ESB NETWORKS

Distribution Network Development Plan

Part 2: Distribution Network Development Report

Consultation Report
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Foreword

ESB Networks is the electricity Distribution System Operator (DSO), Distribution Asset Owner (DAO), and onshore Transmission Asset Owner (TAO) in the Republic of Ireland. We work to meet the needs of 2.5 million electricity customers in Ireland, regardless of supplier, delivering the electricity network for Ireland's clean electric future.

In our Networks for Net Zero Strategy[1], launched in January 2023, we committed to developing Net Zero Ready Distribution Network by 2040 to enable Ireland's achievement of net zero no later than 2050.

Our ambition over the next decade and beyond is to build distribution network capacity to enable:

- Connection of the renewable generation to our network that will generate the clean electricity.
- Increase in demand associated with significant population growth, new housing developments, economic growth, as well as a significant increase in demand due to electrification of heat, transport and industry.

One of the key actions in our Networks for Net Zero Strategy[1] is to publish a Ten-Year Distribution Network Development Plan (DNDP).

DNDP consists of three parts:

- **Part 1: Summary Document and Methodology Report**[2] published in August 2025 and updated every two years thereafter.
- **Part 2: Distribution Network Development Report (DNDR)** - this report, that will be reviewed every two years.
- **Part 3: Network Scenario Headroom Report**[3] that consists of two capacity workbooks for both demand and generation on the distribution system. Demand Capacity Workbook was published in December 2024 and Generation Capacity Workbook was published in March 2025. Both workbooks will be updated by the end of 2025 and every year thereafter.

The DNDR provides information on currently installed distribution network capacity and outlines the investment projects proposed for each of the areas including their status and timelines for delivery and identifies flexibility needs.

This report is published as a Consultation Report, and we are inviting you to send us the feedback on whether the information provided within this report meets your requirements. Your feedback should be provided until 19 September 2025 to development.plans@esb.ie We will use your feedback to guide the information and the structure of the final Distribution Network Development Report to be published by the end of 2025.

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1. Introduction

ESB Networks is the electricity Distribution System Operator (DSO), Distribution Asset Owner (DAO), and onshore Transmission Asset Owner (TAO) in the Republic of Ireland. We work to meet the needs of 2.5 million electricity customers in Ireland, regardless of supplier, delivering the electricity network for Ireland's clean electric future.

In recent years, there has been significant growth in demand for electricity network capacity. Growth in demand has arisen across all sectors, including among large energy users such as data centres, which require significant electrical capacity. Other high growth sectors include housing, health, industrial processing and public electric vehicle (EV) charging. Many of these developments are very large single-point electrical loads which quickly absorb significant network capacity and require significant network reinforcement to connect.

Over the last four years, ESB Networks has connected over 147,000 homes and businesses to the distribution network.

In response to this significant growth in demand, ESB Networks is installing and upgrading increased numbers of high-voltage substations, lines and cables. These multi-year projects are presented in Section 3 of this report.

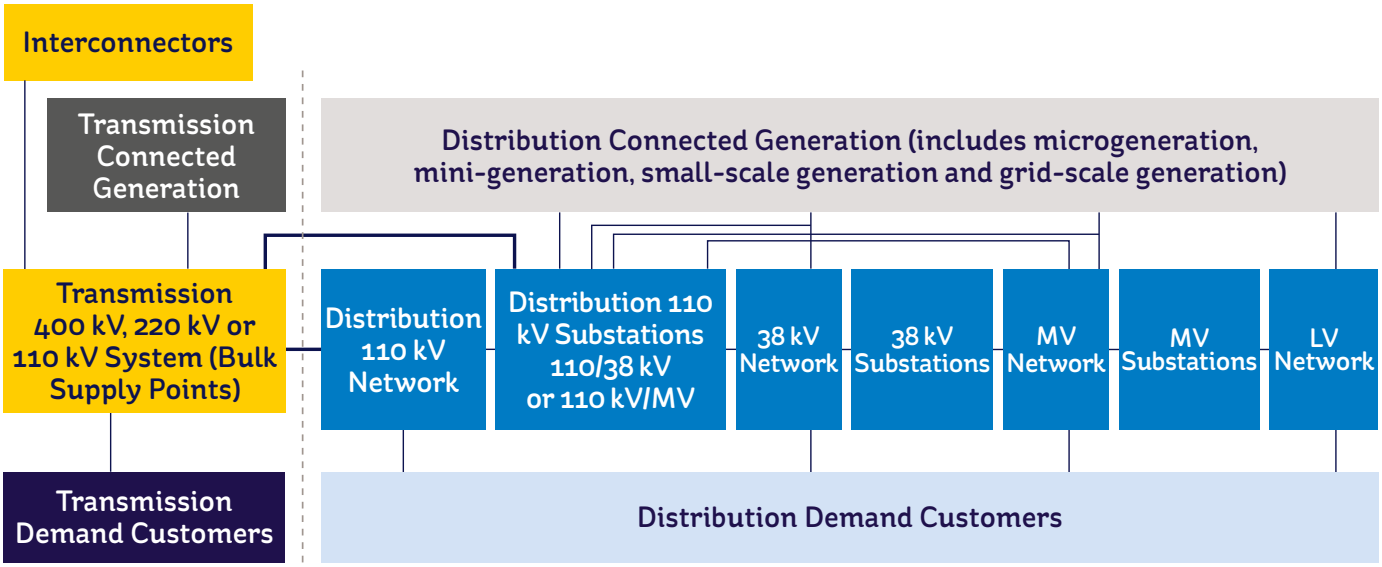
2. Distribution Network

2.1 Overview

The electricity system comprises transmission and distribution networks, and includes all substations, overhead lines, and underground cables that are used to bring electricity to Ireland's 2.5 million domestic, commercial, and industrial customers. It includes approximately 160,000 km of overhead network, 28,000 km of underground cables, and around 800 High-Voltage (HV) substations (including both customer-owned substations and ESB Networks-owned substations).

Figure 1 illustrates the structure of the electricity network and the interface between the transmission and distribution systems.

Figure 1: Structure of the electricity transmission and distribution systems

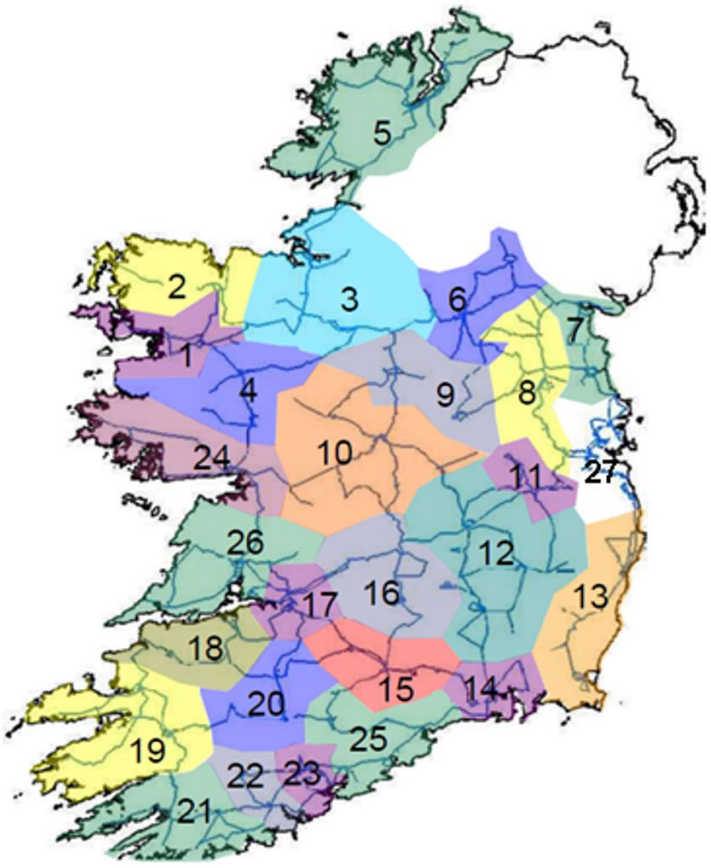


The DSO (ESB Networks) to TSO (Transmission System Operator - EirGrid) interface boundary typically occurs at the 110 kV busbar in 110 kV substations nationally. Within the Greater Dublin area, the boundary occurs at the 220 kV interface as the DSO operate a number of the 220/110 kV transformers and 110 kV circuits within Dublin.

For the DSO to develop new 110 kV substations or to add capacity to existing substations, an agreement is required with the TSO (EirGrid) to ensure the transmission capacity required is available and to ensure the development of the overall electricity system is optimised. Therefore, close collaboration is required with the TSO in the process of developing new 110 kV distribution substation capacity to supply the customers connected to the distribution system.

Distribution network in Ireland is divided into 27 distribution network planning zones as shown in Figure 2. It is important to distinguish between planner groups that are divided geographically, as described in the Part 1[2] of the DNDP, and used for development of forecasting scenarios, and planning zones that are divided electrically based on the multiple Bulk Supply Points (substations that provide exchange of energy between transmission and distribution system) in a specific area.

Figure 2: HV Zone Map



This DNDR provides information on each distribution network zone with detailed tables, descriptions and maps. It specifies the current high-voltage infrastructure in terms of installed substation capacity and provides a look ahead to infrastructure projects for the next 10 years, as well as flexibility needs in each area up to 2030.

The purpose of the DNDR includes:

- Availability of information to existing and potential customers to make an initial assessment of the capabilities of the distribution network.
- Informing customers of our development proposals for the distribution network.

Distribution Network Development Report provides information on currently installed distribution network capacity in 110 kV and 38 kV substations. The report also outlines the investment projects for each of the planning zones including their current status and timelines for delivery. The report will be updated every two years and any changes to forecasted delivery timelines will be reflected in the Network Capacity Headroom Report[3] that will be updated every year.

Distribution network in Ireland supplies the needs of over 2.5 million distribution customers, at a peak demand of 4,7 GW* in the year 2024/25. Maximum system demand** as published by the TSO in the winter 2024/25 was 6 GW.

* *This figure is true distribution system demand at the time of peak. The observed demand has been corrected for the demand down response of Demand Side Units. This figure is not corrected for ambient temperature.*

** *EirGrid defines system demand as the electricity production required to meet national consumption, encompassing system losses and generator requirements.*

Summary of the installed transformer capacity at high voltage for each planner zone is shown in Table 1.

Table 1: Summary of Installed Transformer Capacity per Planner Zone at the End of 2024

Zone Number	Zone Name	220/110 kV (MVA)	110/38 kV (MVA)	110 kV / MV (MVA)	38 kV / MV (MVA)	110 kV generation station (MVA)
1	Castlebar, Carrowbeg		126	0	110	0
2	Moy, Bellacorrick		126	10	77	115
3	Sligo, Tonroe, Carrick-on-Shannon		221	15	177	166
4	Dalton, Cloon		158	0	102	0
5	Donegal		378	0	244	135
6	Gortawee, Shankill, Lisdrum		252	0	185	0
7	Dundalk,Drybridge		252	40	272	0
8	Meath Hill, Navan		252	0	210	0
9	Richmond, Lanesboro, Mullingar		158	60	145	0
10	Athlone, Somerset, Dallow, Thornsberry		315	0	260	0
11	Blake, Kilteel, Newbridge		158	40	165	0
12	Carlow, Kilkenny, Portlaoise		378	40	339	0
13	Arklow, Enniscorthy		284	180	167	63
14	Waterford, Butlerstown, Great Island		252	40	231	0
15	Cahir, Ballydine, Doon, Tipperary		189	0	163	189
16	Thurles, Ikerrin, Nenagh		126	0	130	63
17	Ardnacrusha, Limerick		252	55	225	0
18	Rathkeale, Trien		123	0	115	146
9	Knockearagh, Tralee, Oughtragh		221	0	195	267
20	Charleville, Mallow, Glenlara		156	0	125	126
21	Ballylickey, Dunmanway		189	0	90	0
22	Bandon, Macroom, Hartnetts Cross		95	50	70	63
23	Cork		284	323	270	0
24	Galway, Salthill, Screebe		221	103	170	0
25	Barrymore, Midleton, Dungarvan		126	40	174	0
26	Ennis, Tullabrack, Drumline		158	40	132	126
27	Greater Dublin Area	3,250	2,079	1,183	1,650	0
	Total	**3,250***	**7,524**	**2,219**	**6,193**	**1,458**

* *1,000 MVA of this capacity is transmission assets, however, it supplies distribution customers only.*

2.2 Distribution Planning

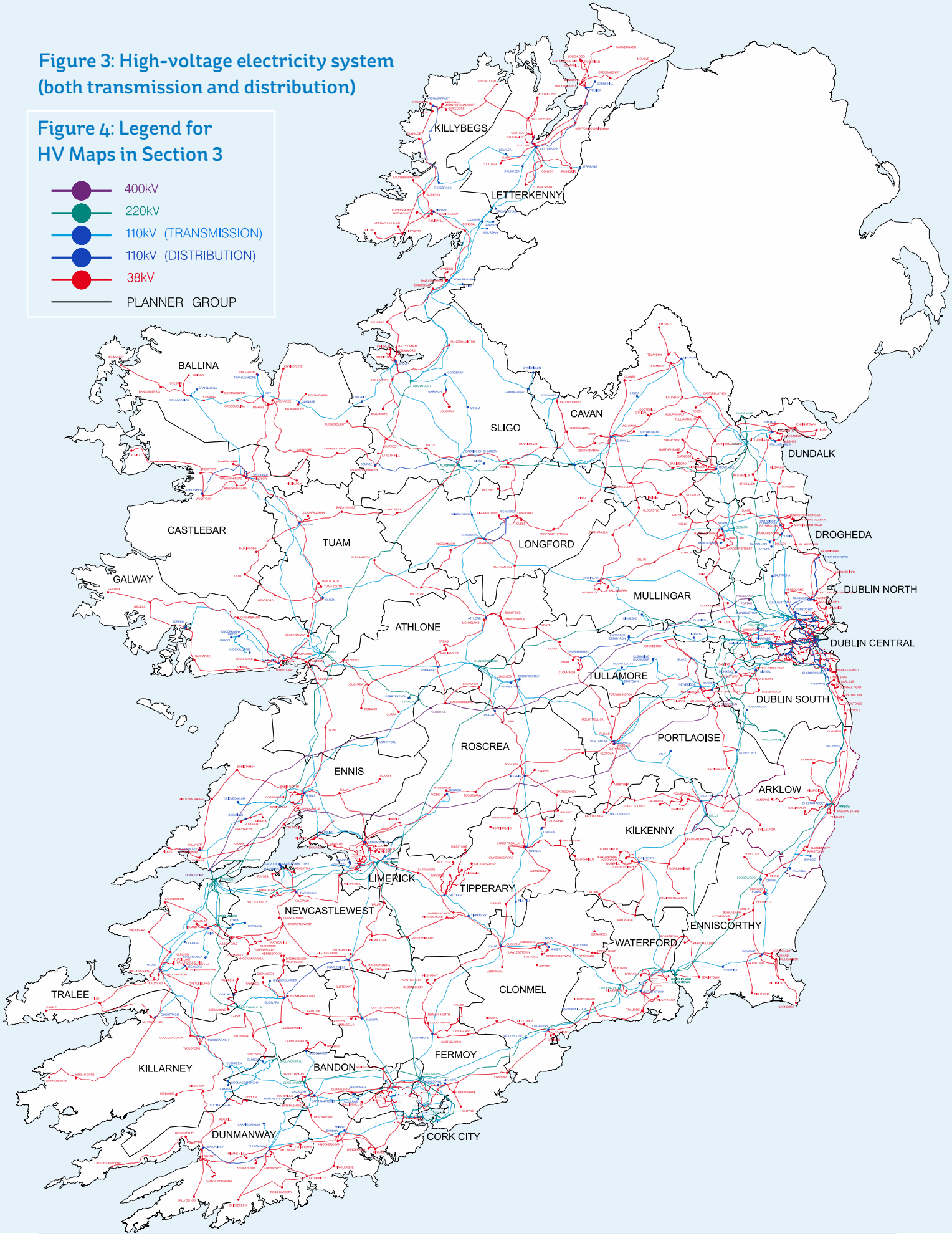
For the purposes of preparation of the plan, the distribution network is divided into 27 HV Zones as explained in Section 2.1 and shown in Figure 2. There is one zone which covers the Greater Dublin Area which includes the 110 kV distribution networks controlled and operated by the DSO. Outside of the Greater Dublin Area, there are 26 zones with each zone typically consisting of multiple 110/38 kV or 110 kV/MV Bulk Supply Points (BSP). BSP is the substation where the power is provided from the transmission system to supply the distribution network. Figure 3 shows the high-voltage electricity system in Ireland, with many interacting points between transmission and distribution system.

Each HV Zone contains a map of the HV distribution network in the Zone. The map indicates the network controlled and operated by ESB Networks in its role as the DSO. Figure 4 shows the legend for all individual maps in Section 3.

Figure 3: High-voltage electricity system (both transmission and distribution)

Figure 4: Legend for HV Maps in Section 3

- 400kV
- 220kV
- 110kV (TRANSMISSION)
- 110kV (DISTRIBUTION)
- 38kV
- PLANNER GROUP



2.3 Distribution Flexibility Needs

Identification of Flexible Services Needs

The approach taken when identifying Flexible Services Needs for the purpose of this plan was as follows:

- The approach was focused on locations where there was a shortfall in substation transformer capacity identified.
- Flexible services were identified based on a shortfall during normal feeding arrangements
- More focused assessments were undertaken in areas where a capital project had already been identified for delivery in PR6 but the estimated timeline for delivery of same was later than the estimated need date.
- In order to assess the MWh of need in an area, a full year load profile was assessed. The base year used for the assessment of load profiles was 2024.
- Load growth rates – as per those used in the PR6 plans - were used to estimate organic growth. These rates were applied to a full load profile.*
- Typically, the flexible needs assessment did not include new loads. However, there are some places – most notably Dublin – where there is significant new load which is contracted but not connected. In Dublin – and a few other locations – contracted new load was considered.
- Where new load (contracted but not yet connected) was considered this will be referenced within the zone summary.**
- In locations where focused assessments were not undertaken, an estimate of the flexible services need was calculated using the recently published Demand Capacity Headroom Report[3].
- While the need for flexibility will vary on a case-by-case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm. Where the need in a zone is expected to be for different delivery periods, this will be stated in the zone summary
- The outcome of this analysis is not intended to represent a procurement plan for flexible services.

