Energy for generations

Tionscadal Éireann
Project Ireland
2040

OPR Webinar: Electricity Infrastructure

The Challenges & Opportunities

13th March 2026

Introduction

- Brendan Allen - Planning and Environmental Group Manager in Networks Engineering, ESB Engineering and Major Projects Section [EMP] Email: Brendan.allen@esb.ie – **feel free to contact me**
- Fellow of the Irish Planning Institute [IPI] with nearly 30 years experience
- I will be managing the planning requirements for the significant development of the ESBN electrical network that will occur over the coming years
- Focus of the presentation is on the ESB Networks Investment Programme PR6 (2026 – 2030) Distribution Work Programme
- Technical information about electrical infrastructure
- ESBNs engagement with the planning system
- ESBNs involvement in Infrastructure Task Force
- Asks of County Councils, ACP and Planners

ESB Group and its Different Business Units

Energy for generations

ESB NETWORKS

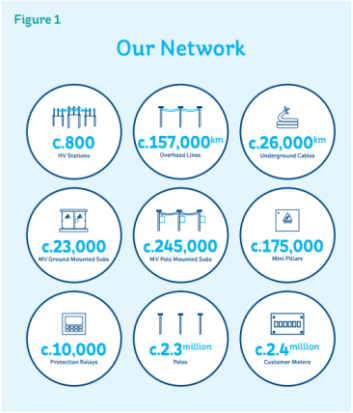
electric Ireland

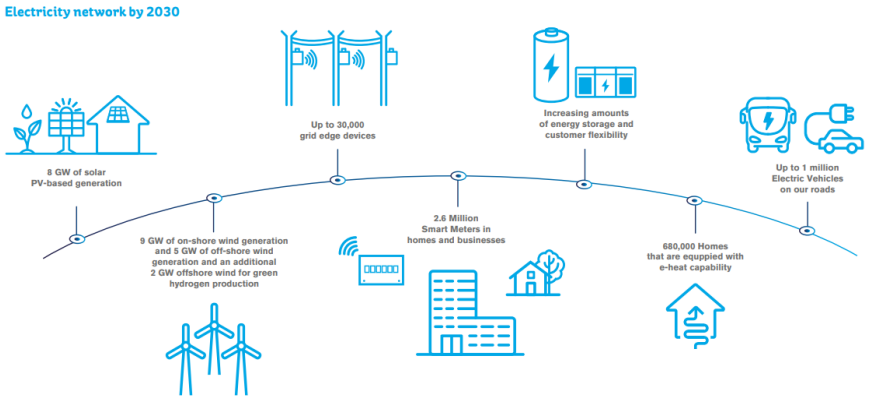
ESB INTERNATIONAL

Northern Ireland Electricity Networks

Other Business Units Within the ESB Group

- Generation and Trading
- Engineering and Major Projects [EMP]
- Smart Energy Services
- ESB Telecoms Limited
- ECars

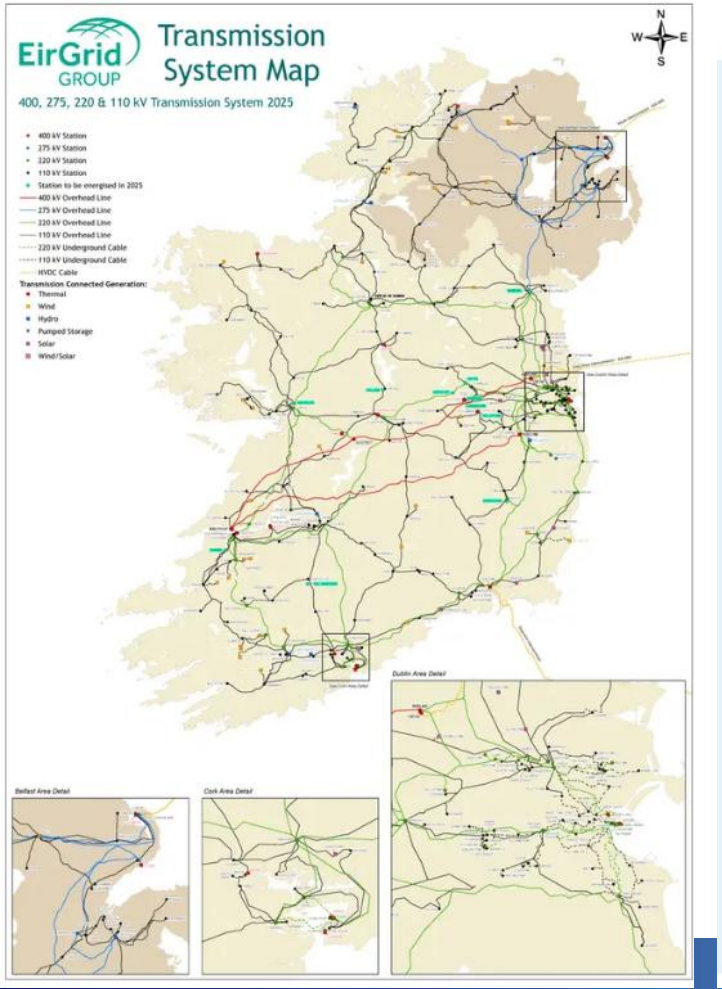


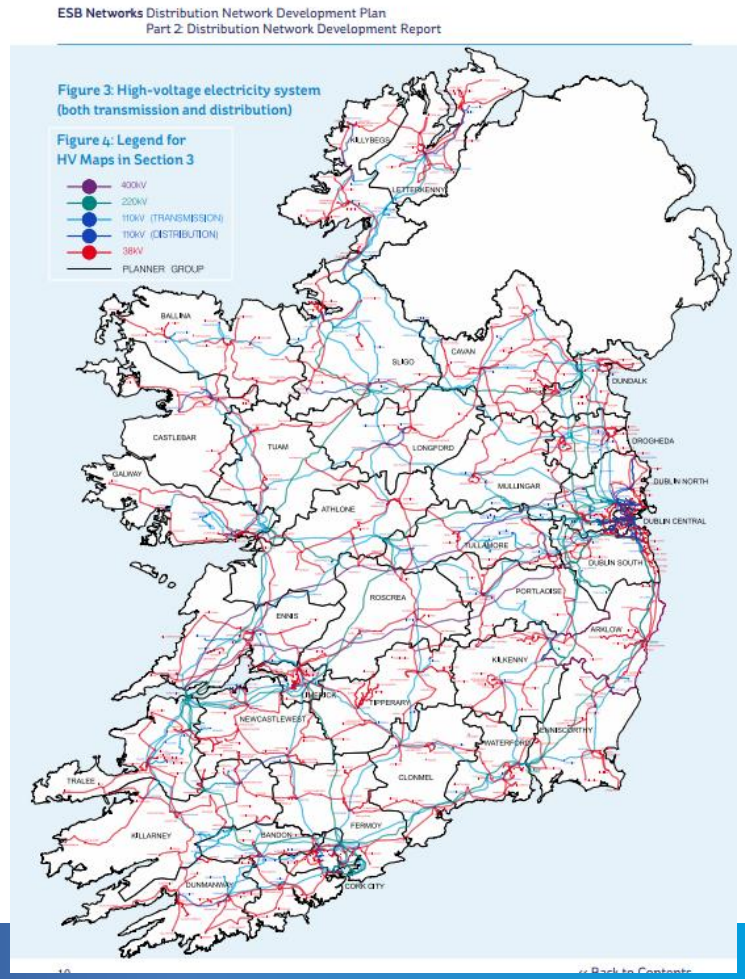


ESB was established by the state in 1927 soon celebrates 100 years serving Irelands electricity needs.
We are constantly driven to make a difference and want to use our unique experience and position to address societies' biggest challenges, including climate change.

Irelands Electricity Network – Roles for EirGrid and ESB Networks

There are two parts to Irelands electricity network – the transmission system operated by Eirgrid (TSO) and the distribution system operated by ESB Networks (DSO).





- EirGrids TSO role is to identify future needs on the transmission system and to obtain any necessary consents
- ESBNs role is to construct and deliver these transmission projects and to own and maintain the onshore transmission network
- ESBNs DSO role also requires delivery, ownership and maintenance of the lower voltage network

- 400/220 kV = motorway/dual carriageway
- 110 kV = high quality regional roads
- 38 kV = regional roads
- **20/10 kV = local roads**
- Low voltage connections to end users

ESB Networks Distribution Work Programme is Derived From Government Policy

- Very strong commitment from ESB Networks to play a leading role in delivering National Development Plan and the Climate Action Plan 25 targets

80 % RES by 2030

9 GW Onshore Wind

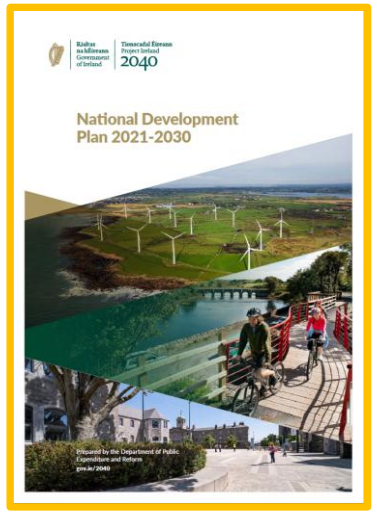
8 GW Solar

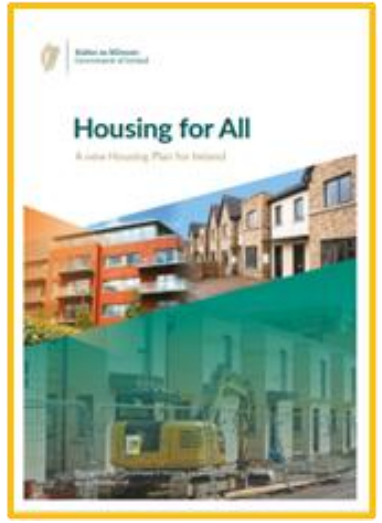
- Carbon Budgets- 3 budgets spanning 2021-2035 – Introduced Sectoral Emissions ceilings

