shall be avoided.
- Detailed peat slip risk assessments should be carried out for all proposed developments in areas where peat substrates occur.
- Construction machinery should be restricted to site roads and designated access routes. Machinery should not be allowed to access, park or travel over areas outside development construction zones.
- Peat excavated during construction activity should not be stored (temporarily or otherwise) on areas of adjacent mire habitats or near flushes or drains. Temporary storage of spoil material excavated during the construction phase developments should be stored at suitable locations away from surface watercourses.
- All spoil material excavated during the construction phase should be reinstated following the completion of the construction phase of a proposed development.

- Where disturbance of peat soils cannot be avoided, there should be some consideration given to possible re-seeding with native species to stabilise the peat and accelerate recovery of the vegetation.

EMM8A(iv) Birds

- Where feasible, site clearance involving the cutting or destruction of vegetation and hedgerows shall not take place in the bird breeding season between March 1st and August 31st inclusive.
- On the advice of relevant ornithological experts and agencies bird warning devices shall be put in place where crossings of sensitive flight corridors cannot be avoided.

EMM8A(v) Bats

- The removal of bat commuting and foraging habitat shall be avoided where possible during the construction and operation phase of infrastructure.
- Where the removal of commuting or foraging habitat cannot be avoided alternative habitat should be established prior to such habitat removal.
- Trees scheduled for felling as part of site clearance shall be checked by a bat specialist for the presence of bats.
- Where bats are noted to be within a tree prior to felling operations, it will be necessary to postpone felling to create the opportunity for bats to cease usage. If bats do not leave a tree or building within a reasonable time frame, it may be possible for a bat specialist to seek to exclude the bats (or otherwise remove them to safety). This shall be carried out by a qualified bat specialist with written permission from the National Parks and Wildlife Section of the Department of Arts, Heritage and the Gaeltacht by way of a licence to derogate from the protection afforded bats by Irish and EU law. All licences shall be in place prior to felling procedures as to destroy a roost without a licence is an offence.

EMM8A(vi) Otters

- Destruction of active otter holts shall be avoided
- No works shall be undertaken within 150m of any holts at which breeding females or cubs are present.
- No wheeled or tracked vehicles (of any kind) should be used within 20m of active, but non-breeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence.

EMM8A(vii) Other protected species

- The breeding and resting sites of protected species shall be avoided during the appropriate seasons.
- Heavy machinery shall not be used within 30m of an occupied badger sett.
- A derogation licence from the respective Wildlife Acts[16] shall be sought – and works shall not be commenced without such consent where it appears that protected flora and fauna species are likely to be unavoidably disturbed.

EMM8A(viii) Protected Surface Water or Riparian Habitats

In all cases where works have the potential to impact on protected surface water or riparian habitats, the Inland Fisheries Ireland document *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites* shall be adhered to. Development of

[16] Referenced statutory obligation

transmission infrastructure adjacent to designated fisheries shall be carried out in consultation with Inland Fisheries Ireland to minimise the potential effects on designated surface waters.

EMM8A(ix) Freshwater Pearl Mussel Catchments

- Action measures as outlined in the Sub Basin Management Plans shall be taken into account where development is considered adjacent to areas associated with Freshwater Pearl Mussels.
- In the vicinity of waters that sustain populations of Freshwater Pearl Mussels the following additional mitigation measures shall be employed;-
    - There shall be no Stream crossing by machinery.
    - Silty water will be collected in settlement ponds prior to discharge to watercourse.
    - Buffering strips will be provided near watercourses.

EMM8A(x) Fisheries

- All works adjacent to designated fisheries waters will be done in consultation with Inland Fisheries Ireland.
- All works involving open cut crossings shall be conducted during the period May to September to avoid interruption of salmonid spawning runs, spawning, incubation of eggs and the early developmental stages.
- Where appropriate and practical, bank vegetation and bed material which has been removed shall be stored to facilitate its replacement when channel works have been completed.
- Works in the vicinity of a watercourse shall be carried out with reference to a water quality protection plan for each site which shall ensure that;-
    - All necessary measures shall be taken to minimise the generation and release of sediments into all watercourses [].
    - Levels of suspended solids in the river shall be monitored during the course of the works.
    - Precautions shall be put in place to avoid spillages of diesel, oil or other polluting substances.

EMM8A(xi) Mature Trees

Where construction work is required close to trees, the National Joint Utilities Group 'Guidelines for the Planning Installation and Maintenance of Utility Services in Proximity to Trees' (NJUG 10) will be followed.