The format of the Zone summary for flexible services needs is shown in Table 2.

Table 2: Format of each Zone summary for flexible services need in Section 3

Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	
		Maximum Individual values (MW)	
Upward Flexibility Need	2028	Cumulated annual values (MWh)	
		Maximum Individual values (MW)	
Upward Flexibility Need	2030	Cumulated annual values (MWh)	
		Maximum Individual values (MW)	

As per the current draft methodology for the Flexible Needs Assessment, Upward Flexibility Need means needs whose solution requires increasing injection - from generation or storage - on the network or decreasing demand from the network.

* *It should be noted that as time of use tariffs become more common, the growth rate of load at off peak periods may become more pronounced*

** *For future new load enquiries, it may be possible to meet the need from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.*

2.4 Terminology

Table 3 illustrates the HV project types that are referenced throughout the plan. The project driver is the main justification for the progression of the project.

Table 3: HV project types referenced throughout the plan

Driver	Description
Substation Capacity 	These projects refer to the construction of a new HV substation or the addition of transformer capacity to an existing HV substation.
Circuit Capacity 	These projects refer to the construction of a new HV line/cable or the uprating of an existing line/cable with higher capacity conductor.
Substation Capacity (Renewable Hubs) 	Renewable Hubs are HV substations where additional capacity is being added to facilitate connection of a number of renewable generators.
Security of Supply 	These projects will improve security of supply by adding new circuits or transformers to improve network reliability under fault or maintenance outages.
Asset Replacement (HV Substations) 	These projects will replace aging assets such as switchgear or transformers within HV substation that have reached ‘end of life’
Asset Replacement (Underground cables) 	These projects involve the replacement of aging underground cables that have reached ‘end of life’. Typically, when cables are replaced, the new cable has a higher capacity than the existing cable.
Asset Replacement (Overhead lines) 	These projects involve the refurbishment of a 38 kV overhead line and will typically include replacing conductor with higher capacity conductor where appropriate.
Short Circuit Level 	Upgrade kA rating of switchgear to maintain adequate short-circuit levels on the system.

Project Status

As HV Reinforcement Capital Expenditure (CAPEX) projects are developed they move through several steps in the process. Table 4 summarises the high-level project status used within the plan to give an indication of where a project is in terms of its development status.

Table 4: Description of project status used within the plan

Project Status	Description
Pipeline	Projects in the early stage of development are referred to as Pipeline. These projects have not achieved a Technical Approval (TA). Activities carried out at this stage would include network studies, site search and acquisition, Investment Appraisal (IA) and TSO connection agreement where applicable.
Development	Projects at Development stage have achieved a Technical Approval. Detailed project scope and project costs are developed, and a Capital Approval (CA) document is prepared for approval by appropriate board.
Delivery	Projects at Delivery stage have achieved a CA and are progressed to construction.
Contracted	Contracted refers to generator projects that have progressed through either the Gate Process or the Enduring Connection Process (ECP) and have signed a contract for connection to the network.

2.5 PR6 Submission and the DNDP

In November 2024, ESB Networks, as a DSO, submitted our Business Plan[4] for PR6 to the Commission for the Regulation of Utilities (CRU) covering the period 2026 - 2030. The CRU will issue its determination on our submission before the end of 2025.

The DNDP includes the high-voltage (HV) capital expenditure (CAPEX) reinforcement projects which are included in our Business Plan[4]. Our intention is that some of these projects will be started and completed during PR6, while others will be started in PR6 and completed in PR7 (2031-2035).

Table 5 summarises the projects contained in the DNDP, based on their expected completion dates.

Table 5: High Level Summary of HV Projects in DNDP

PR completion	HV Reinforcement	Asset Replacement	Generation
PR6	111	50	46
PR7	42	0	0

Some of the HV CAPEX projects included in our PR6 Business Plan[4] are not included in the DNDP as they will not add any new capacity to the distribution system. Examples of these include the installation of new voltage boosters (devices that improves the quality of voltage on the distribution network) or switchgear uprates that can withstand higher fault currents.

The DNDP does however include some projects which are not HV reinforcement projects but are included because they will add new capacity to the distribution system. For example, a project to refurbish an existing asset due to age or condition will be included if the asset is due to be replaced with a higher capacity alternative.

The DNDP contains many multi-year projects that will start in PR6 for completion during the PR7 period (2031-2035). It is expected that more of these HV reinforcement projects scheduled for completion in PR7 will emerge as the system need is further refined over the coming years. This is also the case for asset replacement projects which will similarly increase as more data becomes available on asset condition. Generation projects will also be kept under review in the context of Climate Action Plan targets, and project pipelines.

There are some discrepancies between the list of projects included in our PR6 Business Plan[4], and those set out in Table 5. This is because some projects will be required sooner than was anticipated when the PR6 Business Plan was published in November 2024, and have therefore been brought forward for delivery during PR6. The number of HV reinforcement projects due for delivery during PR7 has also increased, and it is expected that this will grow more as the system need is refined over the coming years.

The CRU is due to issue their formal determination on our PR6 investment programme in Q4 2025. The outcome of the determination will set the funding allowance for ESB Networks to continue investing in the network.

It is important to distinguish between the PR6 Business Plan[4] which covers a specific 5-year period and the DNDP that presents the planned projects for the next ten years.

The DNDP will be published every two years and any changes in the project status or timelines will be updated. While every endeavour has been made to provide accurate information at the time of printing, the delivery of each project depends on a number of factors including and not limited to:

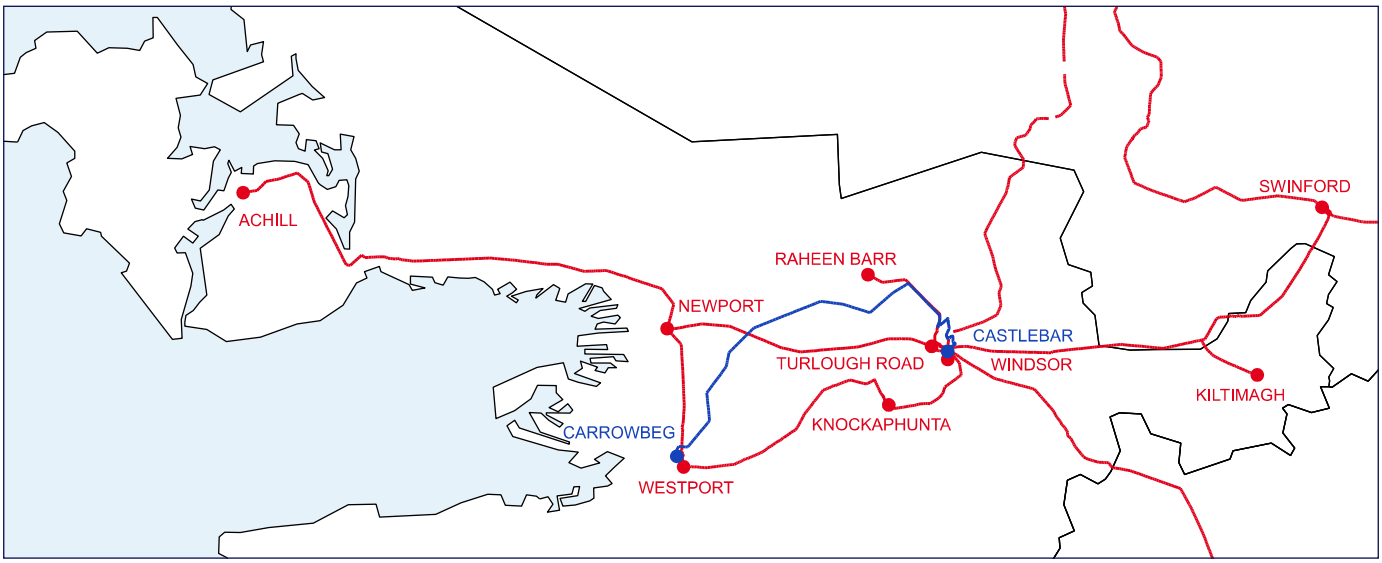
- Securing viable sites to build new substations and accommodate associated infrastructure (lines/cables) necessary to connect to the network.
- The time required to secure authorisations and planning permission to build the infrastructure.
- Delays resulting from long lead times for electrical infrastructure due to a range of issues including global skills shortages and supply chain disruption.
- Capacity constraints at transmission level impacting on the timelines for delivery of distribution projects.
- Securing land access and necessary wayleaves.

We are currently reviewing all project steps and together with the TSO and external stakeholders, we are seeking to accelerate project delivery by progressing some workstreams in parallel in the early stages of a project, while taking some measured risk. This review will be completed by the next revision of DNDP in two-year's time which will allow us to publish more accurate information in relation to the volume and the timing of the projects to be completed over the next ten years.

3. Project Plans

3.1. Zone 1: Castlebar and Carrowbeg

Figure 5: Zone 1 110 kV and 38 kV Distribution Network



Zone Summary

Zone 1 is supplied from two 110 kV Bulk Supply Points at Castlebar and Carrowbeg as shown in Figure 5.

There are 9 38 kV distribution substations in the Zone at Achill, Carrowbeg, Kiltimagh, Newport, Swinford, Turlough Road, Westport, Knockaphunta, and Windsor.

There are no 38 kV customer substations in the Zone.

There are two 38 kV generation substations in the Zone connected at Raheen Barr and Derrynadivva.

HV Substation Summary

Table 6: Zone 1 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	126
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	9	110
38 kV Customer Substation	0	0
110 kV Generation Substation	0	0
38 kV Generation Substation	2	0

Intervention Summary

Table 7: Zone 1 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	1	31.5
38 kV	3	30

Detailed Intervention Summary

Table 8: Zone 1 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Castlebar	Substation Capacity	New 38 kV substation	30	2030	Pipeline
Knockphunta Westport	Asset Replacement	Refurbishment of 38 kV overhead line	-	2028	Pipeline
Castlebar - Kiltimagh - Swinford	Asset Replacement	Refurbishment of 38 kV overhead line	-	2028	Pipeline
Castlebar	Asset Replacement	Transformer Replacement	31.5	2030	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 9 – Zone 1 Flexibility Needs

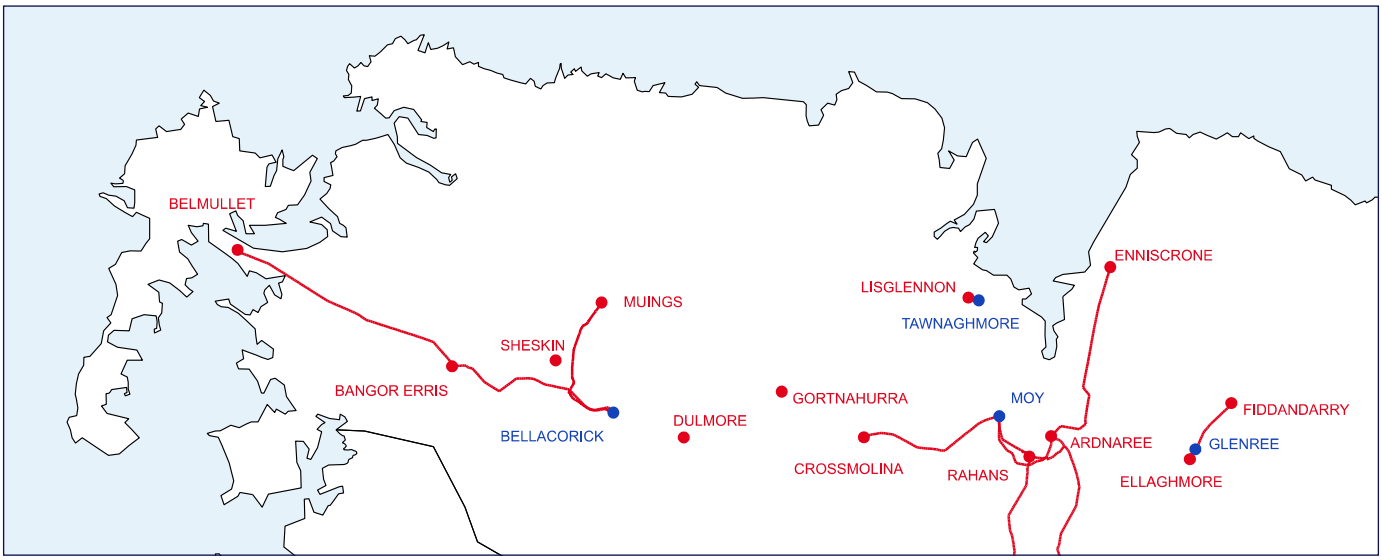
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	130
		Maximum Individual values (MW)	10
Upward Flexibility Need	2028	Cumulated annual values (MWh)	280
		Maximum Individual values (MW)	20
Upward Flexibility Need	2030	Cumulated annual values (MWh)	570
		Maximum Individual values (MW)	20

The flexible needs presented in Table 9 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.2 Zone 2: Moy and Bellacorrick

Figure 6: Zone 2 110 kV and 38 kV Distribution Network



Zone Summary

Zone 2 is supplied from two 110 kV Bulk Supply Points at Moy and Bellacorrick (110 kV/38 kV and 110 kV/MV).

There are two 110 kV substations at Glenree and Tawnaghmore where distribution generation is connected.

There are seven 38 kV distribution substations in the Zone at Moy, Crossmolina, Ardnaree, Rahans, Enniscrone, Bangor Erris and Belmullet.

There are no 38 kV customer substations in the Zone.

There are four 38 kV generation substations in the Zone connected at Ellaghmore, Fiddandarry, Muings and Lisglennon.

HV Substation Summary

Table 10: Zone 2 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	126
110 kV / MV Bulk Supply Point	1	10
38 kV / MV Distribution Substation	7	77
38 kV Customer Substation	0	0
110 kV Generation Substation	2	115
38 kV Generation Substation	4	0

Intervention Summary

Table 11: Zone 2 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	3	189
38 kV	4	15

Detailed Intervention Summary

Table 12: Zone 2 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Ballina (Moy)	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Bellacorrick	Substation Capacity	Uprate 110 kV substation	63	2030	Pipeline
Moy - Crossmolina	Asset Replacement	Refurbishment of 38 kV overhead line	-	2028	Pipeline
Moy - Rahans	Asset Replacement	Refurbishment of 38 kV overhead line	-	2028	Pipeline

Projects Driven by Contracted Generators

Table 13: Zone 2 Projects Driven by Contracted Generators

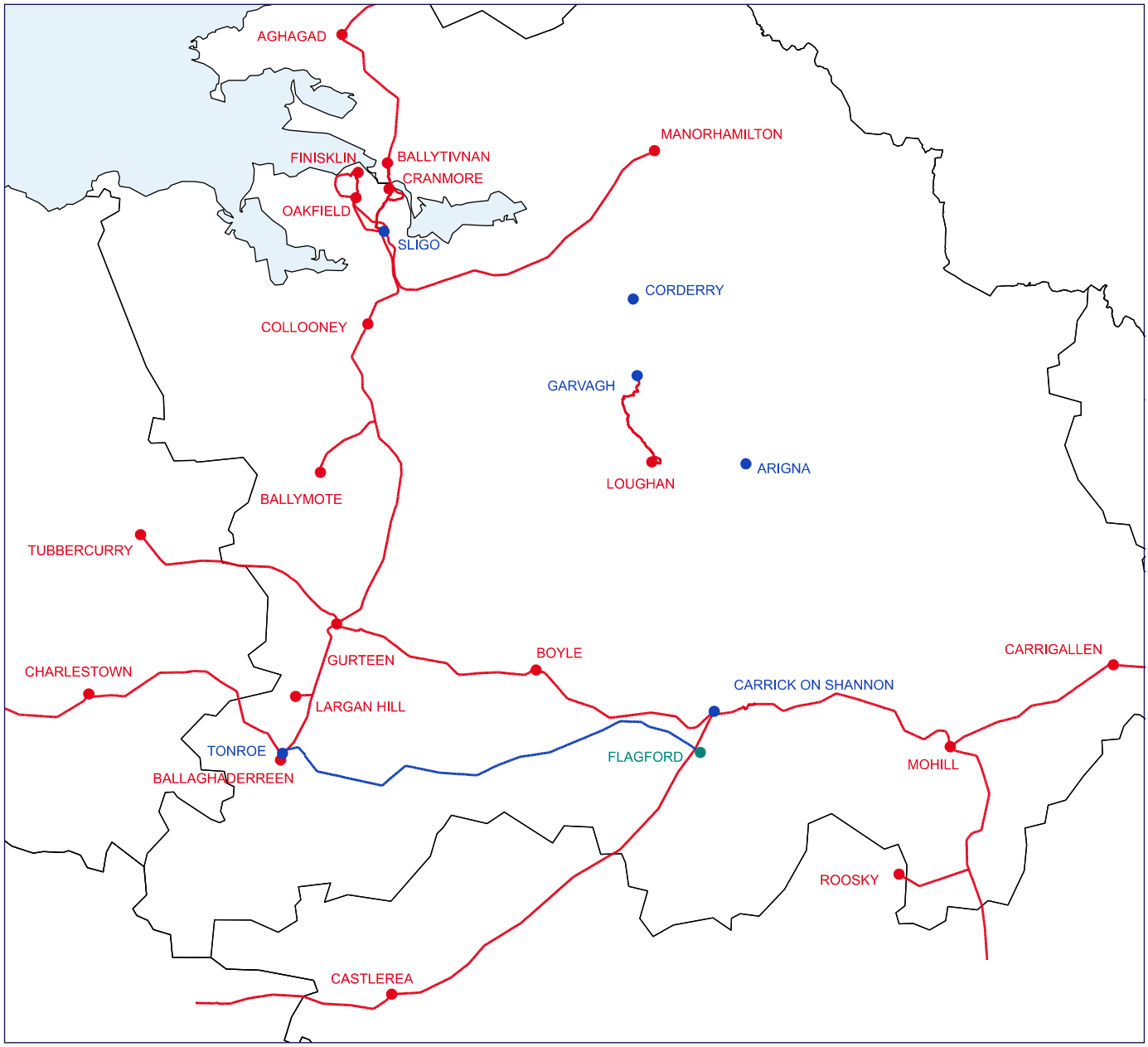
Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Bellacorrick	Substation Capacity	Uprate 110 kV substation	63	Contracted
Belmullet	Asset Replacement	Uprate 38 kV substation	15	Contracted
Bellacorrick - Bangor Erris Tee	Circuit Capacity	Uprate 38 kV circuit	-	Contracted

Estimated Flexibility Needs

There are no Flexibility Needs in this Zone.