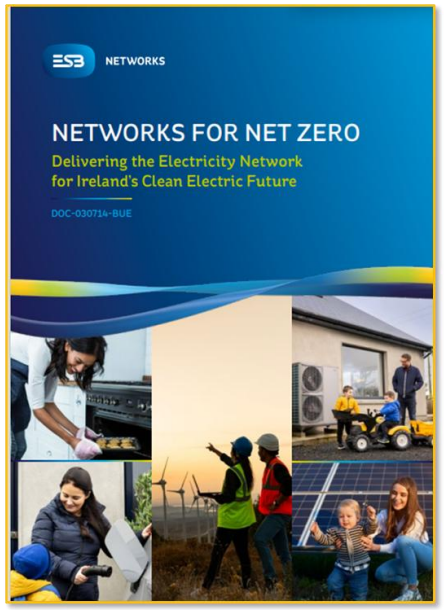
2021-2025 - 40 MtCO2eq

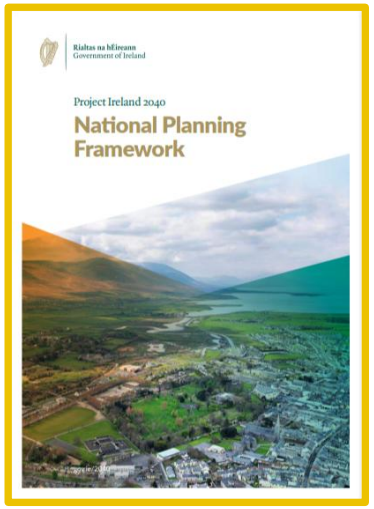
2026-2030 - 20 MtCO2eq

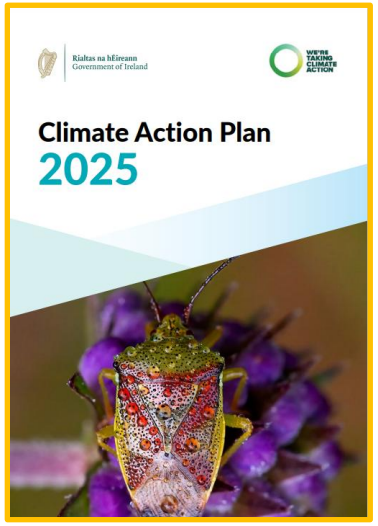
- National Climate Objective- 51 % reduction in Greenhouse gas emission by 2030 relative to 2018 levels
- **Forecast 50 % growth in electricity demand by 2030**
- **Industry growth, electrification of heat and transport,**
- **Housing For All - over 300,000 new homes**
- Energy Security In Ireland to 2030
- Ensure a fit for purpose electricity grid that supports Ireland's energy and climate ambition
- [Minister O'Brien welcomes historic €18.9 billion investment in energy infrastructure (ESBN and EirGrid)]











Overview of the HV Network and the High Level Challenges Ahead

Limited investment over the past decade – PR6 is exponential change from previous PRs

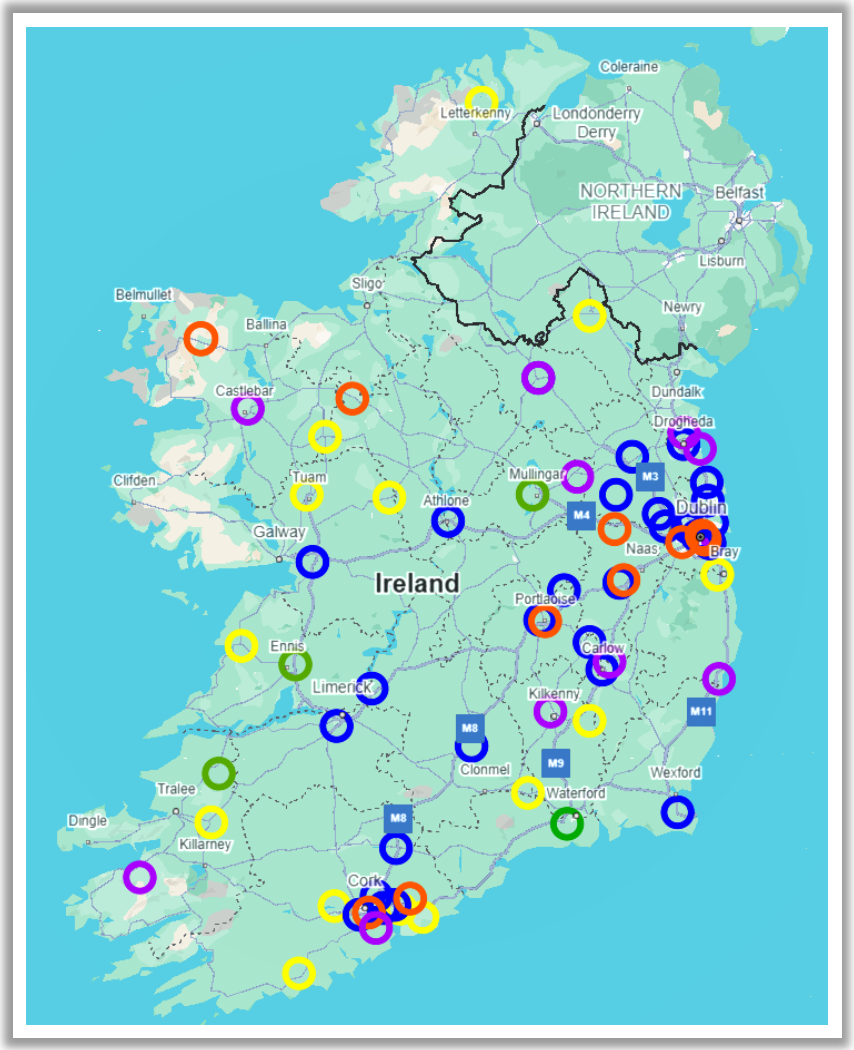
Current State of the Dublin Network

- The Dublin Network is constrained, and Dublin Central is one of the worst affected areas:
  - Years of XLEU (Extra Large Energy User) growth
  - For scale - one XLEU can be the equivalent of an entire city (e.g. Galway/Limerick) on the electricity system, there are multiples of these in the North County Dublin

The Challenge Ahead

- The challenge ahead for my team is a combination of:
  - Electrification of Heat and Transport (People will be more reliant on a secure connection)
  - Housing growth (Housing crisis so we need to be able to connect these quickly)
  - Large Customers (Good for jobs and the economy-also looking to electrify their processes)
- The challenge ahead is not unique to Dublin or even Ireland
  - Ofgem in the UK are expecting a 5 fold increase in spend on the electrical infrastructure
- The change required is unprecedented in recent times, rural electrification is the only comparable event in recent history

PR6 Work Programme High-Voltage 110 kV and 38 kV Distribution driven substation projects
Approx. 78 substation projects to be delivered

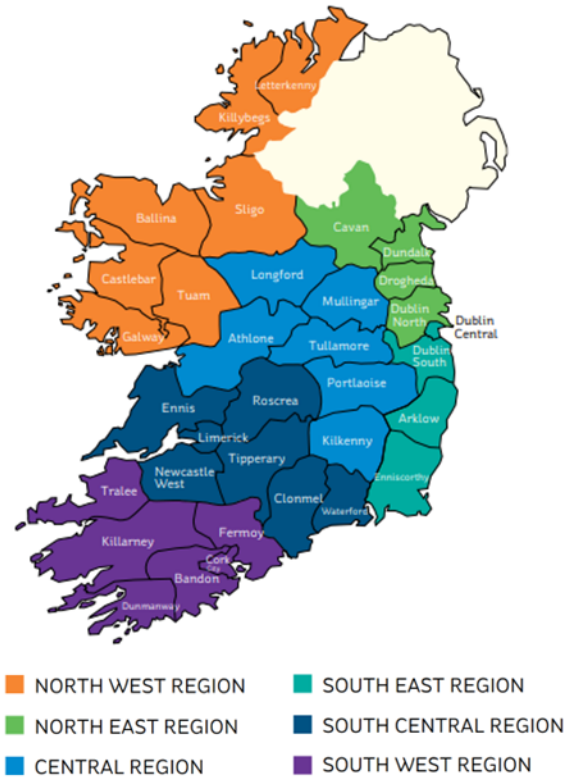


HV Reinforcement Programme

- Dark Blue – **27** New 110 kV Substations;
- Purple – **18** New 38 kV Substations;
- Amber – **11** 110 kV Substation uprates; (Portlaoise 110 kV For example)
- Green – **5** 110 kV Renewable Hubs – Substation uprates;
- Yellow – **15** 38 kV Substation uprates;
- All connected by existing or new OHLs or UGSs

PR6 High-Voltage 27 x 110 kV new build substation projects (DSO Demand)