EMM8A(xii) Hedgerows

All disturbed hedgerows will be re-planted as soon as possible after construction, using Irish nursery stock and indigenous species. Planting will be maintained until vigorous re-growth has been established. Where hedges of particular value are encountered the extent and duration of the works shall be minimised. For species-rich banks, turf will be stripped and stored separately for replacement on re-instatement.

EMM8B Water Resources

EMM8B(i) Accidental spillage of fuel chemicals or sewage causing pollution to water or ground

- Develop, implement and enforce a Water Pollution Prevention and Environmental Emergency Response Plan for all work sites [See also 0]. This should include good site practices as described in the Good Practice Guidance notes proposed by EA/SEPA/EHS.

EMM8B(ii) Suspended solids & sediment deposition

- Precautions shall be put in place to avoid or minimise the generation and release of sediments[17] into all watercourses.

EMM8B(iii) Physical Damage to watercourses

- Develop, implement and enforce a code of best practice for construction and reinstatement methods to be used for unavoidable construction works in the vicinity of watercourses.

EMM8B(iv) Flooding

- Within known floodplains measures shall be taken to avoid any potential impact of construction or existence of the works on the capacity for floodwater storage.
- Damage to any flood defence embankments shall be immediately repaired to a standard equal to or better than the existing embankments.
- EirGrid shall carefully examine development proposals to ensure consistency with the requirements of The Planning System and Flood Risk Management: Guidelines for Planning Authorities (DEHLG, 2009)[18].
- EirGrid shall engage with planning authorities at an early stage, utilising arrangements for pre-planning application consultation with regard to any flood risk assessment issues that may arise.
- EirGrid shall carry out a site-specific flood risk assessment, as appropriate, and comply with the terms and conditions of any grant of planning permission with regard to the minimisation of flood risk.

EMM8C Soils and Geology

EMM8C(i) Geological Features

- Site investigations shall be undertaken at intervals and specific locations along the power circuit route. This information shall be used to plan sitework operations to anticipate, avoid or minimise construction impacts arising from disturbance of sub-surface conditions.
- Cut and fill operations should be avoided unless absolutely necessary.
- Route selection and lower tier assessments should consult Geological Survey of Ireland as appropriate in relation to geological heritage sites either recommended for NHA or County Geological Site designation.

EMM8C(ii) Soil

- Height of stockpiles should be limited to less that 3 m and storage time will be minimised.
- Material handling and reinstatement operations should follow good practice to avoid inadequate or over compaction of the materials.

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[17] Sediments in this instance include all soils including peat.

[18] Referenced statutory obligation

- Route selection and lower tier assessments for peatland areas should consider relevant government guidelines on development in these areas as well as relevant datasets including the Geological Survey of Ireland's landslide dataset and Teagasc's subsoils dataset.

EMM8C(iii) Mineral Resources

The power circuit shall be routed to avoid disturbance to existing or planned operations of areas of extraction and licensed mineral reserves.

EMM8C(iv) Contaminated Land

- A ground investigation may be undertaken to survey, analyse and assess the areas where there is a potential for this risk to arise.
- Following this, method statements shall be prepared to deal with any area of contaminated ground.

EMM8C(v) Bedrock

- Route selection and lower tier assessments should consider Geological Survey of Ireland's bedrock data as appropriate in order to anticipate engineering difficulties.
- Route selection and lower tier assessments should consider Irish National Seabed Survey data and INFOMAR survey data as appropriate to anticipate the nature and depth of stable substrate for offshore projects foundations and connection to onshore grid.

EMM8D Cultural Heritage

- Where the proposed route is in close proximity to archaeological sites the working area shall be kept to a minimum.
- Pre-construction works shall be carried out in those unrecorded areas identified as having archaeological potential.
- There will be full implementation of an Archaeological Plan including, pre-construction works, watching brief and excavation.
- Where previously unrecorded finds are uncovered during construction, adequate archaeological investigation and recording will be carried out before construction works in these areas are continued.

EMM8E Landscape and Visual

Routes shall be selected according to the following criteria;-

- Avoidance of areas designated as being of scenic sensitivity or significance.
- Avoidance of areas that would disproportionately impinge upon sensitive landscape features – such as prominent skyline ridges, shores, river crossings.
- Avoid areas that would disproportionately impinge upon sensitive areas or sites of cultural or historic significance – including monuments, listed and protected structures and their contexts and sites.
- Route selection and lower tier assessments should consider (as appropriate) data from the landscape character assessments contained in the development plans of local authorities.

EMM8F Noise

In relation to noise sensitive receptors, the constraints mapping shall identified areas of high building density and therefore any route corridors selected shall attempt to minimise impacts on built up areas.