3.3 Zone 3: Sligo, Tonroe and Carrick On Shannon

Figure 7: Zone 3 110 kV and 38 kV Distribution Network



Zone Summary

Zone 3 is supplied from four 110 kV Bulk Supply Points at Sligo, Tonroe, Carrick-On-Shannon and Arigna as shown in Figure 7.

There are two 110 kV substations at Corderry and Garvagh where distribution generation is connected.

There are seventeen 38 kV distribution substations in the Zone at Finisklin, Oakfield, Cranmore, Ballytivnan, Collooney, Manorhamilton, Ballymote, Aghagad, Ballaghadereen, Gorteen, Tubbercurry, Charlestown, Carrick-On-Shannon, Boyle, Castlerea, Mohill and Carrigallen.

There are no 38 kV customer substations in the Zone.

There are two 38 kV generation substations in the Zone connected at Largan Hill and Loughan.

HV Substation Summary

Table 14: Zone 3 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	220.5
110 kV / MV Bulk Supply Point	1	15
38 kV / MV Distribution Substation	17	177
38 kV Customer Substation	0	0
110 kV Generation Substation	2	166
38 kV Generation Substation	2	0

Intervention Summary

Table 15: Zone 3 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	2	94.5
38 kV	3	30

Detailed Intervention Summary

Table 16: Zone 3 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Carrick on Shannon	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Tonroe (Ballaghadareen)	Substation Capacity	Uprate 110 kV substation	31.5	2027	Delivery
Tonroe (Ballaghadaree)	Substation Capacity	New transformer	30	2030	Delivery
Carrick on Shannon-Boyle	Asset Replacement	Refurbishment of 38 kV overhead line.	-	2028	Pipeline
Sligo-Manorhamilton	Asset Replacement	Refurbishment of 38 kV overhead line.	-	2028	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 17: Zone 3 Flexibility Needs

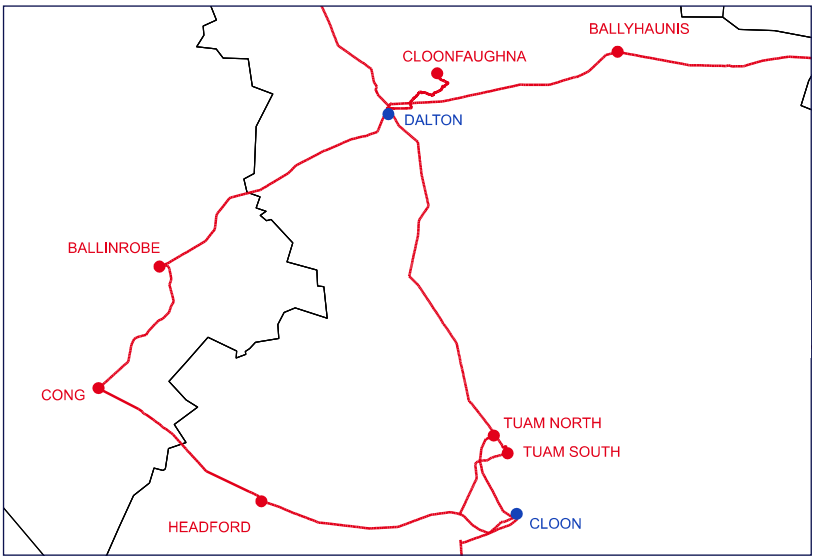
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	500
		Maximum Individual values (MW)	9
Upward Flexibility Need	2028	Cumulated annual values (MWh)	1190
		Maximum Individual values (MW)	13
Upward Flexibility Need	2030	Cumulated annual values (MWh)	2440
		Maximum Individual values (MW)	19

The flexible needs presented in Table 17 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.4 Zone 4: Dalton and Cloon

Figure 8: Zone 4 110 kV and 38 kV Distribution Network



Zone Summary

Zone 4 is supplied from two 110 kV Bulk Supply Points at Dalton and Cloon as shown in Figure 8.

There are eight 38 kV distribution substations in the Zone at Dalton, Ballyhaunis, Ballinrobe, Cloon, Tuam North, Tuam South, Headford and Cong .

There are no 38 kV customer substations in the Zone.

There is one 38 kV generation substation in the Zone connected at Cloonfaughna.

HV Substation Summary

Table 18: Zone 4 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	157.5
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	8	102
38 kV Customer Substation	0	0
110 kV Generation Substation	0	0
38 kV Generation Substation	1	0

Intervention Summary

Table 19: Zone 4 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	0	0
38 kV	5	50

Detailed Intervention Summary

Table 20: Zone 4 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Cong - Headford Road	Circuit Capacity	Uprate 38 kV overhead line	-	2027	Development
Ballyhaunis	Substation Capacity	Uprate 38 kV substation	30	2030	Pipeline
Dalton-Ballinrobe	Asset Replacement	Uprate 38 kV overhead line	-	2029	Pipeline
Tuam North	Substation Capacity	Uprate 38 kV substation	20	2030	Pipeline
Dalton - Tuam North	Asset Replacement	Refurbishment of 38 kV overhead line.	-	2028	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 21: Zone 4 Flexibility Needs

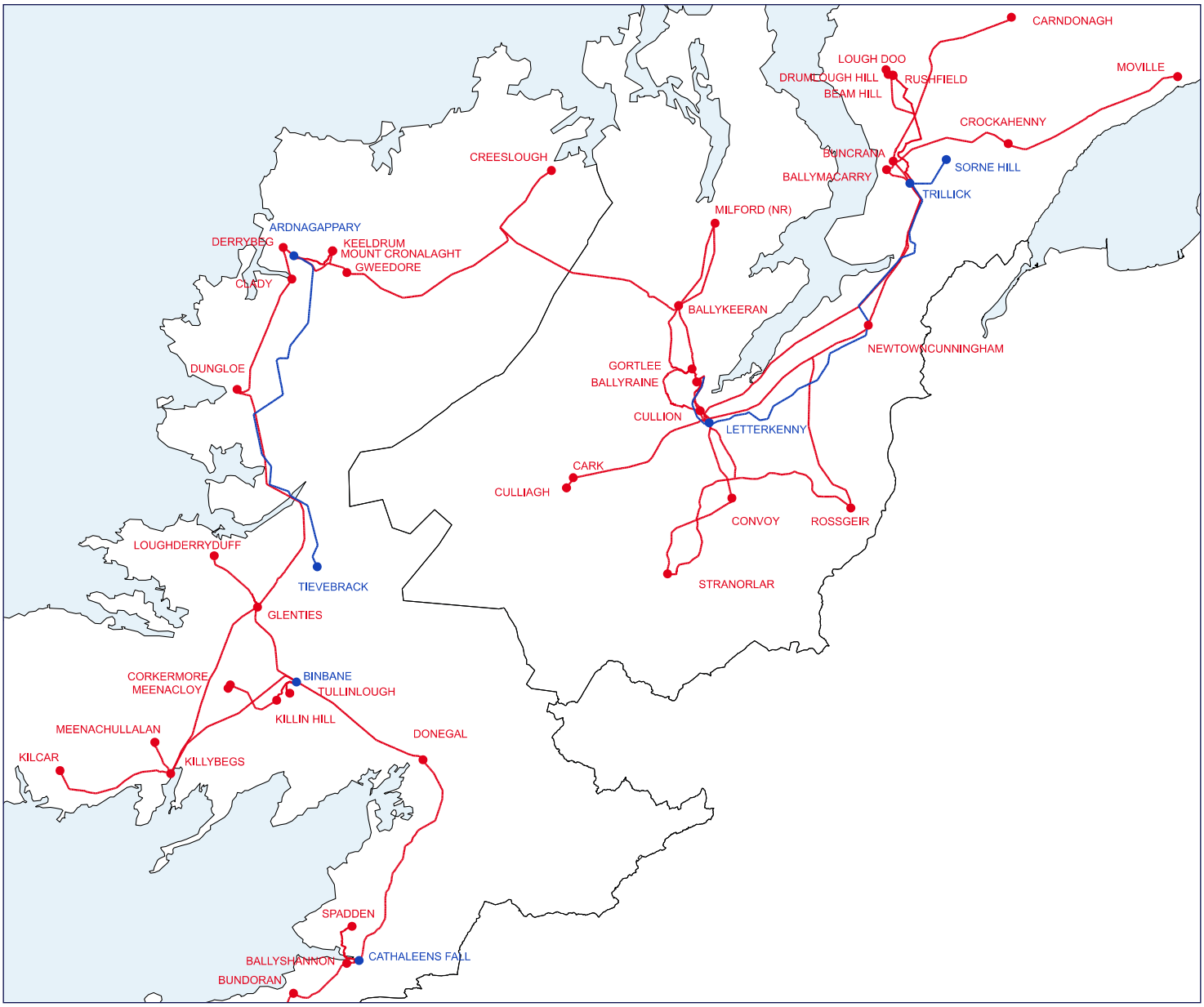
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	2870
		Maximum Individual values (MW)	6
Upward Flexibility Need	2028	Cumulated annual values (MWh)	6720
		Maximum Individual values (MW)	10
Upward Flexibility Need	2030	Cumulated annual values (MWh)	11970
		Maximum Individual values (MW)	14

The flexible needs presented in Table 21 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.5 Zone 5: Donegal

Figure 9: Zone 5 110 kV and 38 kV Distribution Network



Zone Summary

Zone 5 is supplied from five 110 kV Bulk Supply points at Letterkenny, Trillick, Ardnagappary, Binbane and Cathleen's Falls, as shown in Figure 9.

There are two 110 kV substations at Sorne Hill and Binbane where distribution generation is connected.

There are twenty-two 38 kV distribution substations in the Zone at Cullion, Ballyraine, Gortlee, Milford North, Newtowncunningham, Rossgier, Convoy, Stranorlar, Creeslough, Gweedore, Dungloe, Derrybeg, Cardonagh, Moville, Buncrana, Ballymacarry, Killybegs, Kilcar, Glenties, Bundoran, Ballyshannon and Donegal.

There are no 38 kV customer substations in the Zone.

There are sixteen 38 kV generation substations in the Zone connected at Beam Hill, Cark, Clady, Corkermore, Crockaheny, Culliagh, Drumlough Hill, Keeldrum, Killin Hill, Lough Doo, Loughderryduff, Meenachullalan, Mount Cronalaght, Rushfield, Spadden and Tullinlough.

HV Substation Summary

Table 22: Zone 5 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	5	378
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	22	244
38 kV Customer Substation	0	0
110 kV Generation Substation	2	134.5
38 kV Generation Substation	16	0

Intervention Summary

Table 23: Zone 5 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	2	94.5
38 kV	7	30

Detailed Intervention Summary

Table 24: Zone 5 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Milford	Substation Capacity	Uprate 38 kV Substation	30	2027	Pipeline
North-East Letterkenny	Substation Capacity	New 110 kV Substation	63	2030	Pipeline
Ballykeera (J058)-Gortlee 38 kV line	Circuit Capacity	Uprate 38 kV overhead line	-	2029	Pipeline
Ardnagappary-Mt. Cronlaght-Gweedore-Brookagh (J051)	Circuit Capacity	Uprate 38 kV overhead line	-	2030	Pipeline
Moville -Carndonagh	Circuit Capacity	New 38 kV Line	-	2028	Pipeline
Kilcar-Killybegs	Asset Replacement	Refurbishment of 38 kV overhead line	-	2028	Pipeline
Gweedore-J051	Asset Replacement	Refurbishment of 38 kV overhead line	-	2028	Pipeline

Projects Driven by Contracted Generators

Table 25: Zone 5 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Cathleens Falls	Substation Capacity	Uprate 110 kV Substation	31.5	Contracted
Glenties - Killybegs	Circuit Capacity	Uprate 38 kV circuit	-	Contracted

Estimated Flexibility Needs

Table 26: Zone 5 Flexibility Needs

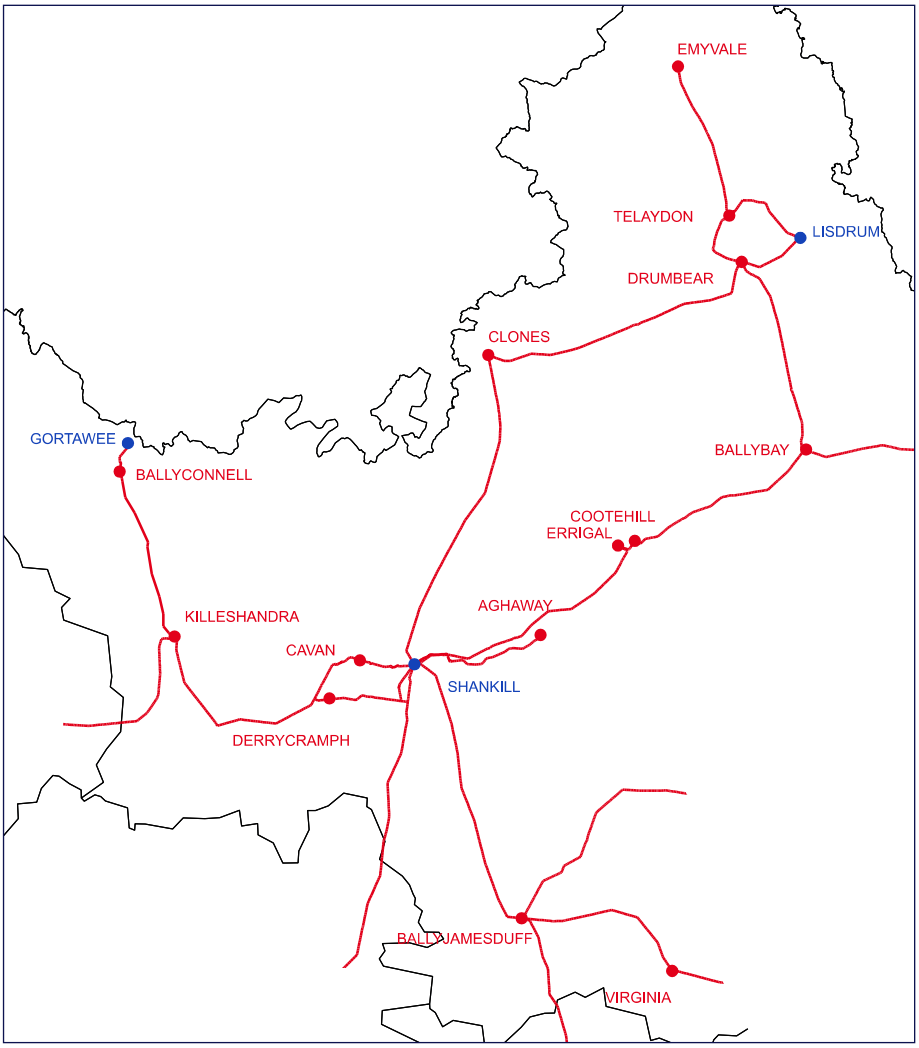
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	860
		Maximum Individual values (MW)	6
Upward Flexibility Need	2028	Cumulated annual values (MWh)	1840
		Maximum Individual values (MW)	8
Upward Flexibility Need	2030	Cumulated annual values (MWh)	3690
		Maximum Individual values (MW)	11

The flexible needs presented in Table 26 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.6 Zone 6: Gortawee, Shankill and Lisdrum

Figure 10: Zone 6 110 kV and 38 kV Distribution Network



Zone Summary

Zone 6 is supplied from three 110 kV Bulk Supply points at Gortawee, Shankill and Lisdrum, as shown in Figure 10.

There are fourteen 38 kV distribution substations in the Zone at Ballyconnell, Killeshandra, Cavan, Derrycramph, Finnea , Clones, Errigal, Ballyjamesduff, Virginia, Telaydon, Drumbear, Emyvale, Lidsrum and Ballybay.

There are no 38 kV customer substations in the Zone.

There is one 38 kV generation substation in the Zone connected at Aghaway.