Project	Region	Voltage
Walterstown	Dublin North	110 kV / 38 kV / MV
St. Vincent's University Hospital	Dublin South	110 kV / MV
Courtlough	Dublin North	110 kV / 38 kV / MV
North City Junction	Dublin Central	110 kV / MV
Batter Lane	Dublin North	110 kV / MV
Blundlestown	Dublin North	110 kV / 38 kV
Fosterstown	Central	110 kV / MV
East Galway	North West	110 kV / 38 kV / MV
East Athlone	Central	110 kV / 38 kV / MV
Dunsink	Dublin North	110 kV / MV
Belmayne	Dublin North	110 kV / 38 kV / MV
Newbridge East	Central	110 kV / 38 kV
Bracklone	Dublin North	110 kV / MV
South East Carlow	Central	110 kV / MV
Ballycummin	South Central	110 kV / 38 kV / MV
West Portlaoise	Central	110 kV / MV
South Athy	Central	110 kV / MV
Birdhill	South Central	110 kV / MV
North-East Cashel	South Central	110 kV / MV
Navan	North East	110 kV / 38 kV or 110 kV / MV
Drogheda	North East	110 kV / 38 kV / MV
Castleview (Little Island)	South West	110 kV / MV
Fermoy	South West	110 kV / MV
Bishopstown	South West	110 kV / 38 kV / MV
Mayfield/Riverstown	South West	110 kV / MV
Killacloyne	South West	110 kV / MV
Cavan	North East	110 kV / MV



Insights

- These 27 projects will deploy an additional circa 2,400 MVA of installed 110 kV transformer capacity onto the system.
- **8 projects in greater Dublin** area delivering circa 35 % of this transformer capacity.
- **5 projects (~20 %) in South West** region, delivering capacity in the wider Cork area
- Of this portfolio, **site arrangements** have been agreed for **7 sites**, breakdown as follows:

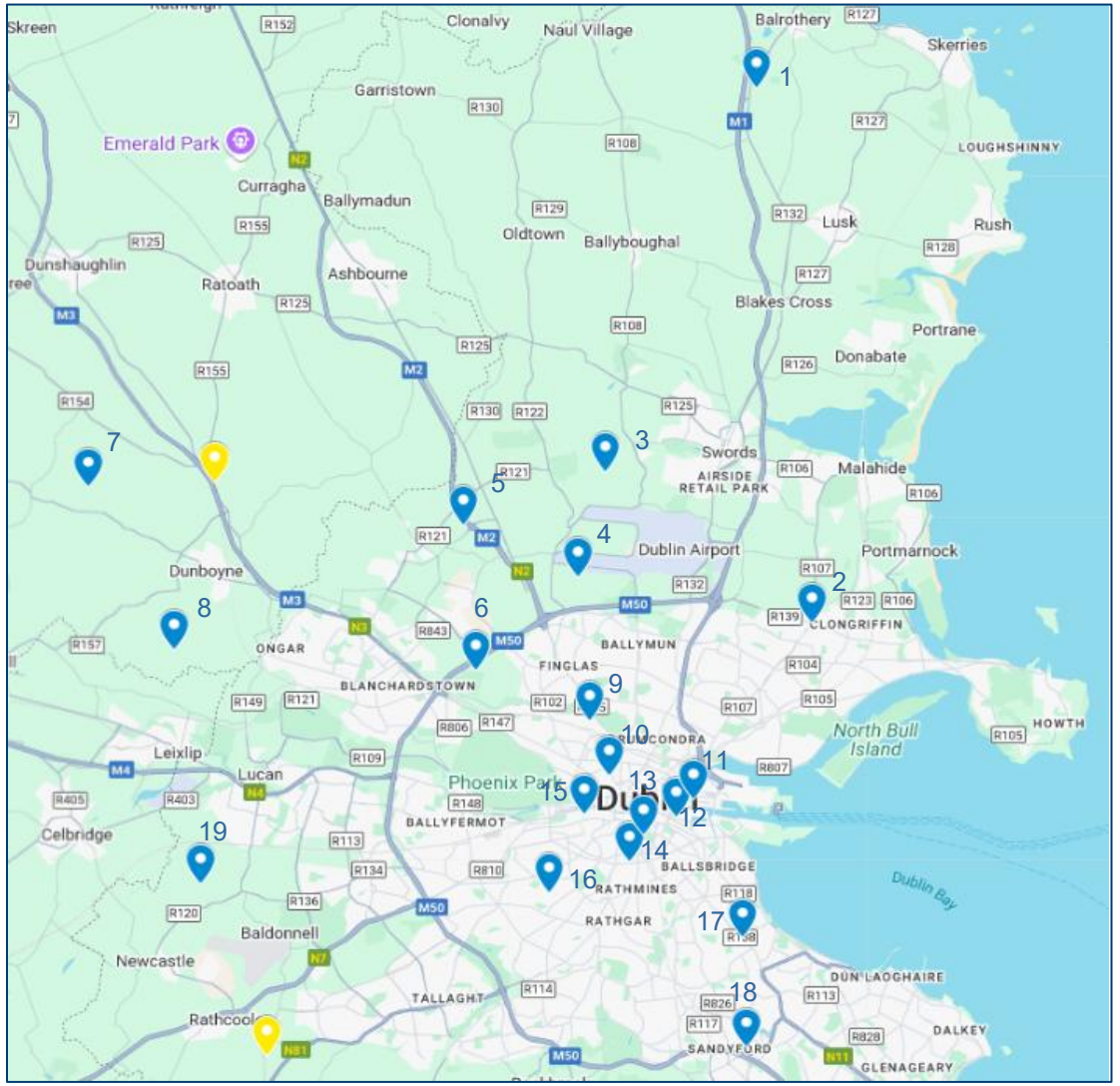
  - Greater Dublin area 3 sites
  - Central (Portlaoise / Meath) area 2 sites
  - North East area 1 site
  - Limerick area 1 site

38 kV New Build Substations: PR6+ Requirements

Project	Status	PR6/PR7
New Knocknagee MSD 38 kV	Delivery	Submitted as part of PR6
New Talbots Inch/Rosehill 38kV	Pipeline	Submitted as part of PR6 / PR7 EI
Delvin 38 kV / Station Rebuild	Pipeline	Submitted as part of PR6
New Ballymakenny 38 kV	Development	Submitted as part of PR6
Ballyard 38 kV	Pipeline	Submitted as part of PR6
Castlecomer 38 kV	Development	Submitted as part of PR6
Collinstown 38 kV	Development	Submitted as part of PR6
Tycor 38 kV	Pipeline	Submitted as part of PR6
New Bettystown 38 kV (New CX TBC	Pipeline	Submitted as part of PR6: **Dart+**
New Baxter 38 kV (New CX TBC)	Pipeline	Submitted as part of PR6
New Caroline Street 38 kV	Pipeline	Submitted as part of PR6
New Gurranbane Offload 38 kV	Pipeline	Submitted as part of PR6
Bishopstown 38 kV	Pipeline	Submitted as part of PR6
Morristown 38 kV (TBC)	Pipeline	Submitted as part of PR6
Rineanna 38 kV	Pipeline	Submitted as part of PR6
New Blarney Business Park 38 kV	Development	Submitted as part of PR6 / PR7 EI
New Clonroche 38 kV	Pipeline	Submitted as part of PR6 / PR7 EI
New Killygarry 38 kV	Development	New PR6

Planned Infrastructure For Dublin City

Dublin		
1	Courtlough	Fingal Offered site under review
2	Belmayne	Site Agreed
3	Ridgewood St Margarets	No Site
4	Dubber	Fingal Offered site under review
5	Cherryhound	No Site
6	Dunsink	No Site
7	Blundlestown	No Site
8	Walsterstown	Site Agreed
9	Ballyboggin	Site Under Review
10	Grangegorman	Site agreed with GGDA
11	Spencer Dock	No Site
12	Pearse Street	No Site
13	Stephens Green	No Site
14	Grove Road	No Site
15	Steevens Lane	Site Agreed
16	Kimmage	HSE Offered Site Under Review
17	Stillorgan	No Site
18	Leopardstown	Site Agreed
19	Grangecastle West	SDCC Offered Site Under Review
20	Brandon	No Site



[Availability capacity heatmap | ESB Networks]

Substation Requirements – what do they look like and what land do we need

MV Substation Approx 20 sq. m (small)

38 kV Substation Approx 1 acre (medium)

Mixed 110 kV, 38 kV and MV
Approx 4 acres (large)

Suburban 110 kV Killonan (Limerick)

Killonan During Construction

Killonan After Construction

Two large warehouse type buildings with external transformers replacing an older outdoor substation serving a significant portion of Limerick and surrounding areas

Rural 110 kV Substation Bracklone, Portarlington, Laois – co-located beside WWTP

One large warehouse type building with external transformers serving a significant portion of Laois/Offaly and surrounding areas

Suburban 110 kV substation – Batter Lane Swords - in construction

A new substation to serve Swords and surrounding areas – a small 38 kV temporary substation was built quickly to provide short term capacity whilst waiting for the larger capacity substation to be delivered