EMM8G Liquid Effluent and Spillages

Portable toilets will be provided at the site offices. They will be emptied regularly by a specialist contractor as appropriate.

EMM8H Solid Wastes

Waste Management Plans will be prepared as part of the overall project design. This will identify likely waste arisings, approximate quantities and appropriate handling and disposal methods.

EMM8I Construction of New Substations and Extension of Existing Substations

EMM8I(i) The construction of new substations can have a significant impact particularly where the area is undeveloped. Site selection needs to ensure sensitive landscapes and habitats are avoided. Opportunities for natural screening from topography and vegetation should be maximised and used wherever possible as this will provide the best opportunity for integrating the facility into the existing landscape.

EMM8I(ii) It will be important to ensure that substations are not located within the floodplain of major watercourses, which could impact on the access and functioning of the substation. Also, it will also be important to ensure that new substation locations avoid designated conservation sites and sensitive hab

EMM8I(iii) Where existing substations need to be extended it will be important to ensure the extension does not impact on any nearby built up areas and that the extension is appropriately designed to ensure adequate integration with the existing environment. The scale of the extension should be suited to the surrounding area and should not be inappropriate given the size of the existing facility and its surroundings.

EMM8J Reinforcement of the Transmission System in the Regions[19]

EMM8J(i) Midlands Region

The Midlands Region is transected by many kilometres of major and minor grid infrastructure as well as having a significant concentration of junctions and substations - many associated with existing or former power stations. These routes and sites offer strong precedent that should be re-used wherever possible. It should be recognised that large areas of cut-over peat lands may not be suitable low-resistance routing options as many of these sites are nearing the end of production and most if not all will shortly be reinstated as peat land sites that are likely to be deemed to be sensitive - if not protected - habitats.

[19] Note that no specific measure are stated here for the Border and West Regions; all other mitigation measures apply as relevant.

New major grid projects in this Region will be challenged when trying to identify optimum crossing points over the sensitive Shannon system. Existing crossing points should be re-used or intensified wherever possible. Such crossing points should be identified and secured in regional and county development plans as a matter of urgency - they are nationally significant economic assets.

EMM8J(ii) South-East Region

Larger scale grid developments in the South East Region should parallel coastal plains and major river systems - ideally occupying the transitional foothills - without encroaching on either the more sensitive uplands or the immediate environs of rivers and coasts.

Most major routes within this region follow the transition between uplands and lowlands and cause little adverse environmental effect. If future development continues this general pattern there is a low potential for significant effects to arise.

EMM8J(iii) Mid-West Region

Major grid development works in the Mid-West Region should re-use or closely follow established routings or areas with established precedent of large-scale infrastructural and industrial development. New works should parallel the coasts and rivers - which contain dense corridors of anciently established settlement - while avoiding more sensitive upland interiors. High levels of rural dwellings in some areas may require sub-optimal proximity to some environmental sensitivities, such as cultural heritage.

EMM8J(iv) South-West Region

If new grid development continues patterns of following the strongly east-west trending river valleys in the South-West Region there is a low potential for significant adverse effects on the environment. Major grid developments should be confined to the more environmentally robust centre and east of this region.

The development of new transmission lines between Moneypoint and Cork City would need to carefully consider ecological and visual impact issues, especially in upland areas. Alternatives should consider the reuse of existing power and transport links.

EMM8J(v) Dublin & Mid-East Region

It would be useful to integrate with Development plans - both at Regional and County level - to identify infrastructure corridors - ideally paralleling the existing and emerging major road and rail corridors that will develop in the Dublin and Mid-East Region during the period to 2025. It would also be of merit, for working in existing and emerging urban and peri-urban areas, to clearly identify criteria that would lead to determining when and where to underground electricity infrastructure. Land Use Plans for Urban Areas should be encouraged to specifically zone land for sub-stations and to protect existing strategic corridors from inappropriate development.

Urban areas should be encouraged to specifically zone land for sub-stations and to protect existing strategic corridors from inappropriate development.

EMM8K National and EU Legislation and Plans/Programmes

Where grid related development is proposed, EirGrid will seek to contribute towards the protection of environmental features, as relevant and appropriate to EirGrid's responsibilities and obligations under national and EU environmental legislation and including those which relates to specific regional/national plans/programmes for particular aspects of the environment e.g. Catchment Flood Risk Assessment and Management Study Plans, River Basin District Management Plans and Fresh Water Pearl Mussel Sub Basin Management Plans[20].

[20] Referenced statutory obligation