HV Substation Summary

Table 27: Zone 6 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	252
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	14	185
38 kV Customer Substation	0	0
110 kV Generation Substation	0	0
38 kV Generation Substation	1	0

Intervention Summary

Table 28: Zone 6 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	1	63
38 kV	6	70

Detailed Intervention Summary

Table 29: Zone 6 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Cavan town (Killygarry)	Substation Capacity	New 38 kV substation	30	2030	Development
Drumbear	Substation Capacity	Uprate 38 kV substation	20	2029	Pipeline
Ballybay	Substation Capacity	Uprate 38 kV substation	10	2026	Delivery
Clones (Monaghan)	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Shankill-Clones	Asset Replacement	Refurbishment of 38 kV line	-	2028	Pipeline
Carrigallen-Killeshandra	Asset Replacement	Refurbishment of 38 kV line	-	2028	Pipeline

Projects Driven by Contracted Generators

Table 30: Zone 6 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Errigal	Substation Capacity	Uprate 38 kV substation	10	Contracted

Estimated Flexibility Needs

Table 31: Zone 6 Flexibility Needs

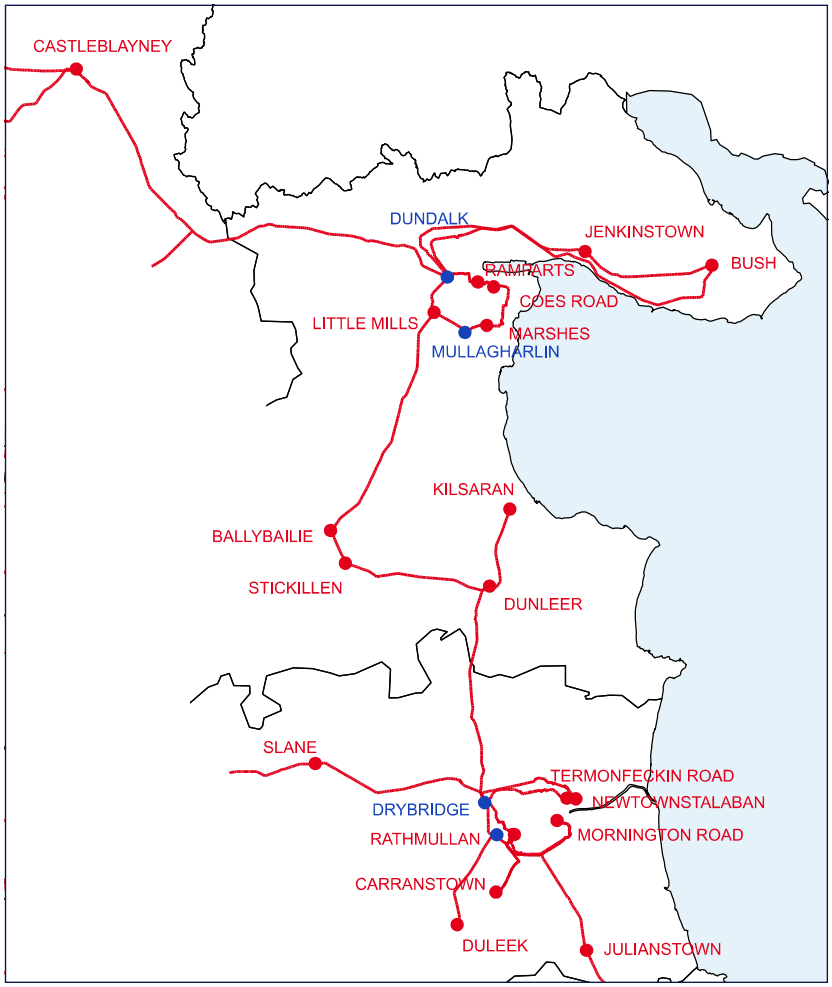
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	180
		Maximum Individual values (MW)	6
Upward Flexibility Need	2028	Cumulated annual values (MWh)	770
		Maximum Individual values (MW)	9
Upward Flexibility Need	2030	Cumulated annual values (MWh)	2300
		Maximum Individual values (MW)	13

The flexible needs presented in Table 31 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, in this location, it is primarily required during the winter months, with a focus on morning and lunchtime hours rather than the typical evening peak.

3.7 Zone 7: Dundalk and Drybridge

Figure 11: Zone 7 110 kV and 38 kV Distribution Network



Zone Summary

Zone 7 is supplied from three 110 kV Bulk Supply points at Mullagharlin, Dundalk and Drybridge, as shown in Figure 11 .

There are nineteen 38 kV distribution Substations in the Zone at Dundalk, Bush, Jenkinstown, Little Mills, Marshes, Coes Road, Ramparts, Ballybailie, Castleblaney, Slane, Termonfeckin Road, Rathmullan, Mornington Road, Duleek, Julianstown, Kilsaran, Dunleer, Stickillen and Drybridge.

There is one 38 kV customer substation in the Zone connected at Newtownstalaban.

There are two 38 kV generation substations in the Zone connected at Tossy and Carranstown.

HV Substation Summary

Table 32: Zone 7 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	252
110 kV / MV Bulk Supply Point	1	40
38 kV / MV Distribution Substation	19	272
38 kV Customer Substation	1	0
110 kV Generation Substation	0	0
38 kV Generation Substation	2	0

Intervention Summary

Table 33: Zone 7 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	1	126
38 kV	2	60

Detailed Intervention Summary

Table 34: Zone 7 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Donore Road (Drogheda)	Substation Capacity	New 110 kV substation	126.0	2029	Delivery
Ballymakenny	Substation Capacity	New 38 kV substation	30.0	2030	Pipeline
Bettystown	Substation Capacity	New 38 kV substation	30.0	2030	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 35: Zone 7 Flexibility Needs

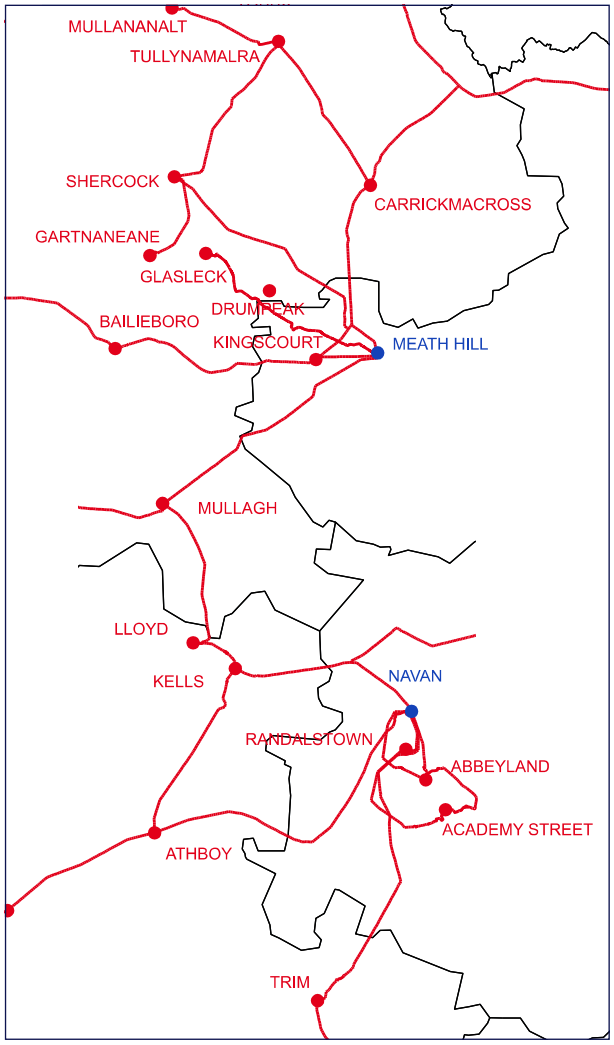
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	1420
		Maximum Individual values (MW)	6
Upward Flexibility Need	2028	Cumulated annual values (MWh)	2710
		Maximum Individual values (MW)	8

The flexible needs presented in Table 35 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.8 Zone 8: Meath Hill and Navan

Figure 12: Zone 8 110 kV and 38 kV Distribution Network



Zone Summary

Zone 8 is supplied from two 110 kV Bulk Supply points at Meath Hill and Navan, as shown in Figure 12.

There are thirteen 38 kV distribution substations in the Zone at Kingscourt, Shercock, Tullynamalra, Carrickmacross, Bailieboro, Mullagh,, Abbeylands, Academy St., Randalstown, Trim, Athboy, Kells & Lloyd.

There are no 38 kV customer substations in the Zone.

There are three 38 kV generation substations in the Zone connected at Mullananalt, Glasleck and Gartnaneane.

HV Substation Summary

Table 36: Zone 8 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	252
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	13	210
38 kV Customer Substation	0	0
110 kV Generation Substation	0	0
38 kV Generation Substation	3	0

Intervention Summary

Table 37: Zone 8 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	2	126
38 kV	0	0

Detailed Intervention Summary

Table 38: Zone 8 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Fosterstown (Trim)	Substation Capacity	New 110 kV substation	63	2029	Delivery
Navan Town	Substation Capacity	New 110 kV substation	63	2030	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 39: Zone 8 Flexibility Needs

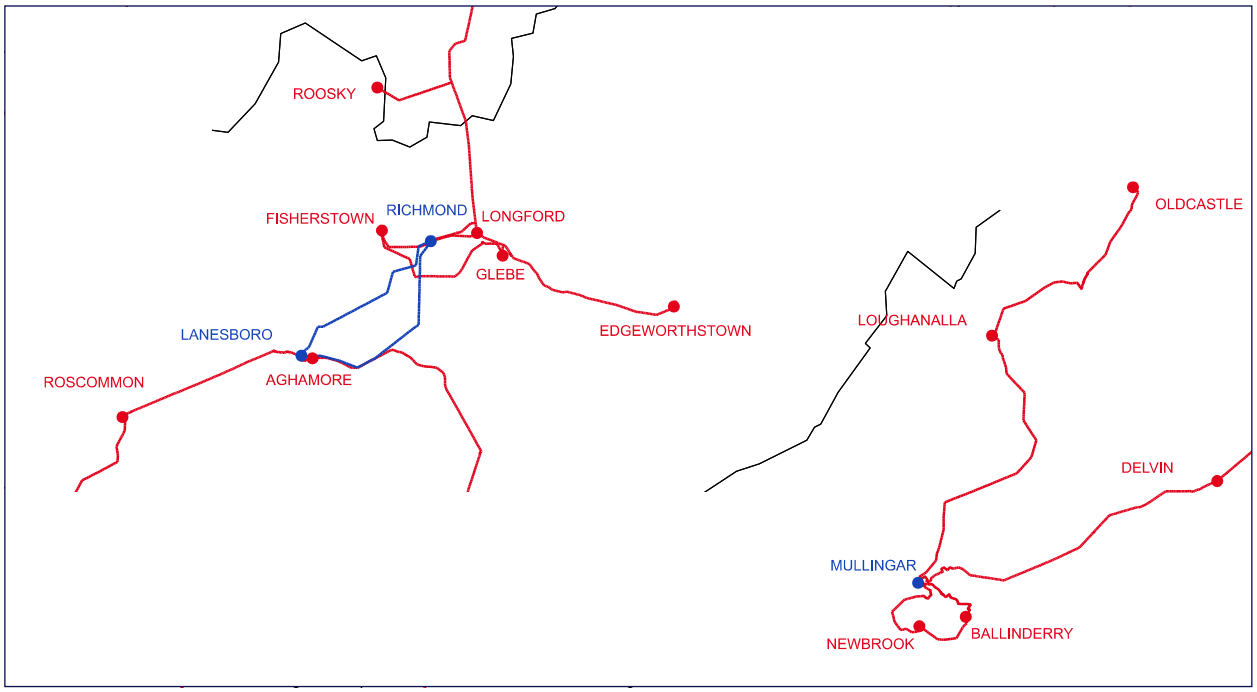
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	340
		Maximum Individual values (MW)	4
Upward Flexibility Need	2028	Cumulated annual values (MWh)	850
		Maximum Individual values (MW)	6
Upward Flexibility Need	2030	Cumulated annual values (MWh)	1790
		Maximum Individual values (MW)	9

The flexible needs presented in Table 39 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.9 Zone 9: Richmond, Lanesboro and Mullingar

Figure 13: Zone 9 110 kV and 38 kV Distribution Network



Zone Summary

Zone 9 is supplied from four 110 kV Bulk Supply points at Richmond, Lanesboro, Mullingar (110 kV/38 kV and 110 kV/MV) and Dunfirth, as shown in Figure 13.

There are eleven 38 kV distribution substations in the Zone at, Aghamore, Ballinderry, Delvin, Edgeworthstown, Glebe, Longford, Loughanalla, Newbrook, Oldcastle, Roosky and Roscommon.

There are two 38 kV customer substations in the Zone at Fisherstown and Newbrook.

HV Substation Summary

Table 40: Zone 9 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	157.5
110 kV / MV Bulk Supply Point	2	60
38 kV / MV Distribution Substation	11	145
38 kV Customer Substation	2	0
110 kV Generation Substation	0	0
38 kV Generation Substation	0	0

Intervention Summary

Table 41: Zone 9 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	4	169
38 kV	5	56.5

Detailed Intervention Summary

Table 42: Zone 9 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Richmond	Circuit Capacity	Uprate 38 kV overhead line	-	2028	Pipeline
Mullingar	Substation Capacity	Uprate 110 kV substation	63	2030	Pipeline
Dunfirth	Substation Capacity	Uprate 110 kV substation	31.5	2028	Pipeline
Delvin	Substation Capacity	Uprate 38 kV substation	20	2028	Pipeline

Projects Driven by Contracted Generators

Table 43: Zone 9 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Richmond	Substation Capacity	Uprate 38 kV substation	31.5	Contracted
Roscommon	Substation Capacity	Uprate 38 kV substation	5	Contracted
Derryiron	Substation Capacity	Uprate 110 kV substation	63	Contracted
Ballygar - Roscommon	Circuit Capacity	Uprate 38 kV circuit	-	Contracted
Dunfirth	Substation Capacity	Uprate 110 kV substation	11.5	Contracted

Estimated Flexibility Needs

Table 44: Zone 9 Flexibility Needs

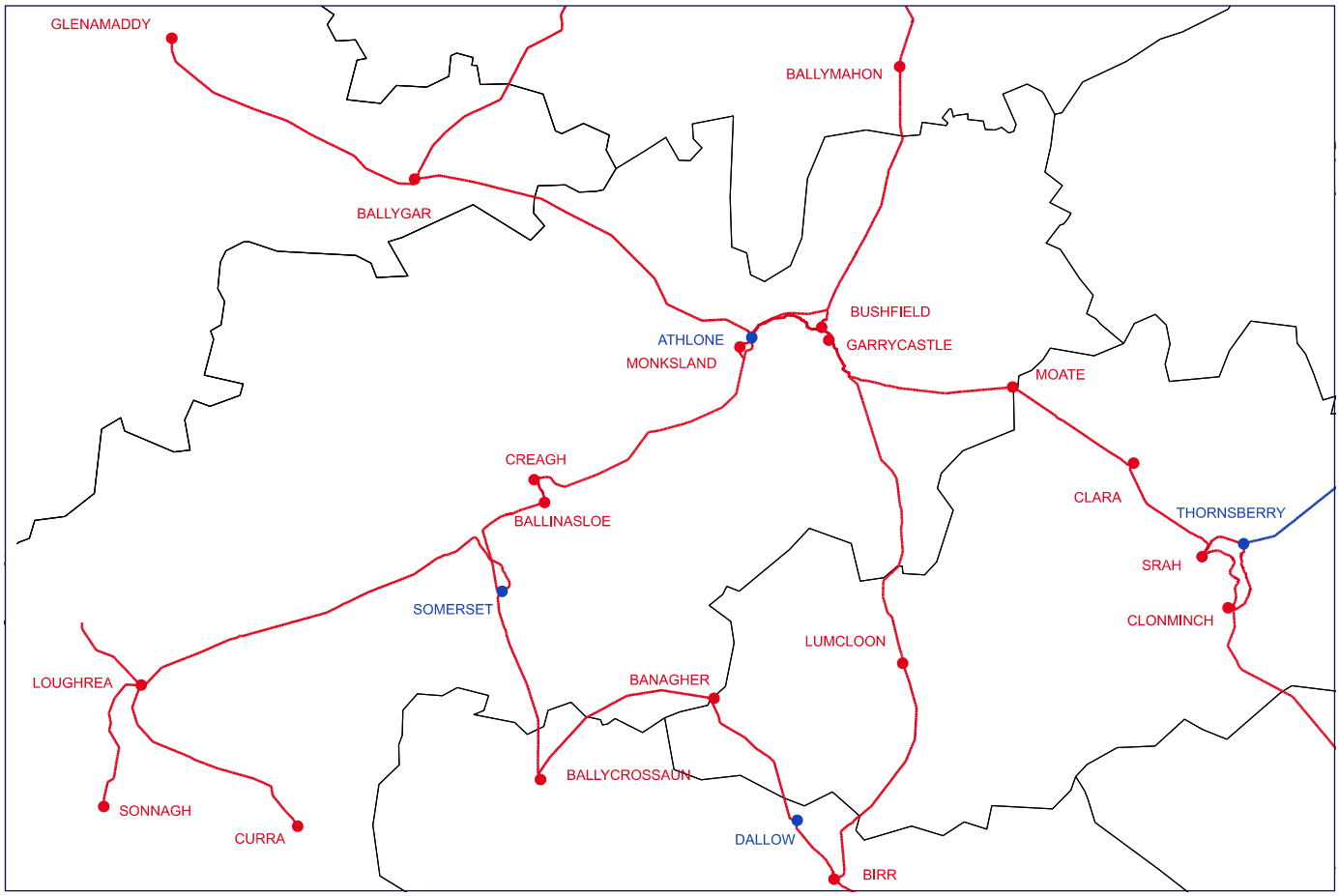
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	2340
		Maximum Individual values (MW)	2.60
Upward Flexibility Need	2028	Cumulated annual values (MWh)	3190
		Maximum Individual values (MW)	2.90

The flexible needs presented in Table 44 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.10 Zone 10: Athlone, Somerset, Dallow, and Thornsberry

Figure 14: Zone 10 110 kV and 38 kV Distribution Network



Zone Summary

Zone 10 is supplied from four 110 kV Bulk Supply points at Athlone, Somerset, Dallow and Thornsberry.

There are nineteen 38 kV distribution substations in the Zone at Ballygar, Glenamaddy, Creagh, Ballymahon, Bushfield, Garrycastle, Moate, Athlone, Ballycrossaun, Ballinasloe, Dallow, Loughrea, Curra, Birr, Banagher, Lumcloon, Srah, Clara, and Clonminch.

There is one 38 kV customer substations in the Zone at Monksland.

There is one 38 kV generation substation in the Zone connected at Sonnagh.