Suburban 110 kV Batter Lane photomontage when complete

Rural 38 kV substation Woodford near Killarney

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Before

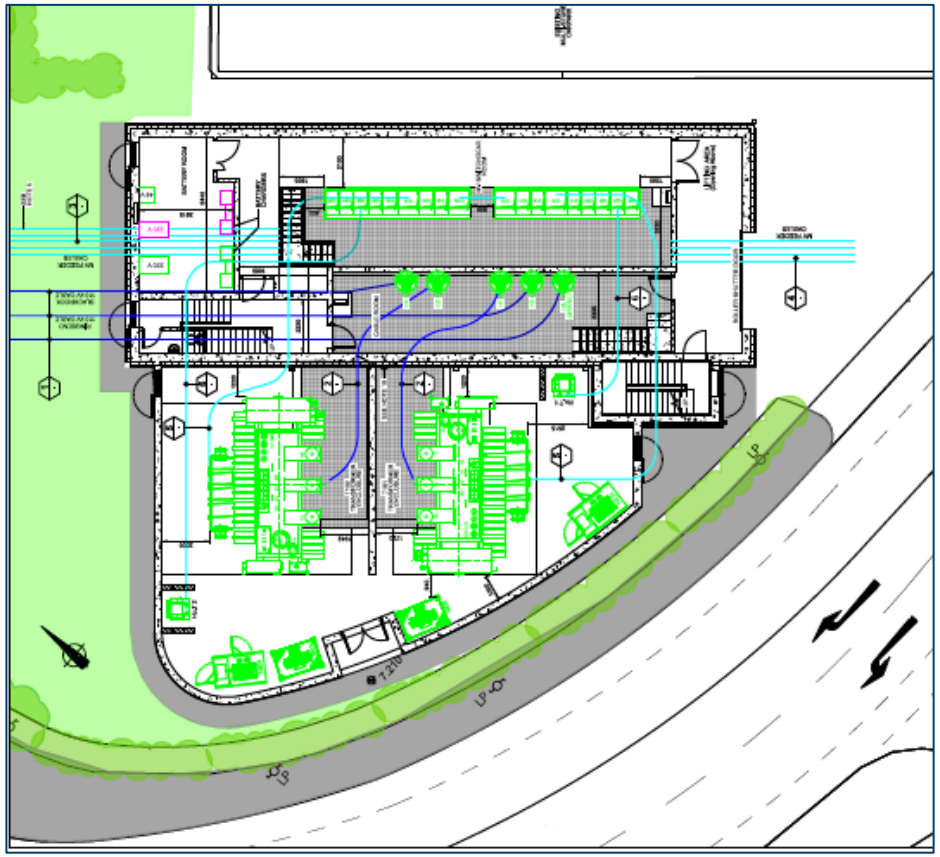
After

Substation renewals like this are increasingly built as exempted development under PDA Section 4(1)(g)

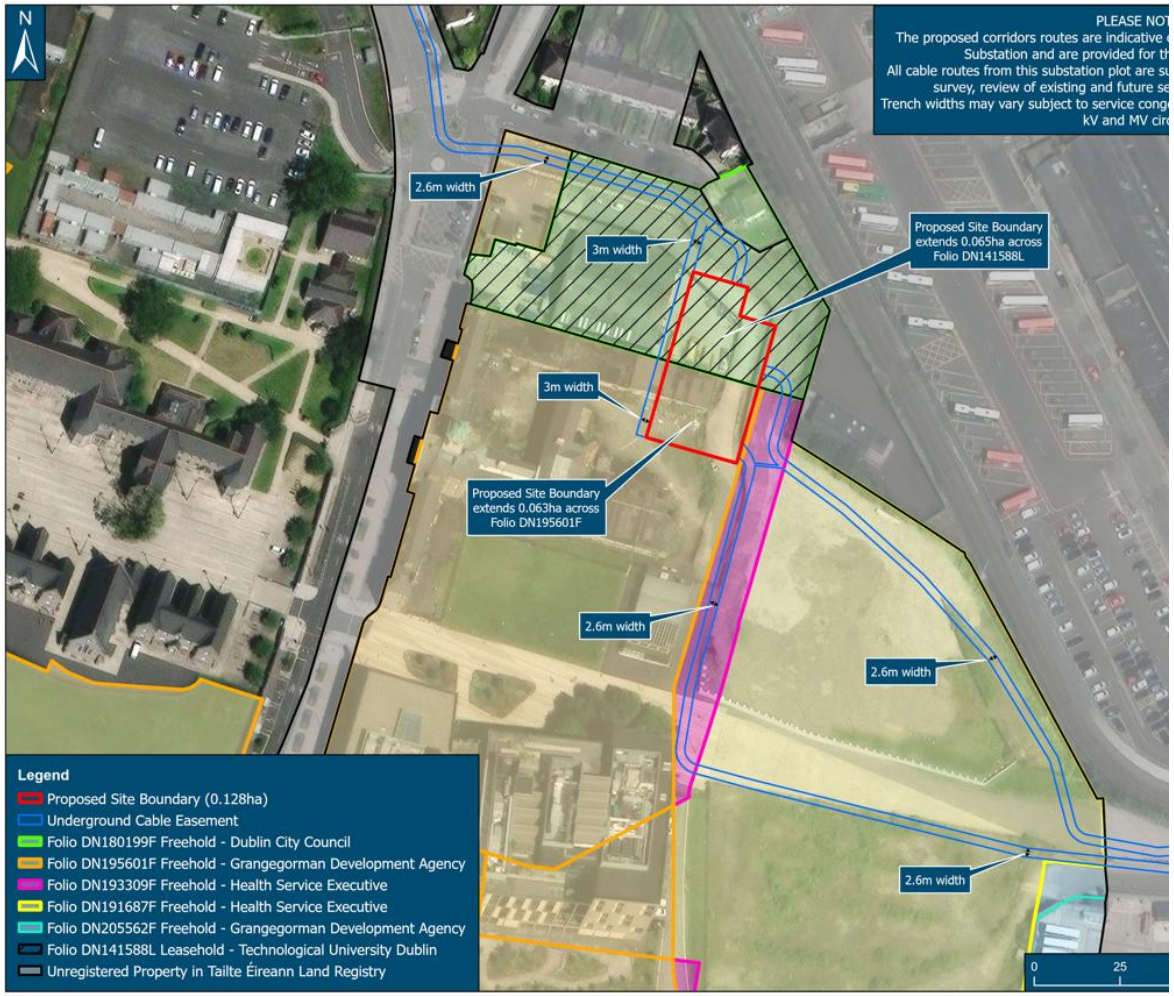
(g) development consisting of the carrying out by any local authority or statutory undertaker of any works for the purpose of inspecting, repairing, renewing, altering or removing any sewers, mains, pipes, cables, overhead wires, or other apparatus, including the excavation of any street or other land for that purpose;

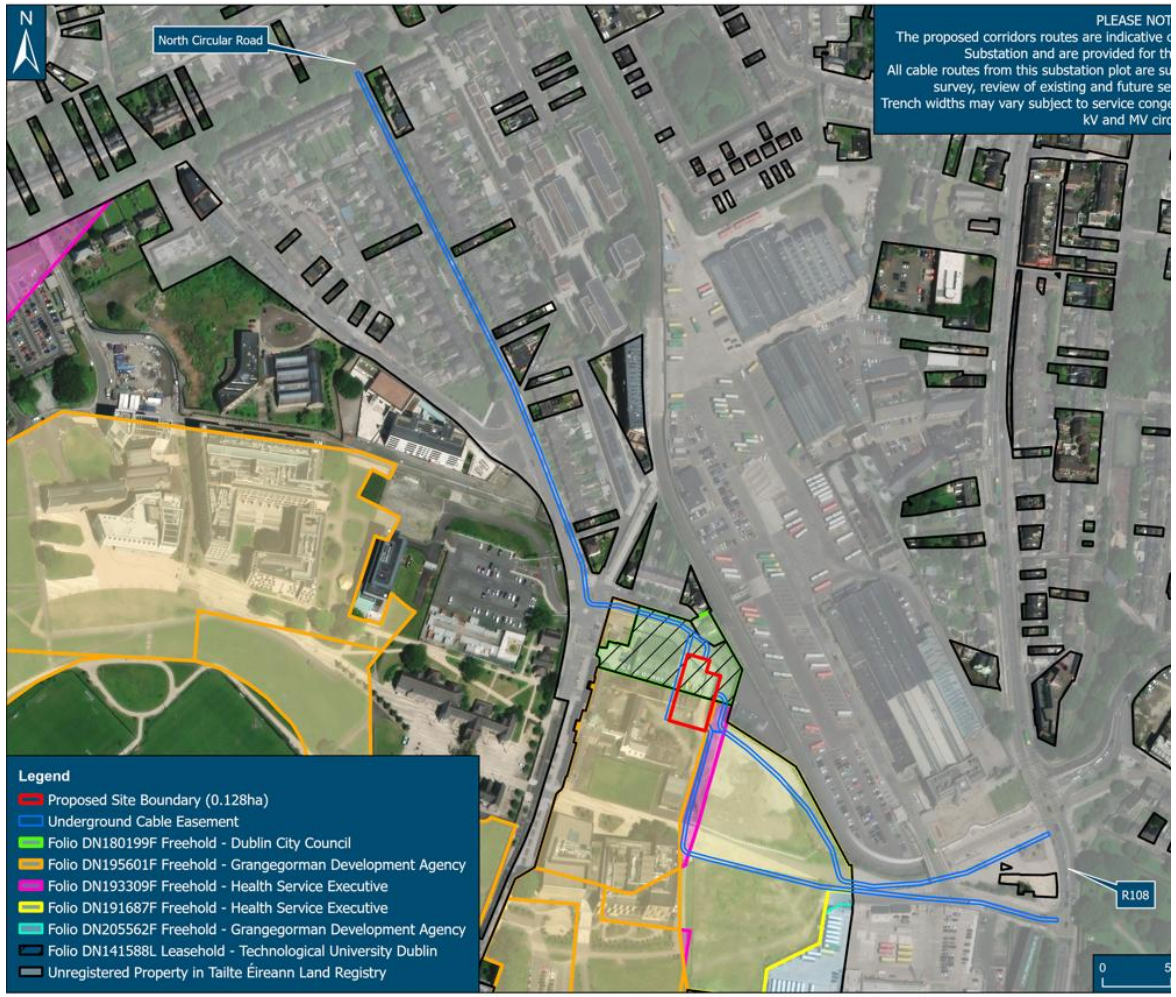
Compact Urban Substation Development

- St Vincent's Hospital. Innovative compact urban substation development to optimise small construction site
- Close collaboration with St Vincent's Hospital and Dublin City Council
- Substation footprint 40 m x 40 m