HV Substation Summary

Table 45: Zone 10 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	4	315
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	19	260
38 kV Customer Substation	1	0
110 kV Generation Substation	0	0
38 kV Generation Substation	1	0

Intervention Summary

Table 46: Zone 10 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	1	126
38 kV	6	10

Detailed Intervention Summary

Table 47: Zone 10 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Athlone (38 kV river crossing circuits)	Circuit Capacity	Uprate 38 kV overhead line	-	2026	Delivery
Ballygar	Substation Capacity	Uprate 38 kV substation	10	2030	Delivery
Athlone	Substation Capacity	New 110 kV substation	126	2030	Pipeline
Tuam (Glanamaddy-Cloon)	Circuit Capacity	New 38 kV overhead line	-	2030	Pipeline
Athlone-Ballygar	Asset Replacement	Refurbishment of 38 kV overhead line.	-	2028	Pipeline
Ballycrossaun-Banagher	Asset Replacement	Refurbishment of 38 kV overhead line.	-	2028	Pipeline

Projects Driven by Contracted Generators

Table 48: Zone 10 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Clonminch - Srah	Circuit Capacity	Uprate 38 kV circuit	-	Contracted

Estimated Flexibility Needs

Table 49: Zone 10 Flexibility Needs

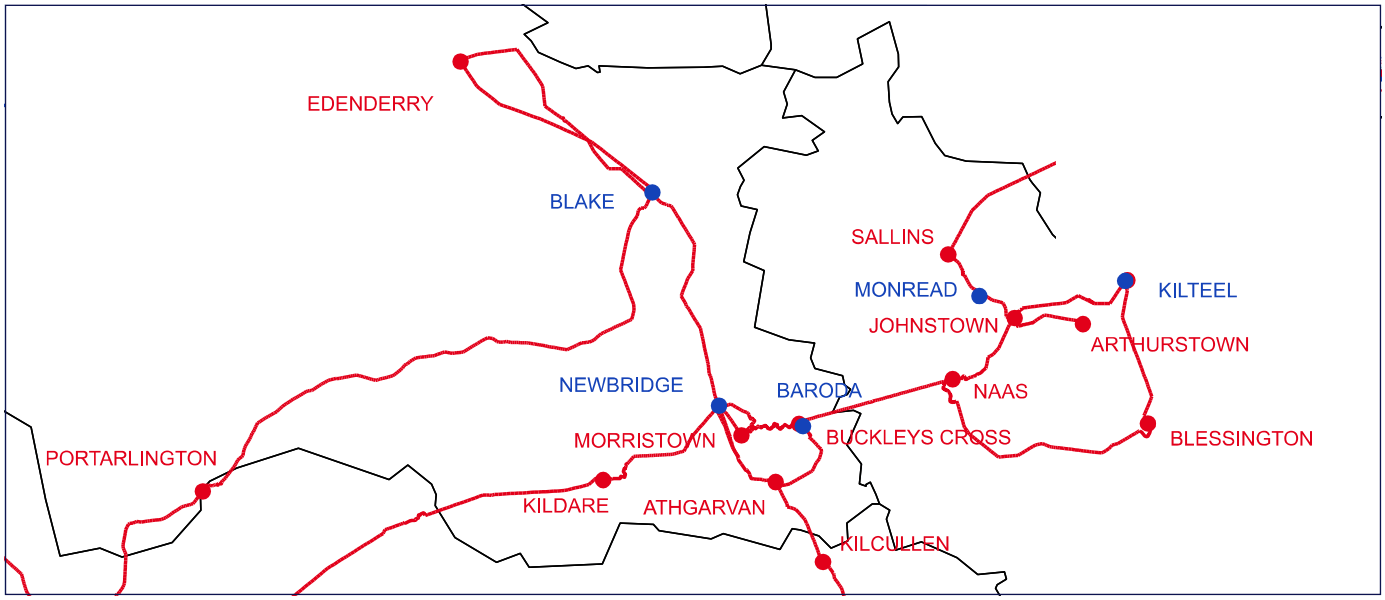
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	290
		Maximum Individual values (MW)	8
Upward Flexibility Need	2028	Cumulated annual values (MWh)	770
		Maximum Individual values (MW)	10.60
Upward Flexibility Need	2030	Cumulated annual values (MWh)	1390
		Maximum Individual values (MW)	11

The flexible needs presented in Table 49 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.11 Zone 11: Blake, Kilteel and Newbridge

Figure 15: Zone 11 110 kV and 38 kV Distribution Network



Zone Summary

Zone 11 is supplied from four 110 kV Bulk Supply points at Newbridge, Blake, Monread and Kilteel, as shown in Figure 15.

There are nine 38 kV distribution substations in the Zone at Morristown, Kildare, Athgarvan, Blake, Edenderry, Portarlington, Blessington, Johnstown and Naas.

There are no 38 kV customer substations in the Zone.

There is one 38 kV generation substation in the Zone connected at Arthurstown.

HV Substation Summary

Table 50: Zone 11 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	157.5
110 kV / MV Bulk Supply Point	1	40
38 kV / MV Distribution Substation	9	165
38 kV Customer Substation	0	0
110 kV Generation Substation	0	0
38 kV Generation Substation	1	0

Intervention Summary

Table 51: Zone 11 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	4	292
38 kV	8	60

Detailed Intervention Summary

Table 52: Zone 11 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Newbridge East	Substation Capacity	New 110 kV substation	126	2030	Pipeline
Newbridge (Baroda)	Substation Capacity	New 110 kV substation	40	2027	Delivery
Edenderry	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Buckleys Cross – Athgarvan	Circuit Capacity	Uprate 38 kV line	-	2029	Delivery
Newbridge-Kildare	Security of Supply	New 38 kV line	-	2027	Delivery
Kilteel	Substation Capacity (Renewable Hubs)	Uprate 110 kV substation	63	2030	Pipeline
Allenwood (Blake)	Asset Replacement	Uprate 38 kV substation	20	2030	Pipeline
Newbridge (Morristown)	Asset Replacement	Uprate 38 kV substation	20	2030	Pipeline
Blake-Portarlington	Asset Replacement	Refurbishment of 38 kV line.	-	2028	Pipeline
Blake-Edenderry - Morristown (J029)	Asset Replacement	Refurbishment of 38 kV line.	-	2028	Pipeline

Projects Driven by Contracted Generators

Table 53: Zone 11 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Blessington	Substation Capacity	Uprate 38 kV substation	5	Contracted
Kildare	Substation Capacity	Uprate 38 kV substation	15	Contracted

Estimated Flexibility Needs

Table 54: Zone 11 Flexibility Needs

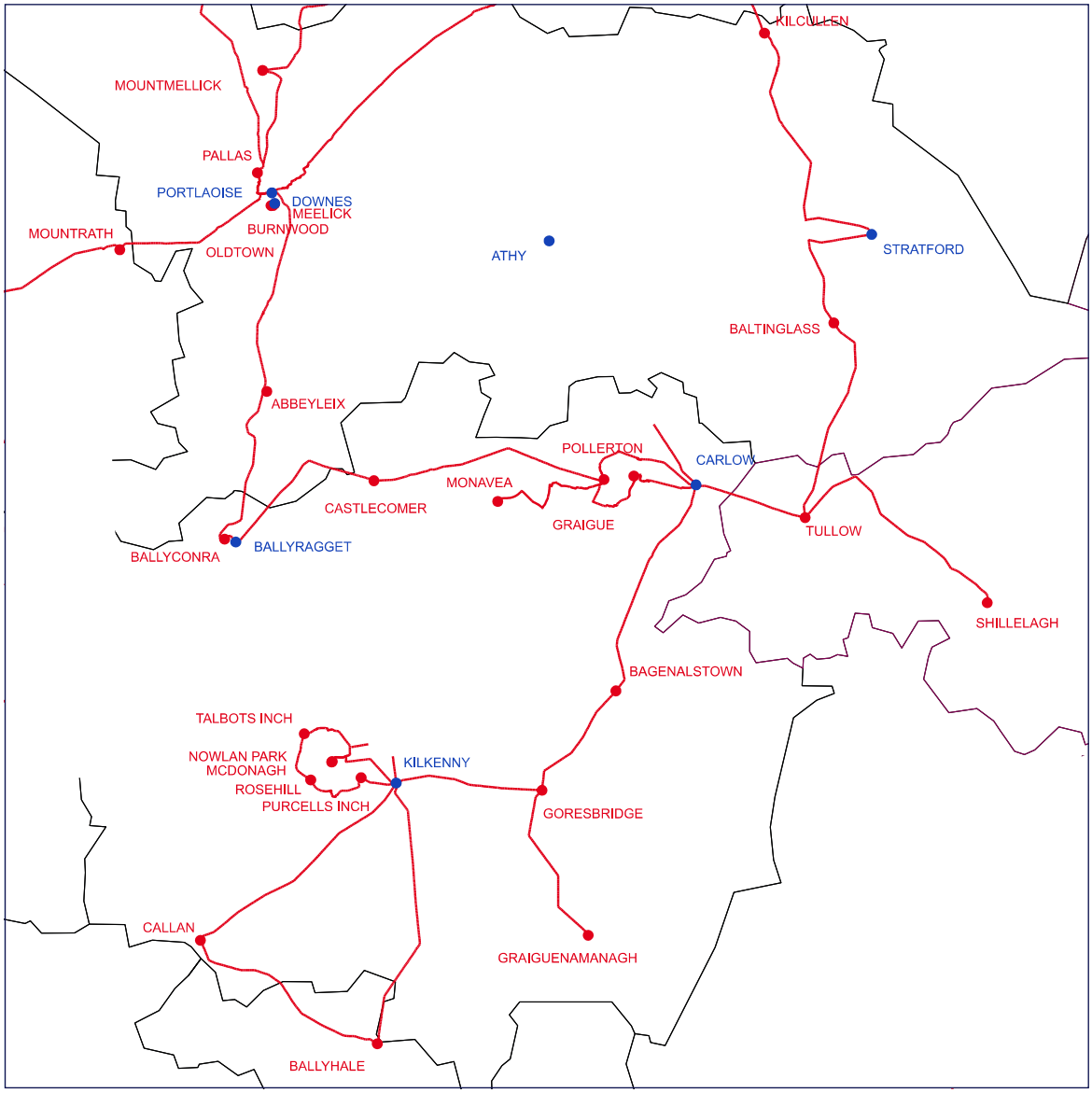
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	480
		Maximum Individual values (MW)	6
Upward Flexibility Need	2028	Cumulated annual values (MWh)	1130
		Maximum Individual values (MW)	13
Upward Flexibility Need	2030	Cumulated annual values (MWh)	2770
		Maximum Individual values (MW)	24

The flexible needs presented in Table 54 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.12 Zone 12: Carlow, Kilkenny, and Portlaoise

Figure 16: Zone 12 110 kV and 38 kV Distribution Network



Zone Summary

Zone 12 is supplied from six 110 kV Bulk Supply points at Ballyragget, Carlow, Kilkenny, Athy, Portlaoise and Stratford, as shown in Figure 16.

There are twenty four 38 kV distribution substations in the Zone at Abbeyleix, Bagenalstown, Ballyconra, Ballyragget, Ballyhale, Baltinglass, Callan, Castlecomer, Goresbridge, Graigue, Graiguenamanagh, Kilcullen, McDonagh, Mountmellick, Mountrath, Pallas, Pollerton, Portarlington, Portlaoise, Purcells Inch, Rosehill, Shillelagh, Talbots Inch and Tullow.

There is one 38 kV customer substation in the Zone at Ballyconra.

There is one 38 kV generation substation in the Zone connected at Monavea.

HV Substation Summary

Table 55: Zone 12 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	5	378
110 kV / MV Bulk Supply Point	1	40
38 kV / MV Distribution Substation	24	339
38 kV Customer Substation	1	0
110 kV Generation Substation	0	0
38 kV Generation Substation	1	0

Intervention Summary

Table 56: Zone 12 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	6	376.5
38 kV	11	100

Detailed Intervention Summary

Table 57: Zone 12 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Goresbridge	Substation Capacity	Uprate 38 kV substation	20	2030	Pipeline
Portarlington (Bracklone)	Substation Capacity	New 110 kV substation	40	2026	Delivery
Stratford-Baltinglass	Circuit Capacity	Uprate 38 kV line	-	2027	Delivery
Southeast Carlow	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Carlow	Substation Capacity	New 38 kV substation	20	2030	Pipeline
West Portlaoise	Substation Capacity	New 110 kV substation	126	2030	Pipeline
South Athy	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Kilkenny city	Substation Capacity	New 38 kV substation	30	2028	Pipeline
Kilkenny city (town loop)	Circuit Capacity	New 38 kV line	-	2030	Pipeline

Detailed Intervention Summary continued

Table 57: Zone 12 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Baltinglass-Tullow	Circuit Capacity	Uprate 38 kV line	-	2027	Delivery
Castlecomer	Asset Replacement	Uprate 38 kV substation	20	2030	Pipeline

Projects Driven by Contracted Generators

Table 58: Zone 12 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Ballyragget	Substation Capacity	Uprate 110 kV substation	31.5	Contracted
Ballyragget	Substation Capacity	Uprate 110 kV substation	63	Contracted
Ballyragget - Ballyconra	Circuit Capacity	Uprate 38 kV circuit	-	Contracted
Ballyhale	Substation Capacity	Uprate 38 kV substation	10	Contracted
Carlow - Graigue	Circuit Capacity	Uprate 38 kV circuit	-	Contracted
Graigue - Pollerton	Circuit Capacity	Uprate 38 kV circuit	-	Contracted

Estimated Flexibility Needs

Table 59: Zone 12 Flexibility Needs

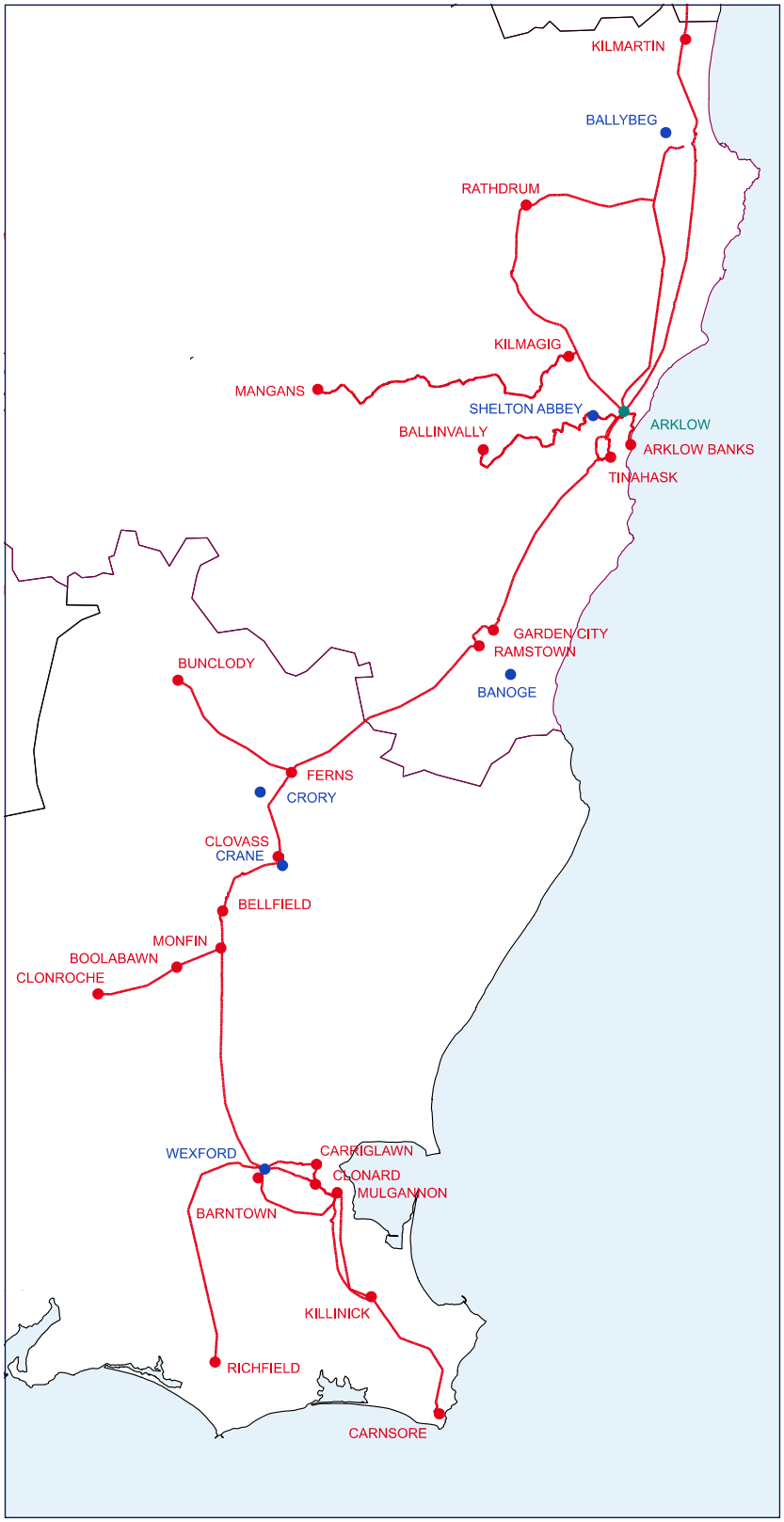
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	290
		Maximum Individual values (MW)	1
Upward Flexibility Need	2028	Cumulated annual values (MWh)	870
		Maximum Individual values (MW)	6
Upward Flexibility Need	2030	Cumulated annual values (MWh)	1840
		Maximum Individual values (MW)	11

The flexible needs presented in Table 59 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.13 Zone 13: Arklow and Enniscorthy

Figure 17: Zone 13 110 kV and 38 kV Distribution Network



Zone Summary

Zone 13 is supplied from five 110 kV Bulk Supply Points at Arklow, Ballybeg, Banoge, Crane and Wexford, as shown in Figure 17.

There is one 110 kV substation at Crory where distribution generation is connected.

There are fifteen 38 kV distribution substations in the Zone at Bellfield, Bunclody, Carriglawn, Clonard, Clonroche, Ferns, Garden City, Killinick, Kilmagig, Kilmartin, Monfin , Mulgannon, Ramstown, Rathdrum and Tinahask.

There is one 38 kV customer substations in the Zone connected at Rathdrum.

There are seven 38 kV generation substations in the Zone connected at Arklow Banks, Boolabawn, Carnsore, Mangans, Ballinvally, Clovass and Richfield.

HV Substation Summary

Table 60: Zone 13 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	283 .5
110 kV / MV Bulk Supply Point	5	180
38 kV / MV Distribution Substation	15	167
38 kV Customer Substation	1	0
110 kV Generation Substation	1	63
38 kV Generation Substation	7	0

Intervention Summary

Table 61: Zone 13 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	4	220.5
38 kV	5	60

Detailed Intervention Summary

Table 62: Zone 13 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Bunclody-Shillelagh	Security of Supply	New 38 kV line	-	2030	Development
Tinahask	Substation Capacity	New 38 kV substation	30	2030	Pipeline
Crane	Asset Replacement	Uprate 110 kV substation	63	PR7	Pipeline
Clonroche	Substation Capacity	New 38 kV substation	30	PR7	Pipeline
Clonroche - Crane	Circuit Capacity	New 38 kV line	-	PR7	Pipeline
Rosslare / Killinick	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Arklow-Kilmartin	Asset Replacement	Refurbishment of 38 kV line	-	2028	Pipeline

Projects Driven by Contracted Generators

Table 63: Zone 13 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Arklow	Substation Capacity	Uprate 110 kV substation	63	Contracted
Crory	Substation Capacity	Uprate 110 kV substation	31.5	Contracted

Estimated Flexibility Needs

Table 64: Zone 13 Flexibility Needs

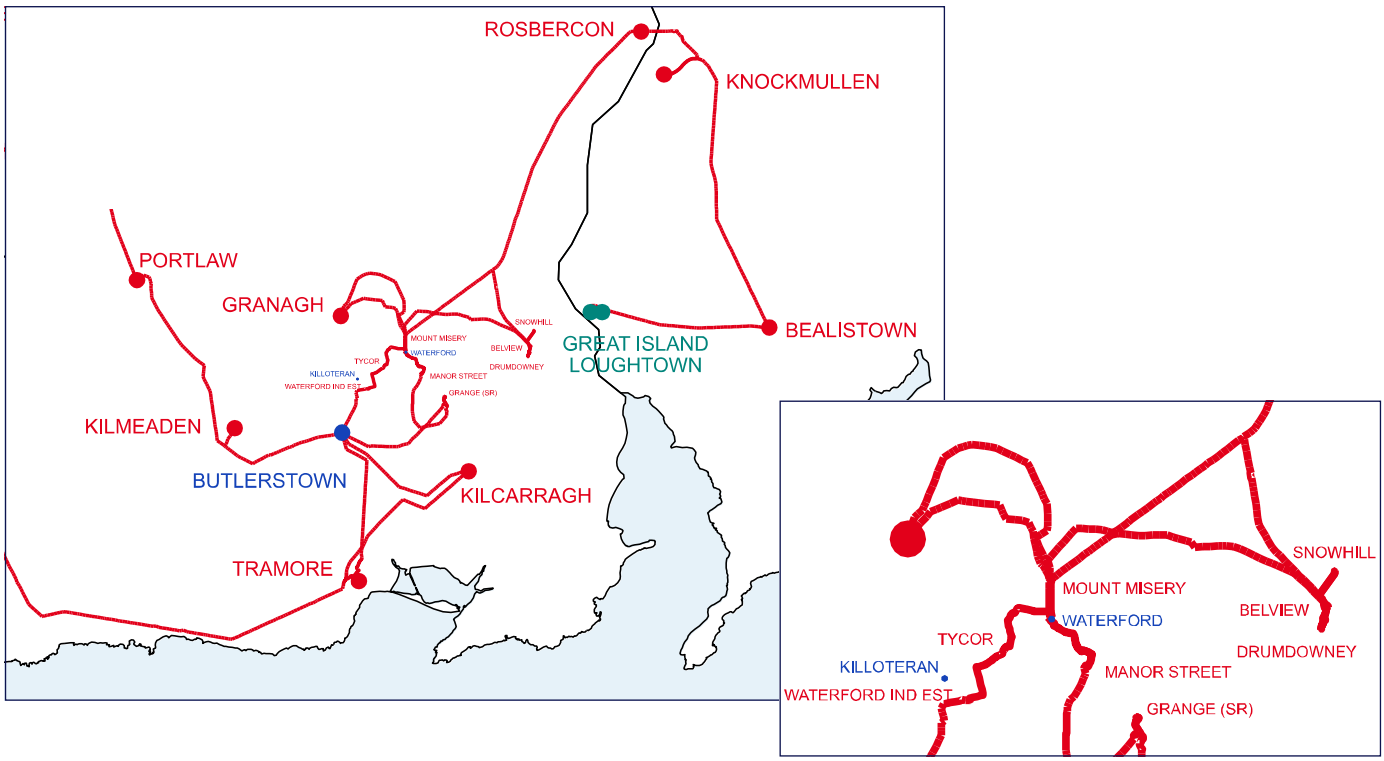
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2030	Cumulated annual values (MWh)	2
		Maximum Individual values (MW)	1

The flexible needs presented in Table 64 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.14 Zone 14: Waterford, Butlerstown and Great Island

Figure 18: Zone 14 110 kV and 38 kV Distribution Network



Zone Summary

Zone 14 is supplied from four 110 kV Bulk Supply points at Waterford, Butlerstown, Killoteran and Great Island, as shown in Figure 18.

There are fifteen 38 kV distribution substations in the Zone at Mount Misery, Belview, Rosbercon, Granagh, Manor Street, Tycor, Waterford, Waterford Ind Est, Grange, Kilcarragh, Tramore, Kilmeaden, Portlaw, Bealistown, Knockmullen.

There are three 38 kV customer substations in the Zone connected at Snowhill, Drumdowney and Belview.

HV Substation Summary

Table 65: Zone 14 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	252
110 kV / MV Bulk Supply Point	1	40
38 kV / MV Distribution Substation	15	231
38 kV Customer Substation	3	0
110 kV Generation Substation	0	0
38 kV Generation Substation	0	0

Intervention Summary

Table 66: Zone 14 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	3	189
38 kV	4	50

Detailed Intervention Summary

Table 67: Zone 14 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
North Quays	Substation Capacity	New 38 kV substation	30	PR7	Pipeline
Butlerstown – Tramore	Circuit Capacity	Uprate 38 kV line	-	2028	Pipeline
Butlerstown	Substation Capacity (Renewable Hub)	Uprate 110 kV substation as a renewable hub	63	2028	Development
West Waterford	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Tycor Substation	Asset Replacement	Uprate 38 kV substation	20	2030	Pipeline
Waterford-Mount Misery (River Suir Crossing)	Asset Replacement	Refurbishment of 38 kV line	-	2026	Development

Projects Driven by Contracted Generators

Table 68: Zone 14 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Great Island	Substation Capacity	Uprate 110 kV substation	63	Contracted

Estimated Flexibility Needs

Table 69: Zone 14 Flexibility Needs

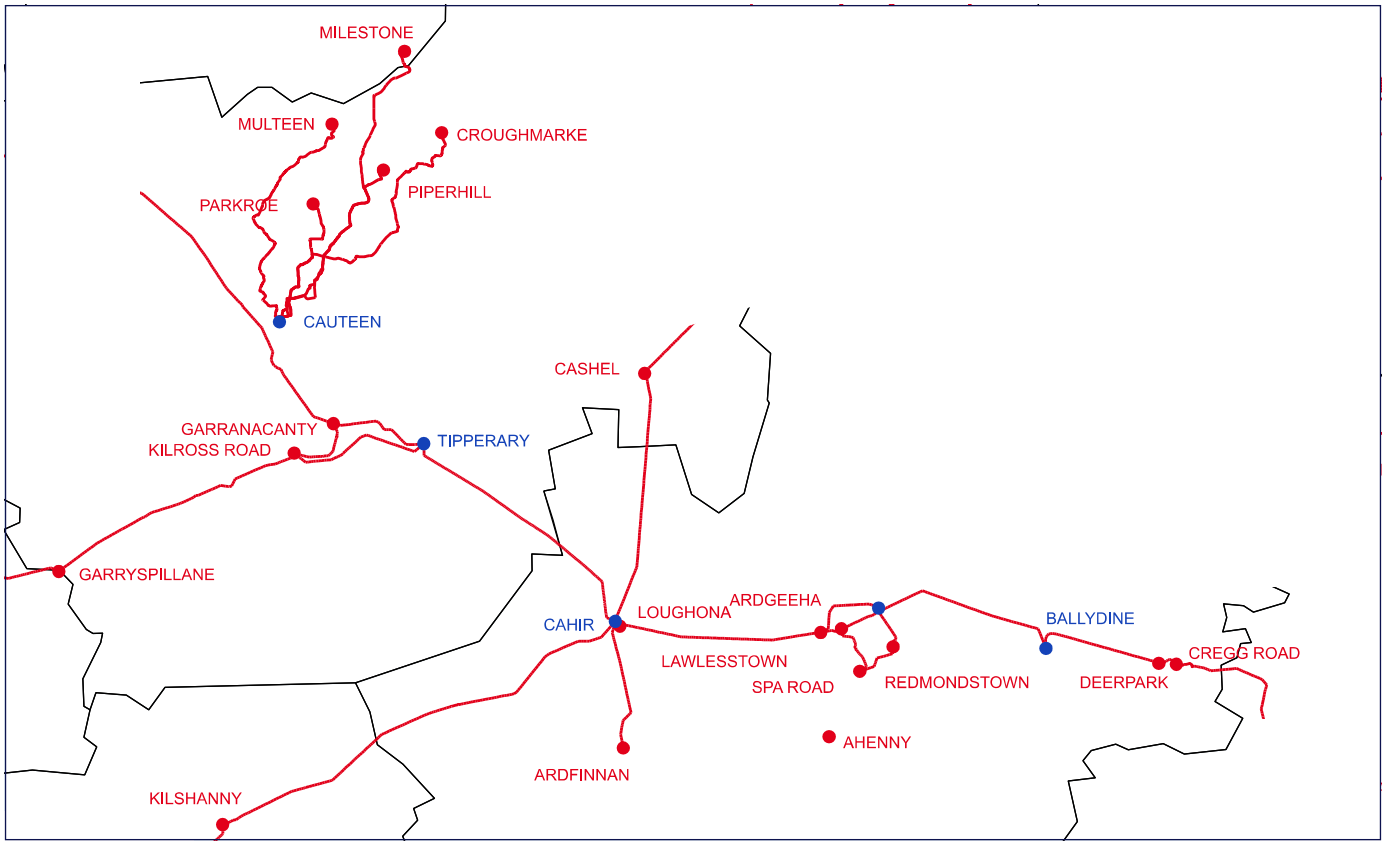
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2028	Cumulated annual values (MWh)	5
		Maximum Individual values (MW)	3
Upward Flexibility Need	2030	Cumulated annual values (MWh)	6
		Maximum Individual values (MW)	1

The flexible needs presented in Table 69 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.15 Zone 15: Cahir, Ballydine, Doon and Tipperary

Figure 19: Zone 15 110 kV and 38 kV Distribution Network



Zone Summary

Zone 15 is supplied from four 110 kV Bulk Supply points at Cahir, Ballydine, Doon and Tipperary, as shown in Figure 19.

There is one 110 kV substation at Cauteen where distribution generation is connected.

There are thirteen 38 kV distribution substations in the Zone at Cahir, Kilshanny, Ardfinnan, Cashel, Deerpark, Cregg Road, Ardgeeha, Lawlesstown, Spa Road, Garranacanty, Kilross Road and Garryspillane.

There are three 38 kV customer substations in the Zone connected at Lawlesstown, Redmondstown and Ballydine.

There are six 38 kV generation substations in the Zone connected at Croughmarke, Loughona, Milestone, Multeen, Parkroe and Piperhill.

HV Substation Summary

Table 70: Zone 15 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	4	189
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	13	163
38 kV Customer Substation	3	0
110 kV Generation Substation	1	189
38 kV Generation Substation	6	0

Intervention Summary

Table 71: Zone 15 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	1	63
38 kV	2	30

Detailed Intervention Summary

Table 72: Zone 15 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Deerpark	Substation Capacity	Uprate 38 kV substation	30	2030	Pipeline

Projects Driven by Contracted Generators

Table 73: Zone 15 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Ardfinnan	Substation Capacity	Uprate 38 kV substation	10	Contracted
Cauteen	Substation Capacity	Uprate 110 kV substation	63	Contracted

Estimated Flexibility Needs

Table 74: Zone 15 Flexibility Needs

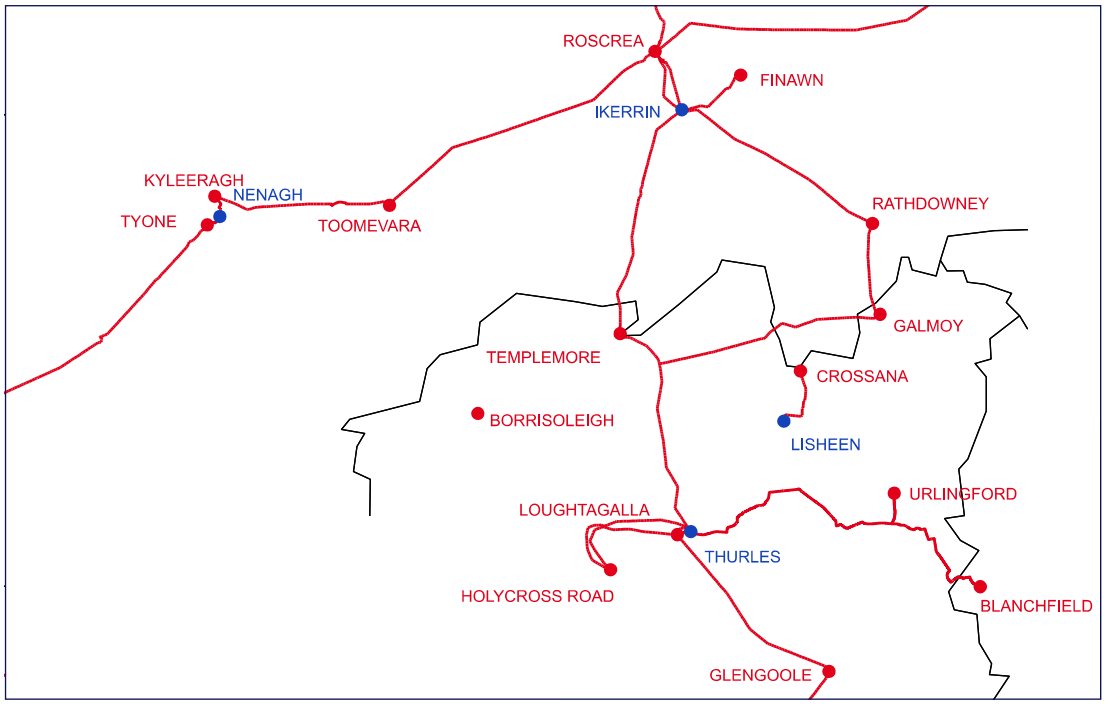
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2030	Cumulated annual values (MWh)	10
		Maximum Individual values (MW)	2

The flexible needs presented in Table 74 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.16 Zone 16: Thurles, Ikerrin and Nenagh

Figure 20: Zone 16 110 kV and 38 kV Distribution Network



Zone Summary

Zone 16 is supplied from three 110 kV Bulk Supply points at Thurles, Ikerrin and Nenagh, as shown in Figure 20.

There is one 110 kV substation at Lisheen where distribution generation is connected.

There are nine 38 kV distribution substations in the Zone at Loughtagalla, Holycross Road, Glengoole, Roscrea, Rathdowney, Templemore, Nenagh, Kyleeragh and Toomevara.

There are two 38 kV customer substations in the Zone connected at Galmoy and Holycross Road.

There are two 38 kV generation substations in the Zone connected at Crossana and Finawn.