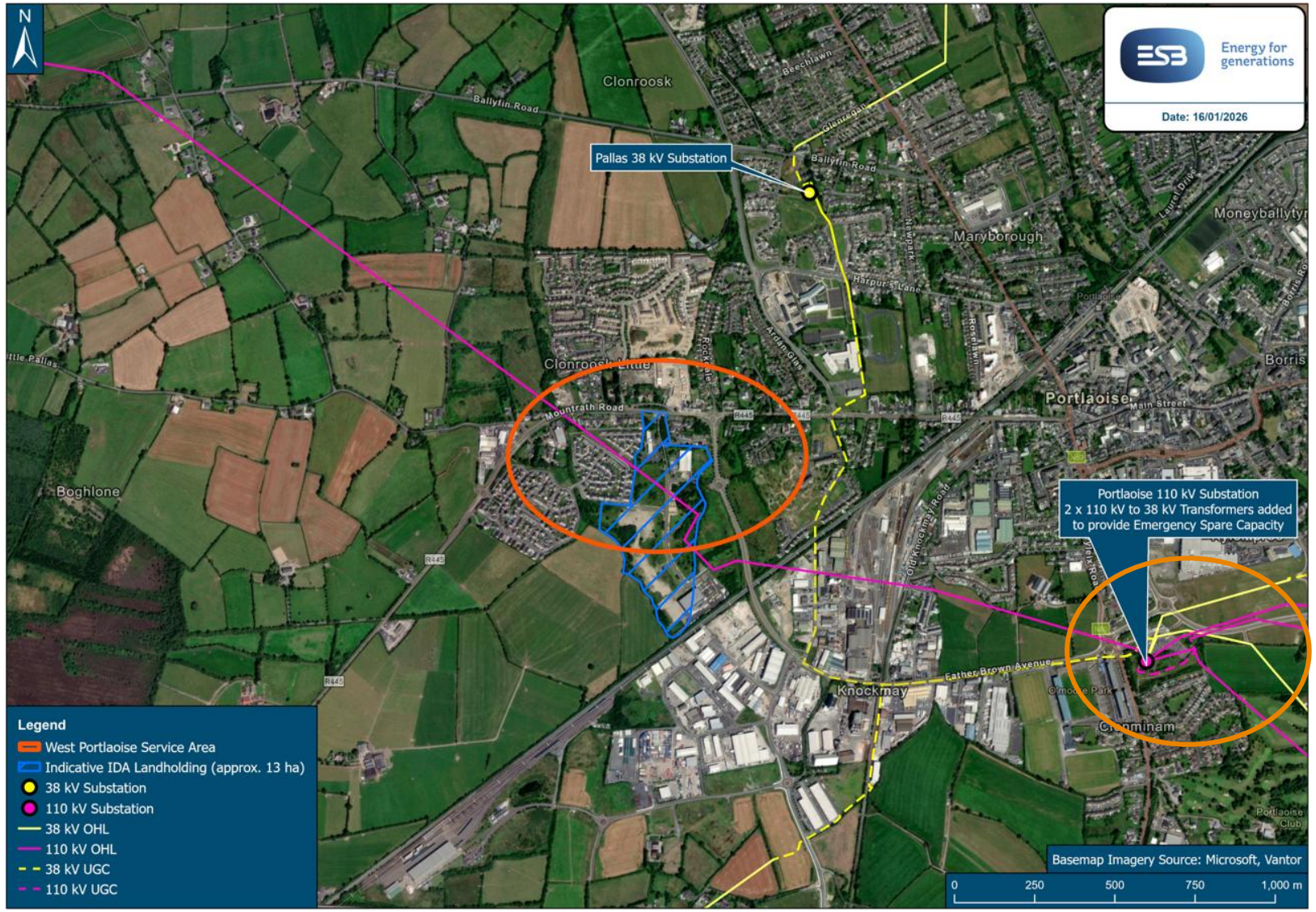


Grangegorman (Broadstone 110 kV Substation) – currently under design





West Portlaoise - currently under design and Portlaoise Existing 110 kV Substation



New West Portlaoise 110 kV – 38 kV - MV Substation:

Two new 63 MVA Transformers Two new 31.5 MVA Transformer.

This project will provide capacity to the greater Portlaoise area well beyond 2045.

It also relieves pressure on surrounding 38 kV Substations at Pallas, Mountrath and Mountmellick

Recent Upgrade of Portlaoise Existing 110 kV Substation – Bigger Transformers

Transformer Asset Replace project:

Two existing 31.5 MVA Transformers replaced with Two 63 MVA Transformer.

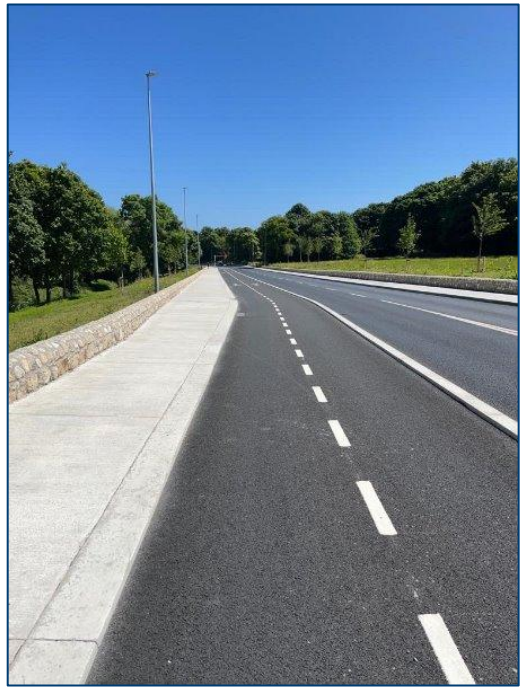
This doubled the capacity of the substation in 24 weeks

****Planning Exempt**

[ESB Networks complete critical infrastructure upgrade works in Portlaoise, doubling capacity for customers]

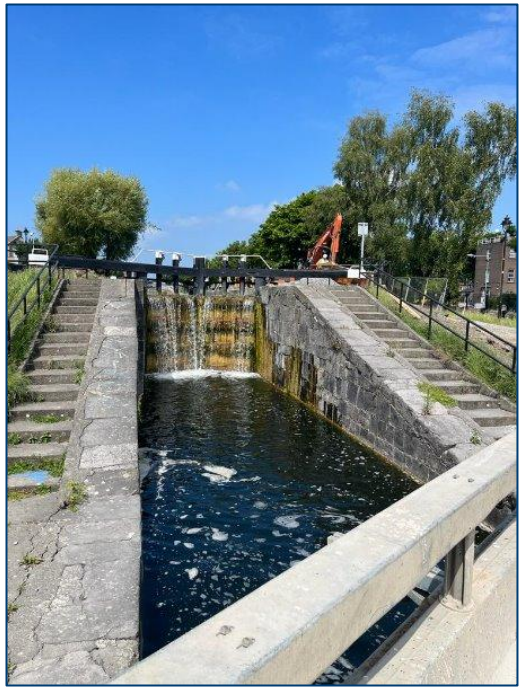
ESB Networks is responsible for the construction/maintenance of assets - UGCs