HV Substation Summary

Table 75: Zone 16 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	126
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	9	130
38 kV Customer Substation	2	0
110 kV Generation Substation	1	63
38 kV Generation Substation	2	0

Intervention Summary

Table 76: Zone 16 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	2	94.5
38 kV	5	45

Detailed Intervention Summary

Table 77: Zone 16 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Urlingford	Substation Capacity	New 38 kV substation	5	2026	Delivery
Borrisoleigh	Substation Capacity	New 38 kV substation	10	2027	Delivery
Cashel/Kill Hill	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Ikerrin-Toomevara	Circuit Capacity	Uprate 38 kV overhead line	-	2029	Pipeline
Rathdowney	Substation Capacity	Uprate 38 kV substation	10	PR7	Pipeline
Holycross Road Substation	Substation Capacity	Uprate 38 kV substation	20	2030	Pipeline
Ikerrin	Substation Capacity	Uprate 110 kV substation	31.5	2030	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 78: Zone 16 Flexibility Needs

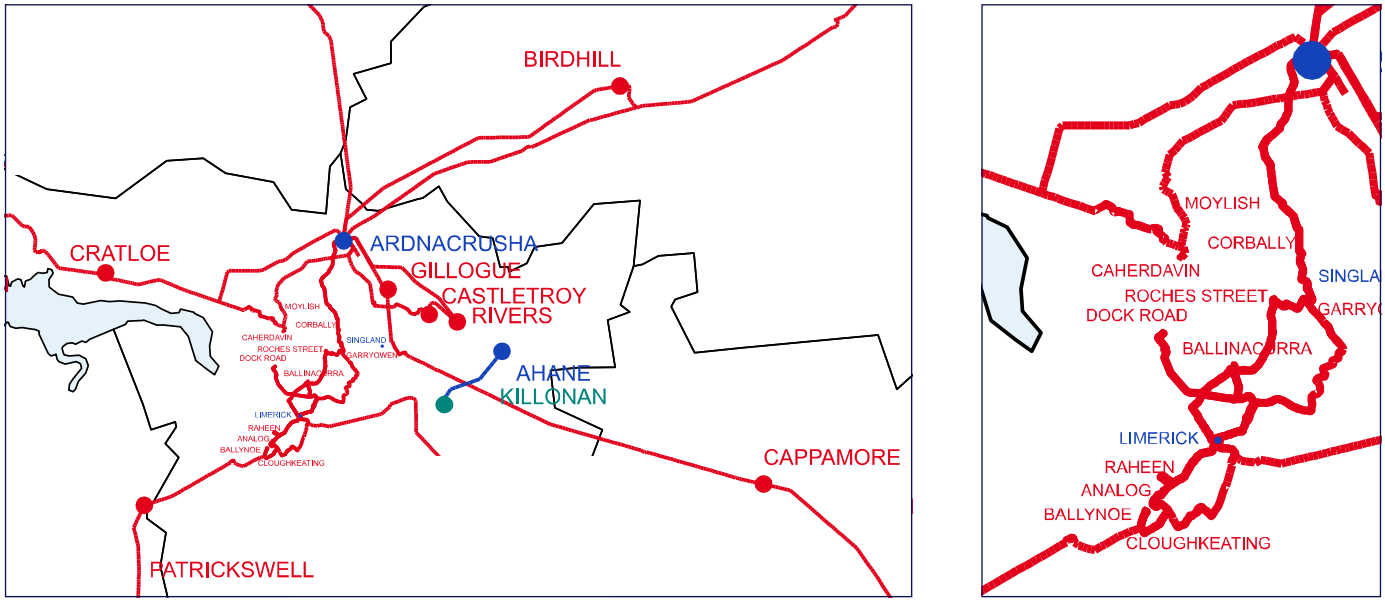
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	250
		Maximum Individual values (MW)	2
Upward Flexibility Need	2028	Cumulated annual values (MWh)	1290
		Maximum Individual values (MW)	8
Upward Flexibility Need	2030	Cumulated annual values (MWh)	4010
		Maximum Individual values (MW)	13

The flexible needs presented in Table 78 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.17 Zone 17: Ardnacrusha and Limerick

Figure 21: Zone 17 110 kV and 38 kV Distribution Network



Zone Summary

Zone 17 is supplied from four 110 kV Bulk Supply points at Ardnacrusha, Singland, Ahane and Limerick, as shown in Figure 21.

There are fifteen 38 kV distribution substations in the Zone at Cappamore, Cratloe, Birdhill, Garryowen, Gillogue, Castletroy, Corbally, Moylish, Caherdavin, Roches St, Patrickswell, Ballinacurra, Dock Road, Raheen and Bruff.

There are three 38 kV customer substations in the Zone connected Rivers, Cloughkeating and Raheen.

HV Substation Summary

Table 79: Zone 17 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	252
110 kV / MV Bulk Supply Point	2	55
38 kV / MV Distribution Substation	15	225
38 kV Customer Substation	3	0
110 kV Generation Substation	0	0
38 kV Generation Substation	0	0

Intervention Summary

Table 80: Zone 17 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	3	252
38 kV	6	20

Detailed Intervention Summary

Table 81: Zone 17 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Raheen (Ballycummin)	Substation Capacity	New 110 kV substation	126	2029	Development
Birdhill	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Limerick City (Ballinacurra)	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Ardnacrusha -Tulla Ardnacrusha-Birdhill	Asset Replacement	Refurbishment of 38 kV line	-	2027	Pipeline
Ardnacrusha - Cappamore	Asset Replacement	Refurbishment of 38 kV line	-	2027	Pipeline

Projects Driven by Contracted Generators

Table 82: Zone 17 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Ardnacrusha - Moylish	Circuit Capacity	Uprate 38 kV circuit	-	Contracted
Ardnacrusha – Cratloe / Caherdavin	Circuit Capacity	Uprate 38 kV circuit	-	Contracted
Dock Road	Substation Capacity	Uprate 38 substation	20	Contracted
Cappamore - Garranacanty	Circuit Capacity	Uprate 38 kV circuit	-	Contracted

Estimated Flexibility Needs

Table 83: Zone 17 Flexibility Needs

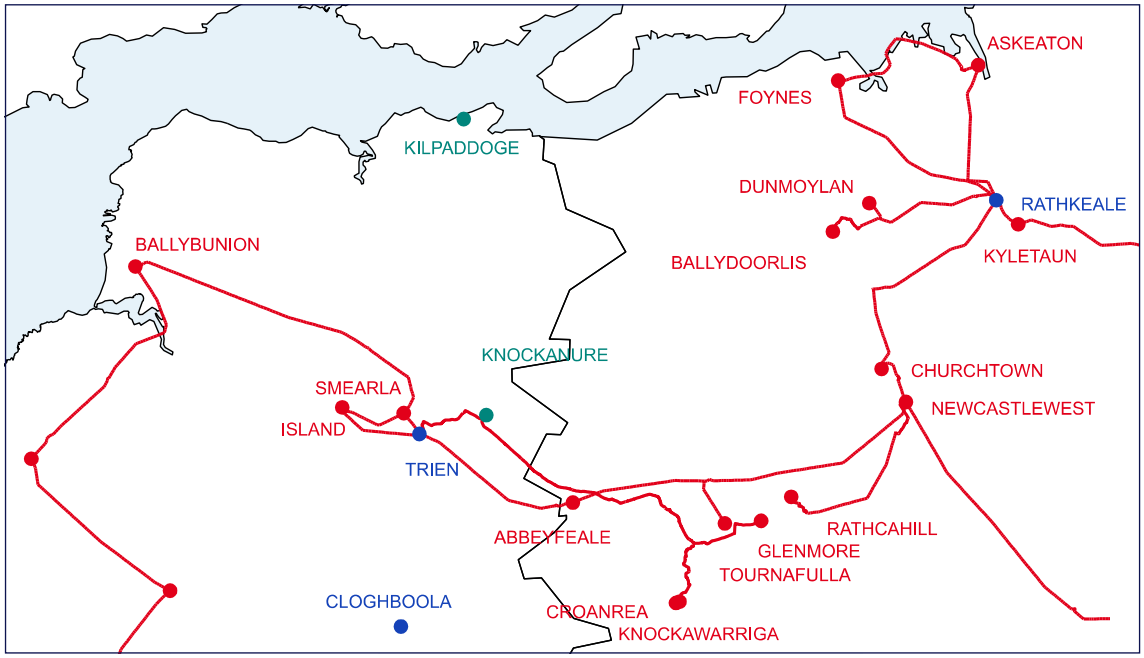
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	140
		Maximum Individual values (MW)	4
Upward Flexibility Need	2028	Cumulated annual values (MWh)	680
		Maximum Individual values (MW)	7
Upward Flexibility Need	2030	Cumulated annual values (MWh)	2190
		Maximum Individual values (MW)	10

The flexible needs presented in Table 83 are calculated across the full Zone. The assessment includes flexibility driven by some (but not all) new customer applications in the area. Flexible needs driven by new customer connections may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.18 Zone 18: Rathkeale and Trien

Figure 22: Zone 18 110 kV and 38 kV Distribution Network



Zone Summary

Zone 18 is supplied from two 110 kV Bulk Supply points at Rathkeale and Trien, as shown in Figure 22.

There are three 110 kV substations at Trien, Cloghboola and Kilpaddoge where distribution generation is connected.

There are seven 38 kV distribution substations in the Zone at Foynes, Rathkeale, Churchtown, Newcastlewest, Smearla, Ballybunion and Abbeyfeale.

There are two 38 kV customer substation in the Zone connected Askeaton and Island.

There are six 38 kV generation substations in the Zone connected at Ballydoorlis, Dunmoylan, Glenmore, Knockawarriga, Rathcahill and Tournafulla.

HV Substation Summary

Table 83: Zone 18 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	123
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	7	115
38 kV Customer Substation	2	0
110 kV Generation Substation	3	146
38 kV Generation Substation	6	0

Intervention Summary

Table 84: Zone 18 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	3	94.5
38 kV	3	0

Detailed Intervention Summary

Table 85: Zone 18 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Trien	Substation Capacity (Renewable Hub)	Uprate 110 kV substation	63	2030	Pipeline
Abbeyfeale-Trien	Circuit Capacity	Uprate 38 kV overhead line	-	2028	Pipeline
Rathkeale-Churchtown	Circuit Capacity	Uprate 38 kV overhead line	-	2029	Pipeline
Abbeyfeale-Newcastlewest-Tournafulla	Asset Replacement	Refurbishment of 38 kV overhead line.	-	2028	Pipeline
Rathkeale	Asset Replacement	Transformer Replacement	-	2030	Pipeline

Projects Driven by Contracted Generators

Table 86: Zone 18 Projects Driven by Contracted Generators

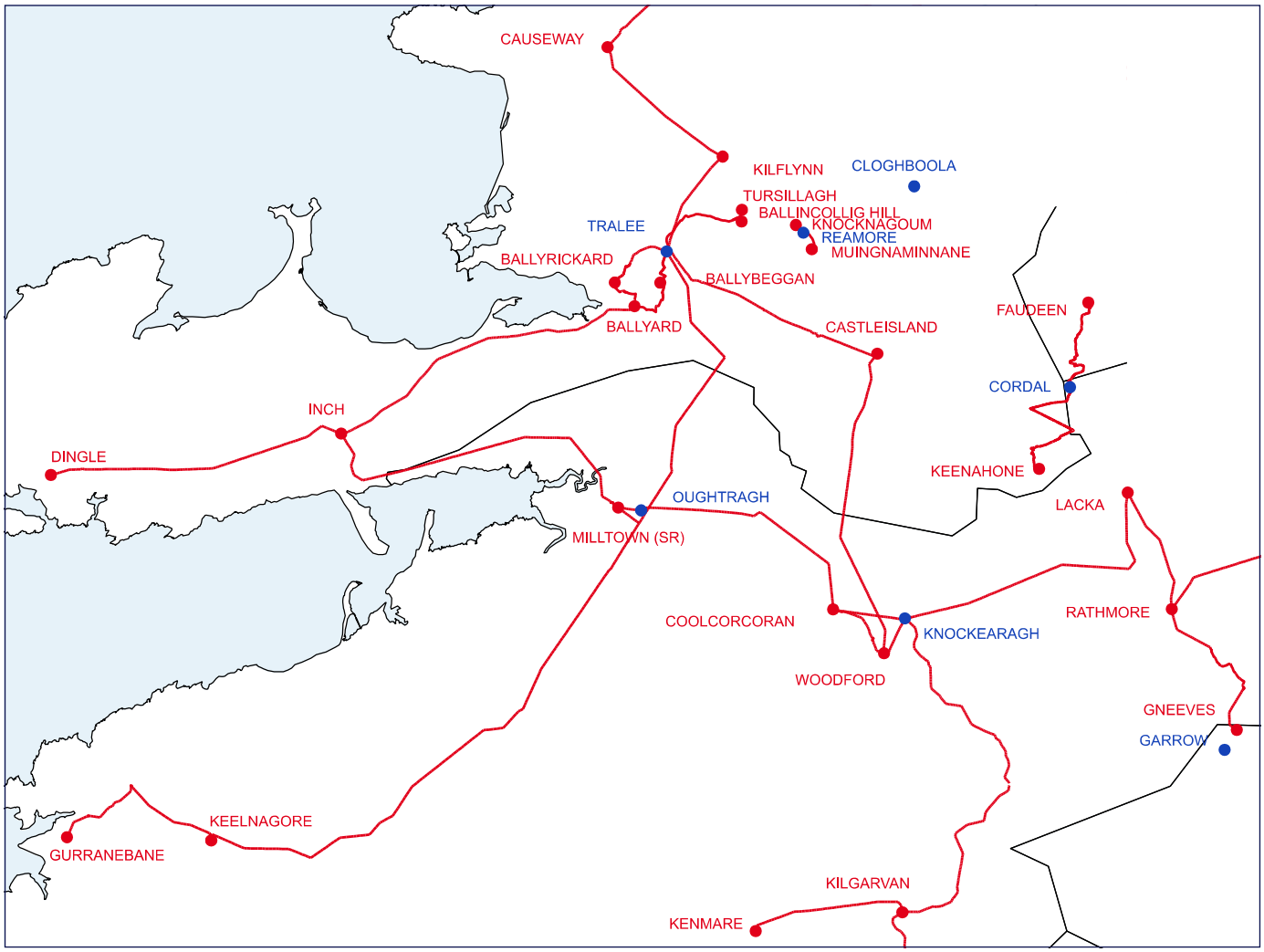
Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Drombeg	Substation Capacity	Uprate 110 kV substation	31.5	Contracted

Estimated Flexibility Needs

There are no Flexibility Needs in this Zone.

3.19 Zone 19: Knockearagh, Tralee and Oughtragh

Figure 23: Zone 19 110 kV and 38 kV Distribution Network



Zone Summary

Zone 19 is supplied from four 110 kV Bulk Supply points at Knockearagh, Oughtragh, and Tralee, as shown in Figure 23.

There are four 110 kV substations at Coomataggart, Cordal, Garrow and Reamore where distribution generation is connected.

There are fifteen 38 kV distribution substations in the Zone at Ballyard, Ballybeggan, Ballyrickard, Castleisland, Causeway , Coolcorcoran, Dingle, Gurranebane, Inch, Kenmare , Kilflynn, Kilgarvan, Milltown, Rathmore and Woodford.

There is one 38 kV customer substation in the Zone at Lacka.

There are nine 38 kV generation substations in the Zone connected at Ballincollig Hill, Dereen, Faudeen, Gneeves, Keelnagore, Keenahone, Knocknagoum, Muingnamunnane and Tursillagh.

HV Substation Summary

Table 87: Zone 19 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	220.5
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	15	195
38 kV Customer Substation	1	0
110 kV Generation Substation	4	267
38 kV Generation Substation	9	0

Intervention Summary

Table 88: Zone 19 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	0	0
38 kV	9	80

Detailed Intervention Summary

Table 89: Zone 19 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Oughtragh - Coolcorcoran	Circuit Capacity	Uprate 38 kV line	-	2028	Pipeline
Knockearagh - Woodford - Coolcorcoran	Circuit Capacity	Uprate 38 kV line	-	2029	Pipeline
Tralee - Ballybeggan	Circuit Capacity	New 38 kV line	-	2030	Development
Castleisland	Substation Capacity	Uprate 38 kV substation	20	2030	Pipeline
Gurranebane	Substation Capacity	New 38 kV substation	20	2030	Pipeline
Tralee (Dromthacker)	Substation Capacity	New 38 kV substation	20	2027	Development
Ballyard	Asset Replacement	Uprate 38 kV substation	20	2030	Pipeline
Ballyard-Inch	Asset Replacement	Refurbishment of 38 kV line.	-	2028	Pipeline
Dingle-Inch	Asset Replacement	Refurbishment of 38 kV line.	-	2028	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 90: Zone 19 Flexibility Needs

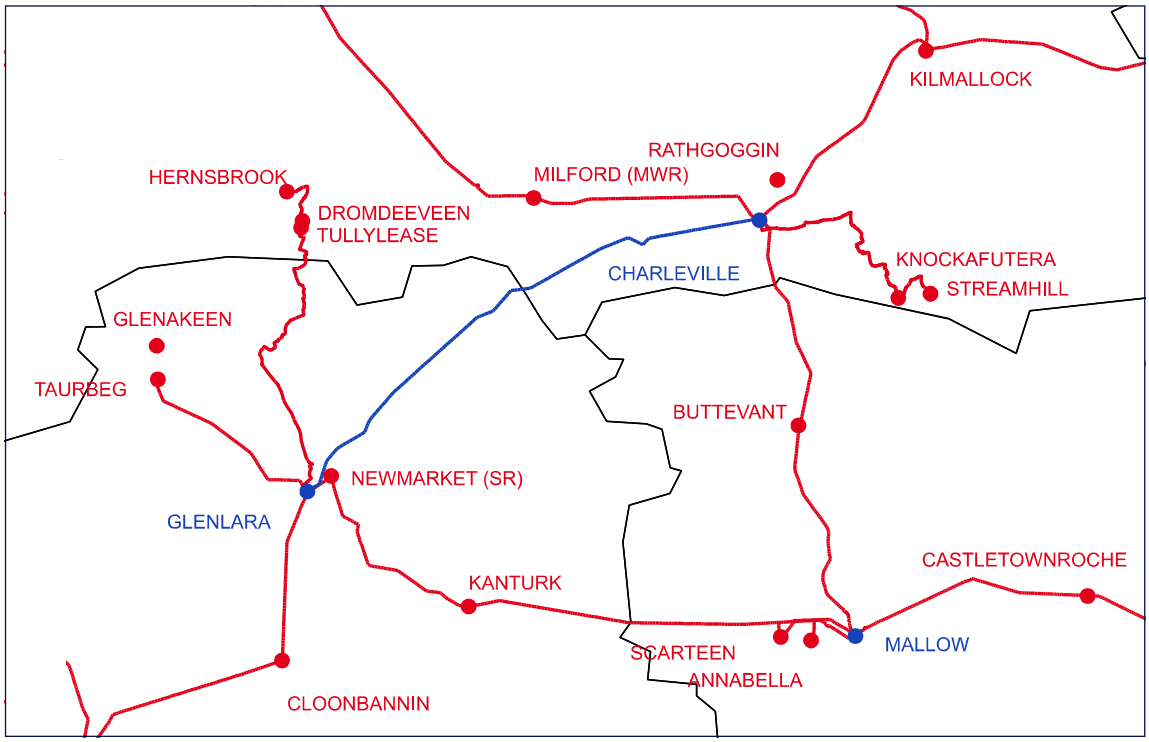
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	2
		Maximum Individual values (MW)	1
Upward Flexibility Need	2028	Cumulated annual values (MWh)	60
		Maximum Individual values (MW)	5
Upward Flexibility Need	2030	Cumulated annual values (MWh)	260
		Maximum Individual values (MW)	10

The flexible needs presented in Table 90 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.20 Zone 20: Charleville, Mallow and Glenlara

Figure 24: Zone 20 110 kV and 38 kV Distribution Network



Zone Summary

Zone 20 is supplied from three 110 kV Bulk Supply points at Charleville, Mallow and Glenlara, as shown in Figure 24.