Dodder Road During Construction



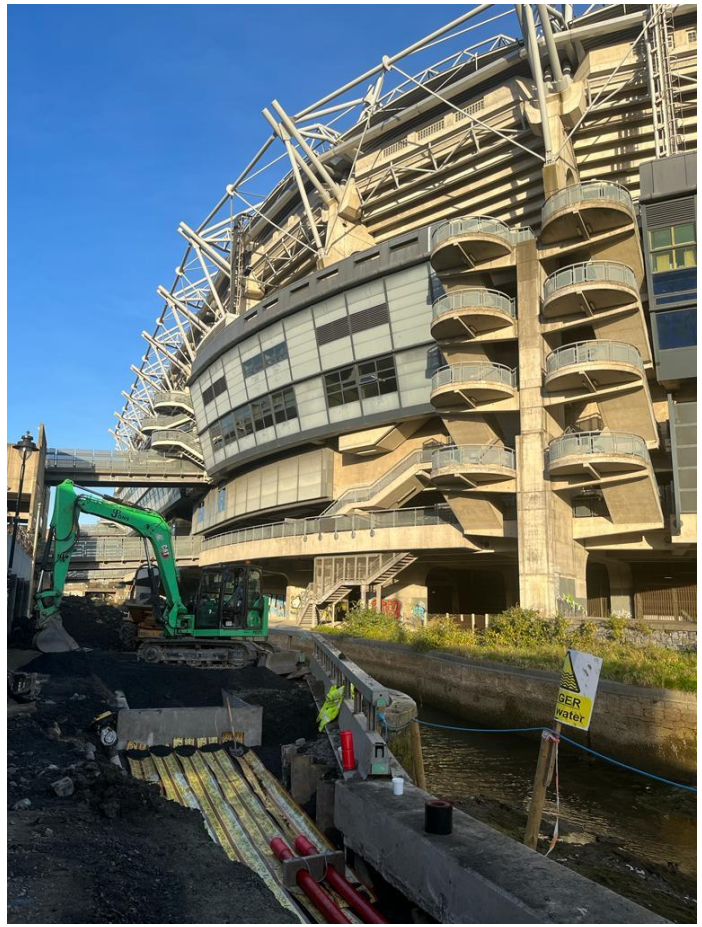
Dodder Road After Construction

Whitworth Road

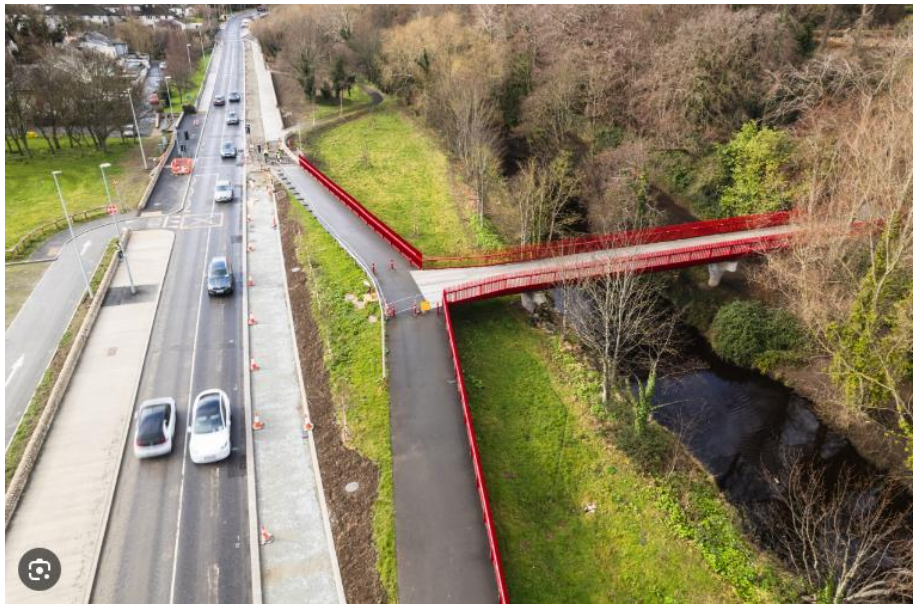


Royal Canal

HV cables projects with collaboration from others



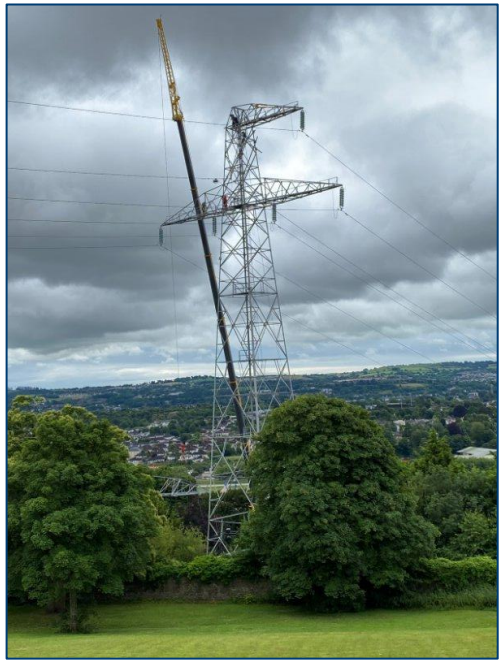
Royal Canal Greenway



Dodder Greenway

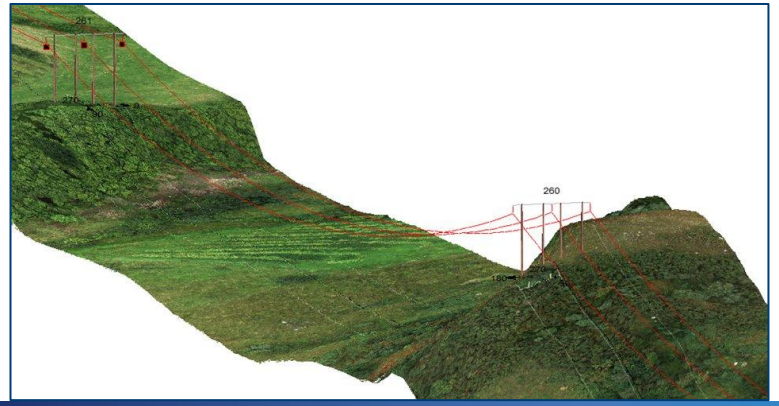
ESB Networks is responsible for the construction/maintenance of assets - OHLs

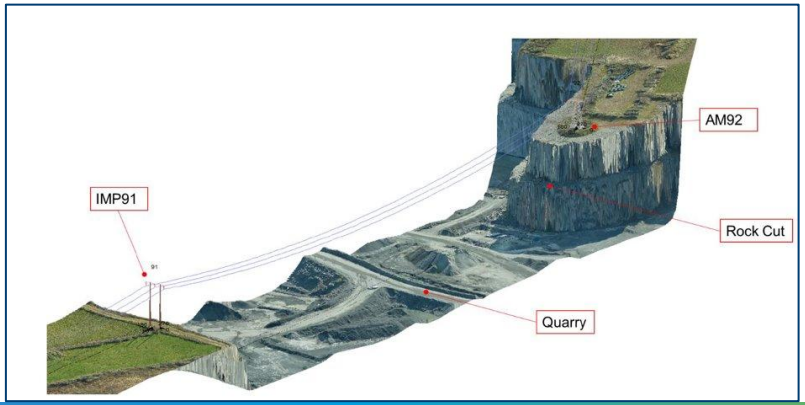
Kilbarry During Construction



Kilbarry During Construction

Kilbarry During Construction

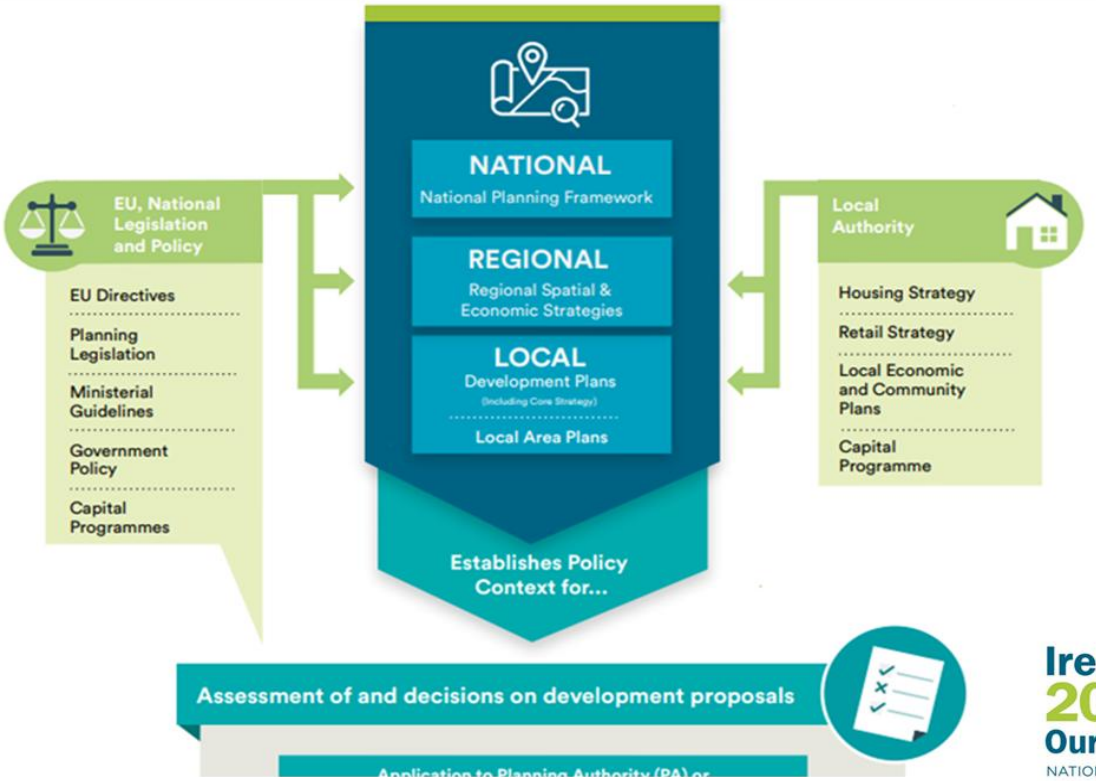




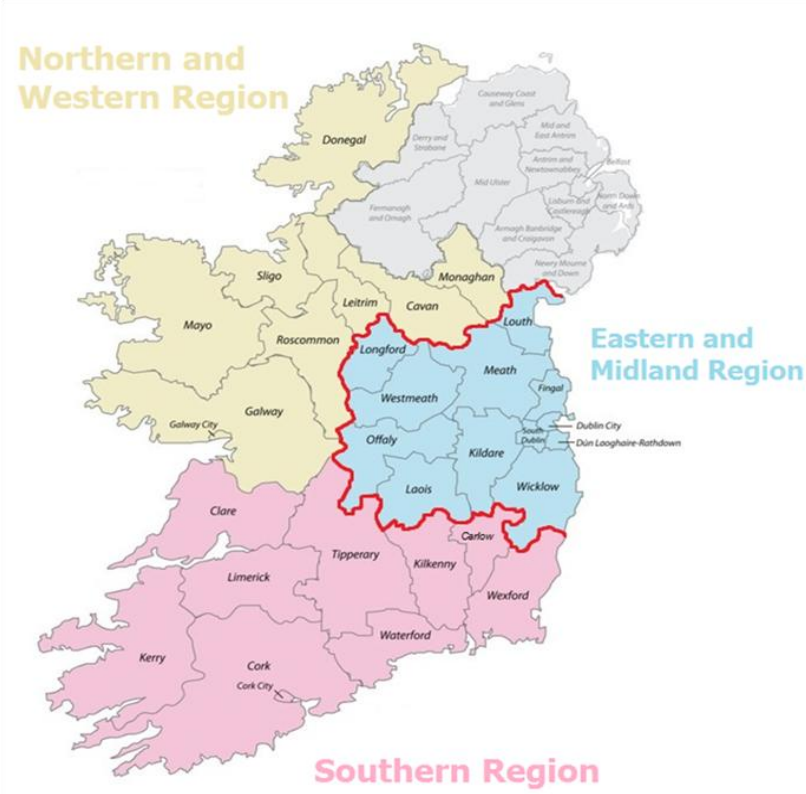
Overhead lines under construction Laois Kilkenny

ESB Engagement with the Forward Planning System

- Strategic Forward Planning Team - the hierarchy of policy informs our statutory engagement
- We make submissions and engage at all plan and policy levels
- Key focus now is on electricity planning exemptions so they reflect modern needs and are fit for purpose



Ireland 2040 Our Plan
NATIONAL PLANNING FRAMEWORK



ESBNs submissions to County Development Plan Reviews

ESB Monitoring System in Place

Review c. 60 Plans p.a.

Detailed Submissions c. 40

START Week 1

Stage 1: Pre-Draft	Public Consultation (Issues Paper) ✓	Chief Executive's Report on Public Consultation	Direction from Elected Members of the Council	Preparation of Draft Development Plan
Stage 2: Draft Development Plan	Public Consultation on the Draft Plan ✓	Chief Executive's Report on submissions	Consideration of Chief Executive's Report by Elected Members of the Council	Prepare any Material Amendments to the Draft Plan
Stage 3: Amendments to Draft Development Plan	Public Consultation on Proposed Amendments to the Draft Plan ✓	Chief Executive's Report on submissions	Consideration of Chief Executive's Report by Elected Members of the Council	Adoption of New Development Plan

FINISH Week 99

2 Year Process Duration

Next Phase of Consultations – Opportunities

Complete

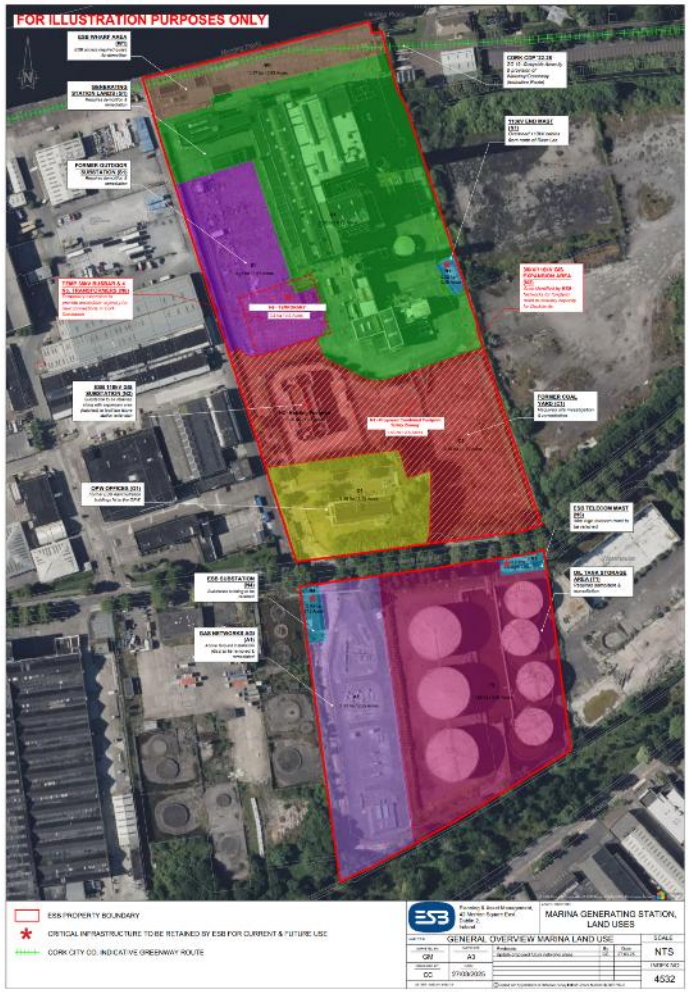
2025/2026

2026/2027

2027+

Future Proofing - Marina

Proposed Change No. 2: Zoning of Utility Infrastructure (ESB)		
Map Reference	Existing Zoning: ZO 02 New Residential Neighbourhoods.	Proposed Zoning: ZO 14 Public Infrastructure and Utilities to protect critical infrastructure.
Volume 2, Map 01.02		



Future Proofing - DLRCC

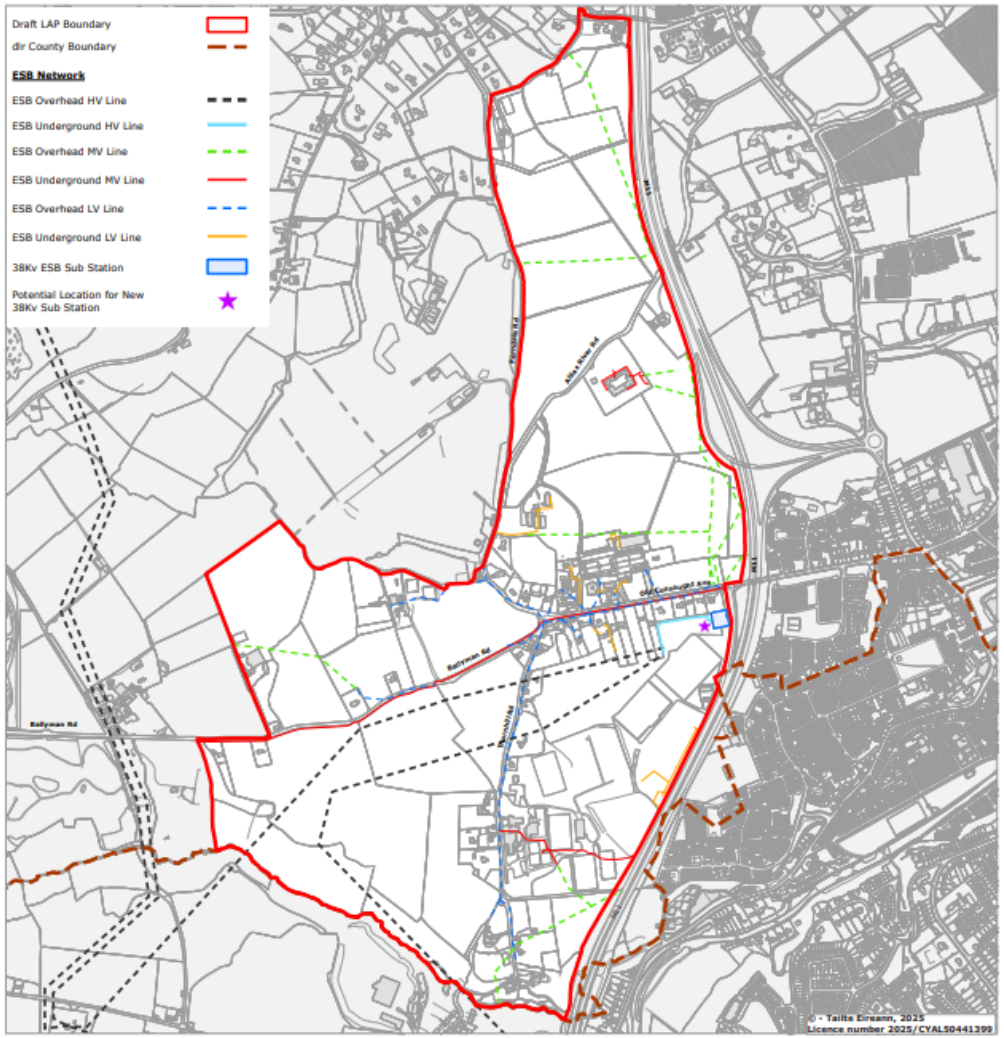


Figure 10.8: Electricity Network in the LAP area (Indicative Only, refer to ESB for ESB Network)

Land Development Agency & State Lands

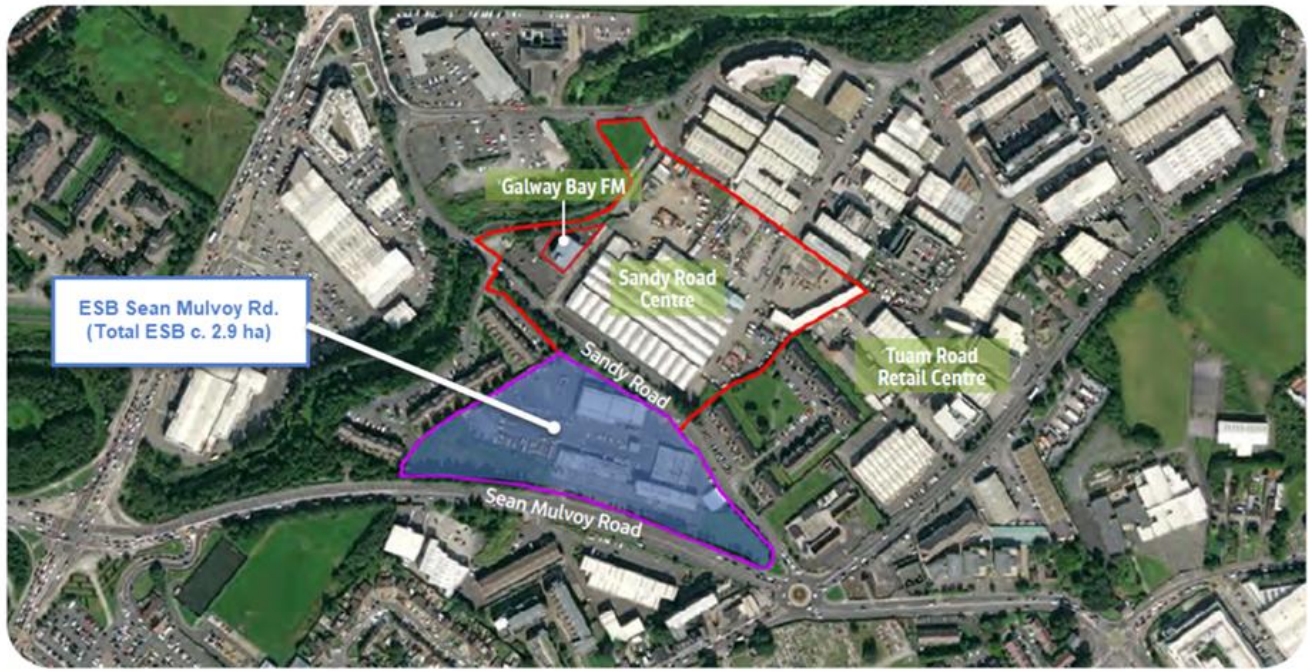
SANDY QUARTER

Land Area - 7.4 ha

Registered Owner - Electricity Supply Board, Local Authority

Public Body Specified in Schedule - Schedule 2, Local Authority

Note - Part of the land is identified for transfer to the LDA under Housing for All. The LDA has prepared a design review in conjunction with the RIAI. Draft spatial framework will be published by LDA in partnership with the local authority.



Sean Mulvoy Road – Galway

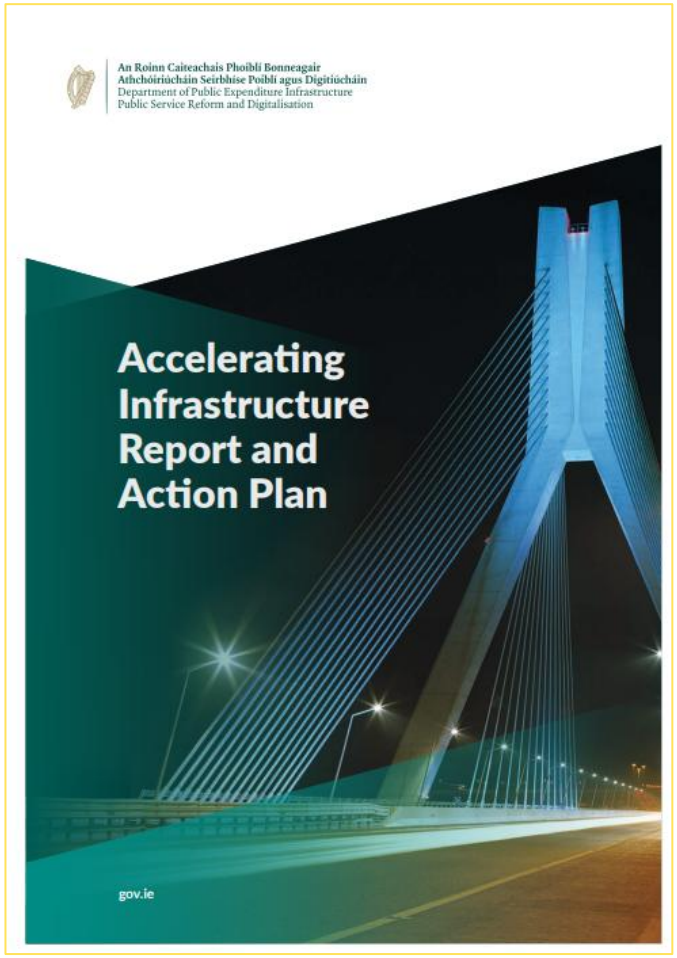
Site Area	2.9 ha
Customers Served	110,000
Geographic Area	4,454 Km^2
Total Staff (Projected)	91 (106)

Accelerating Infrastructure Report and Action Plan*

Energy for generations

- **Blueprint for Reform - Pillars**
  - Pillar 1: Legal Reform
  - Pillar 2: Regulatory Reform and Simplification
  - Pillar 3: Co-ordination and Delivery Reform
  - Pillar 4: Public Acceptance
- **Action Plan – 30 Actions**

- **Next Steps – Publication and Implementation**



*** Link to report: [Accelerating Infrastructure Report and Action Plan]**

Accelerating Infrastructure Report and Action Plan Potential Benefits

- Commitment from State bodies to facilitate the transfer of state lands To ESBN and Uisce Eireann at an accelerated pace
- There is potential to engage with TII to access roads for critical infrastructure such as DSO circuits
- There is the potential to reduce the consenting time of DSO projects from 46 weeks to 12 by way of Local Authority applications
- Local Authority Masters Plans will now include a provision for Utilities going forward.

- Nicholas Tarrant – MD of ESB Networks is a Member of the Task Force
- Peter Lambe – ESBN is a Secondee to the Housing Activation Office

Key Issues and Actions

- JR reforms
- Infrastructure Co-ordination – role of DPER going forward
- Regulatory Simplification Unit
- National Planning Statements
- Public Acceptance and Civic Engagement - Benefits Realisation Framework, Communications, Strengthen political, civic society, and senior leadership support
- Enhancing Co-operation Between Utilities and Local Authorities

*This list is not exhaustive; there are a range of other important actions and sub-actions that will also have a material impact as they are delivered.

Site Acquisition – Challenges for ESBN

- **Urban Developments**
  - The availability of sites large enough to accommodate 110 kV – 38 kV and MV substations is limited
  - Extensive desktop checks now needed to identify existing underground utilities, transport infrastructure and proximity to the high voltage network for substation connection
  - Evaluating the capacity of public roads to support that connection, examining road network capacity for offloading lower voltages (38 kV & MV), and identifying complexities in cable routes such as railways, motorways, and waterways for Horizontal Directional Drilling (HDD)

- **Rural Developments**
  - Proximity to the medium-voltage load centres - the nearer the better
  - Proximity to the high-voltage network - can be some distance away from the load centre
  - Capacity and complexity of the surrounding road infrastructure to take underground cables
  - Flood maps – substations are designated critical infrastructure and must be developed to account for future effects of climate change
  - Geotechnical, environmental and ecology maps sensitivity of surrounds, proximity to European sites, Geological Survey of Ireland data review, etc
  - Heritage maps, OSI maps, current and historical land use of site and surrounds
  - Legal transfer of land

Planning Engagement/Lessons Learnt with County Councils and ACP

- Engagement is generally positive but we need more coordinated engagement with other state agencies and bodies including MARA, NPWS and National Monuments Service and to develop Codes of Practice

- Pre-planning consultations need to be prioritised for ESBN projects as local advice is beneficial for planning applications

- Planning conditions which can impact timelines include:
  - Request for CEMPs/TMPs/WMPs where these have already been submitted at planning stage
  - Restrictions on working hours in remote areas with no sensitive receptors
  - Development levies being inconsistently levied resulting in appeals to ABP
  - Planning conditions not consistent with the OPR templates
  - Possible unnecessary "prior to commencement of development" planning conditions requiring resources from ESBN and county councils to discharge

- Planning validation varies from place to place

- Local Authority linear projects crossing counties can be partially appealed to ABP leading to inconsistencies

Key Messages and Asks from planners to support network delivery

- Electricity substations are not complex – warehouse/modular structures no moving parts, no emissions, generally standard designs
- Zoning = need for electrical infrastructure – talk to us when making plans/zoning we have Network Planning Teams around the country who can work with your plan making teams (e.g. Naas North West Quadrant Plan)
- Assist us with site acquisition either with county council sites or developer sites you may be aware of
- Early engagement needed for large demand customers and in particular for LRDs
- Think about the wording of planning conditions and minimise and standardise

Key Messages and Asks from planners to support network delivery

- We don’t always need to apply for planning as we rely on exemptions – we have internal exempted development processes and timely Section 5 decisions are important to ESBN
- We want to engage with county councils as much as possible – Land Activation Offices and forward planning teams are key
- Visit existing ESBN infrastructure to understand how it works - substations are not very complex – we can bring you to one subject to standard safety procedures
- Collaborate with ESBN when planning linear projects like roads, greenways, bus connects, etc. so cable ducting can be planned into your project for future use
- Roads are vital for cabling and should be seen as opportunities not as constraints
- Electrical infrastructure is an enabler to help deliver county development plan objectives

Thank you

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