There are two 110 kV substations at Charleville and Glenlara where distribution generation is connected.

There are ten 38 kV distribution substations in the Zone at Buttevant, Castletownroche, Charleville, Kanturk, Kilmallock, Mallow, Milford, Newmarket, Cloonbannin and Scarteen.

There is one 38 kV customer substation in the Zone connected at Annabella.

There are five 38 kV generation substations in the Zone connected at Dromdeeveen, Hernsbrook, Knockafutera, Streamhill and Taurbeg.

HV Substation Summary

Table 91: Zone 20 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	156
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	10	125
38 kV Customer Substation	1	0
110 kV Generation Substation	2	126
38 kV Generation Substation	5	0

Intervention Summary

Table 92: Zone 20 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	0	0
38 kV	0	0

Detailed Intervention Summary

There are no intervention projects identified in this Zone.

Projects Driven by Contracted Generators

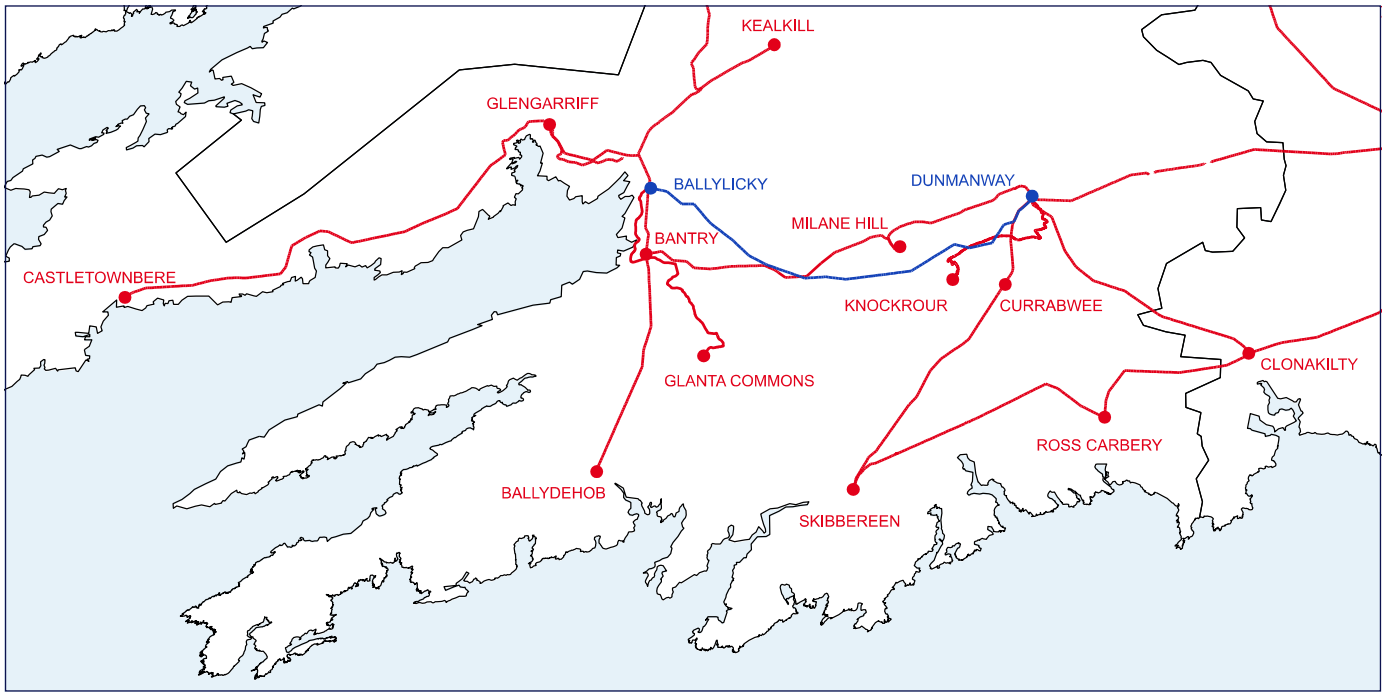
There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

There are no Flexibility Needs in this Zone.

3.21 Zone 21: Ballylickey and Dunmanway

Figure 25: Zone 21 110 kV and 38 kV Distribution Network



Zone Summary

Zone 21 is supplied from two 110 kV Bulk Supply points at Ballylickey and Dunmanway, as shown in Figure 25.

There are nine 38 kV distribution substations in the Zone at Ballydehob, Ballylickey, Bantry, Castletownbere, Clonakilty, Dunmanway, Glengarriff, Rosscarbery and Skibbereen.

There is one 38 kV customer substation in the Zone connected at Ballineen.

There are five 38 kV generation substations in the Zone connected at Currabwee, Glanta Commons, Kealkil, Knockrour and Milane Hill.

HV Substation Summary

Table 93: Zone 21 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	189
110 kV / MV Bulk Supply Point	0	0
38 kV / MV Distribution Substation	9	90
38 kV Customer Substation	1	0
110 kV Generation Substation	0	0
38 kV Generation Substation	5	0

Intervention Summary

Table 94: Zone 21 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	0	0
38 kV	5	30

Detailed Intervention Summary

Table 95: Zone 21 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Dunmanway - Skibbereen	Circuit Capacity	New 38 kV line	-	2027	Development
Clonakilty	Substation Capacity	Uprate 38 kV substation	20	2030	Development
Ballylickey - Glengarriff	Circuit Capacity	New 38 kV line	-	2030	Development
Castletownbere – Glengarriff	Asset Replacement	Refurbishment of 38 kV line	-	2027	Development

Projects Driven by Contracted Generators

Table 96: Zone 21 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Ballylickey	Substation Capacity	Uprate 38 kV substation	10	Contracted

Estimated Flexibility Needs

Table 97: Zone 21 Flexibility Needs

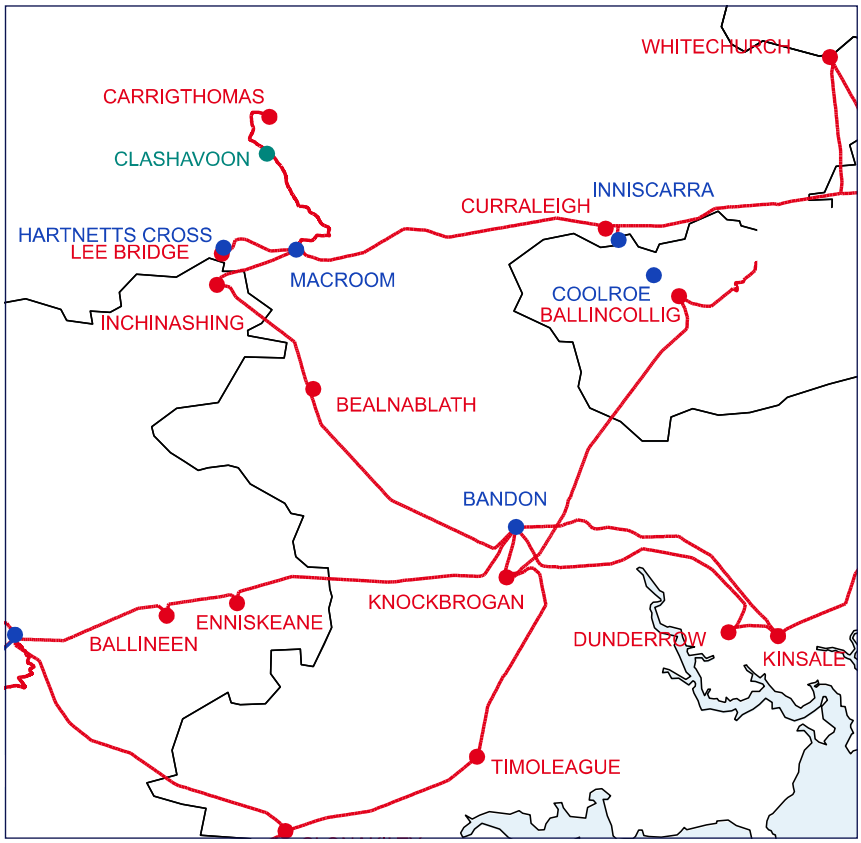
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	900
		Maximum Individual values (MW)	4.50
Upward Flexibility Need	2028	Cumulated annual values (MWh)	1740
		Maximum Individual values (MW)	5.40
Upward Flexibility Need	2030	Cumulated annual values (MWh)	3030
		Maximum Individual values (MW)	6

The flexible needs presented in Table 97 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.22 Zone 22: Bandon, Macroom and Hartnetts Cross

Figure 26: Zone 22 110 kV and 38 kV Distribution Network



Zone Summary

Zone 22 is supplied from three 110 kV Bulk Supply points at Bandon (110 kV/38 kV and 110 kV/MV), Macroom and Hartnetts Cross, as shown in Figure 26.

There is one 110 kV substation at Boggeragh where distribution generation is connected.

There are six 38 kV distribution substations in the Zone at Bealnablath, Enniskeane, Kilmoney, Kinsale, Macroom and Timoleague.

There are two 38 kV customer substations in the Zone connected at Inchinashing and Dunderrow.

There are three 38 kV generation substations in the Zone connected at Bweeng, Carrigcannon and Carrigthomas.

HV Substation Summary

Table 98: Zone 22 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	2	94.5
110 kV / MV Bulk Supply Point	2	50
38 kV / MV Distribution Substation	6	70
38 kV Customer Substation	2	0
110 kV Generation Substation	1	63
38 kV Generation Substation	3	0

Intervention Summary

Table 99: Zone 22 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	2	63
38 kV	4	20

Detailed Intervention Summary

Table 100: Zone 22 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Bandon-Dunderrow	Circuit Capacity	Uprate 38 kV line	-	2028	Pipeline
Bandon-Bealnablath	Circuit Capacity	Uprate 38 kV line	-	2029	Pipeline
Bandon	Substation Capacity	Uprate 110 kV substation	31.5	2030	Pipeline

Projects Driven by Contracted Generators

Table 101: Zone 22 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Macroom	Substation Capacity	Uprate 110 kV substation	31.5	Contracted
Macroom	Substation Capacity	Uprate 38 kV substation	10	Contracted
Timoleague	Substation Capacity	Uprate 38 kV substation	10	Contracted

Estimated Flexibility Needs

Table 102: Zone 22 Flexibility Needs

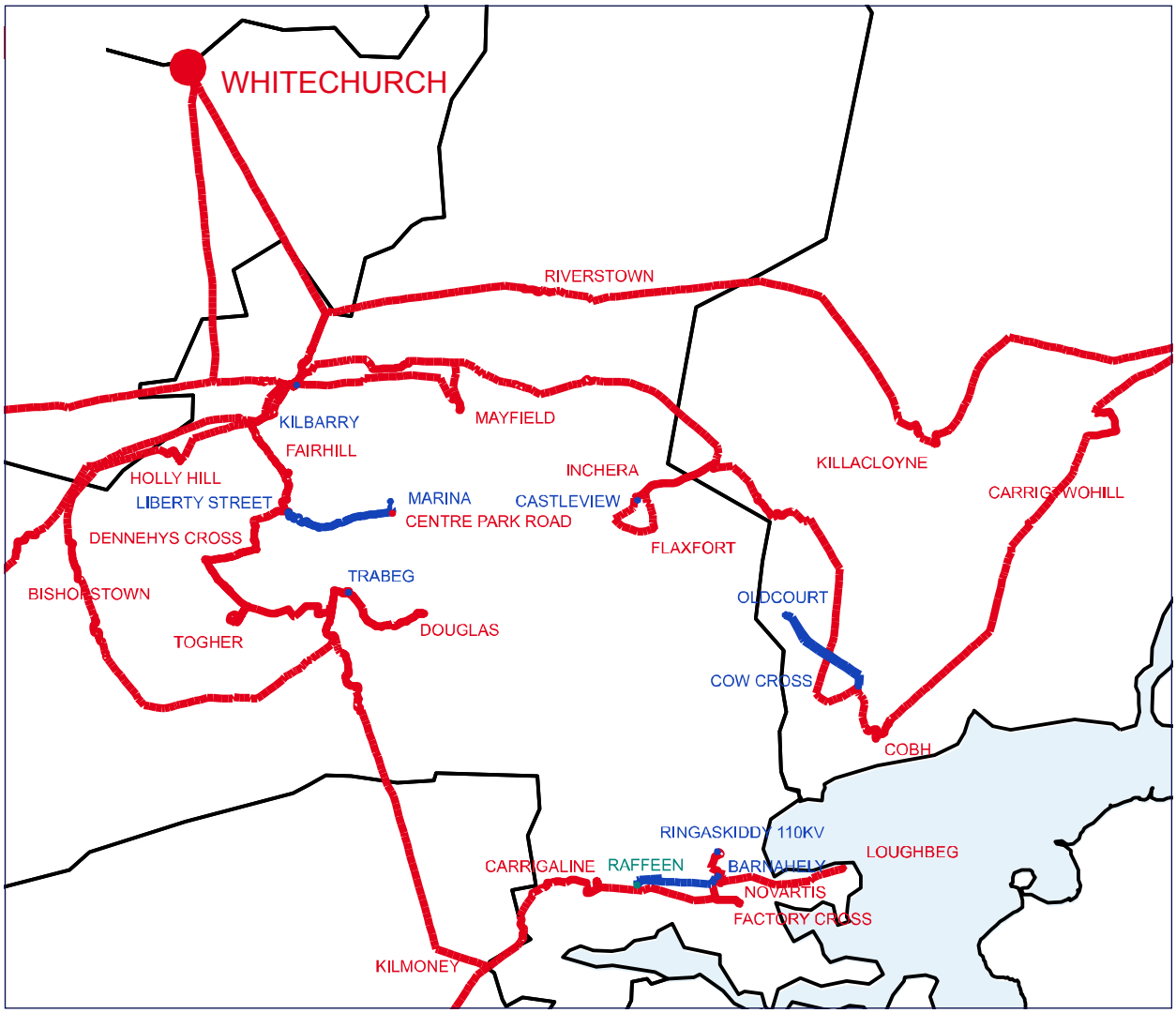
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	70
		Maximum Individual values (MW)	7
Upward Flexibility Need	2028	Cumulated annual values (MWh)	390
		Maximum Individual values (MW)	13
Upward Flexibility Need	2030	Cumulated annual values (MWh)	1490
		Maximum Individual values (MW)	19

The flexible needs presented in Table 102 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.23 Zone 23: Cork

Figure 27: Zone 23 110 kV and 38 kV Distribution Network



Zone Summary

Zone 23 is supplied from eight 110 kV Bulk Supply points at Barnahely (110 kV/38 kV and 110 kV/MV), Cow Cross (110 kV/38 kV and 110 kV/MV), Kilbarry (110 kV/38 kV and 110 kV/MV), Castleview, Coolroe, Marina, Liberty Street and Trabeg (110 kV/38 kV and 110 kV/MV), as shown in Figure 27.

There are sixteen 38 kV distribution substations in the Zone at Ballincollig, Bishopstown, Carrigaline, Carrigtwohill, Cobh, Curraleigh, Dennehy's Cross, Douglas, Factory Cross, Fairhill, Kilbarry, Mayfield, Ringaskiddy, Riverstown, Togher and Whitechurch.

There are four 38 kV customer substation in the Zone connected at Holyhill, Flaxfort, Loughbeg and Barnahely.

HV Substation Summary

Table 103: Zone 23 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	4	283.5
110 kV / MV Bulk Supply Point	8	323
38 kV / MV Distribution Substation	16	270
38 kV Customer Substation	4	0
110 kV Generation Substation	0	0
38 kV Generation Substation	0	0

Intervention Summary

Table 104: Zone 23 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	7	535.5
38 kV	10	120

Detailed Intervention Summary

Table 105: Zone 23 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Carrigaline / Kilmoney	Substation Capacity	New 38 kV substation	30	2028	Pipeline
Little Island (Eastmont)	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Caroline Street	Substation Capacity	New 38 kV substation	30	2030	Pipeline
Bishopstown / Wilton	Substation Capacity	New 110 kV substation	156	2030	Pipeline
Mayfield - Riverstown	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Curraleigh	Asset Replacement	Uprate 38 kV substation	10	2030	Pipeline
Carrigtwohill	Asset Replacement	Uprate 38 kV substation	20	2030	Development
Marina	Asset Replacement	Uprate 110 kV Substation	126	2028	Development
Churchfield / Kilnap	Substation Capacity	New 110 kV substation	63	2028	Development

Detailed Intervention Summary continued

Table 105: Zone 23 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Kilbarry - Riverstown	Circuit Capacity	Uprate 38 kV line	-	2027	Pipeline
Cow Cross - Carrigtwohill	Circuit Capacity	Uprate 38 kV line	-	2027	Pipeline
Kilbarry -Whitechurch	Circuit Capacity	Uprate 38 kV line	-	2029	Pipeline
Fairhill - Liberty St	Asset Replacement	Uprate 38 kV cable	-	2030	Pipeline
Dennehy's Cross - Togher	Asset Replacement	Uprate 38 kV cable	-	2030	Pipeline
Bishopstown	Asset Replacement	Uprate 38 kV substation	-	2030	Pipeline
Trabeg	Substation Capacity	Uprate 110 kV substation	63	2030	Delivery

Projects Driven by Contracted Generators

Table 106: Zone 23 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Castleview	Substation Capacity	Uprate 110 kV Substation	31.5	Contracted

Estimated Flexibility Needs

Table 107: Zone 23 Flexibility Needs

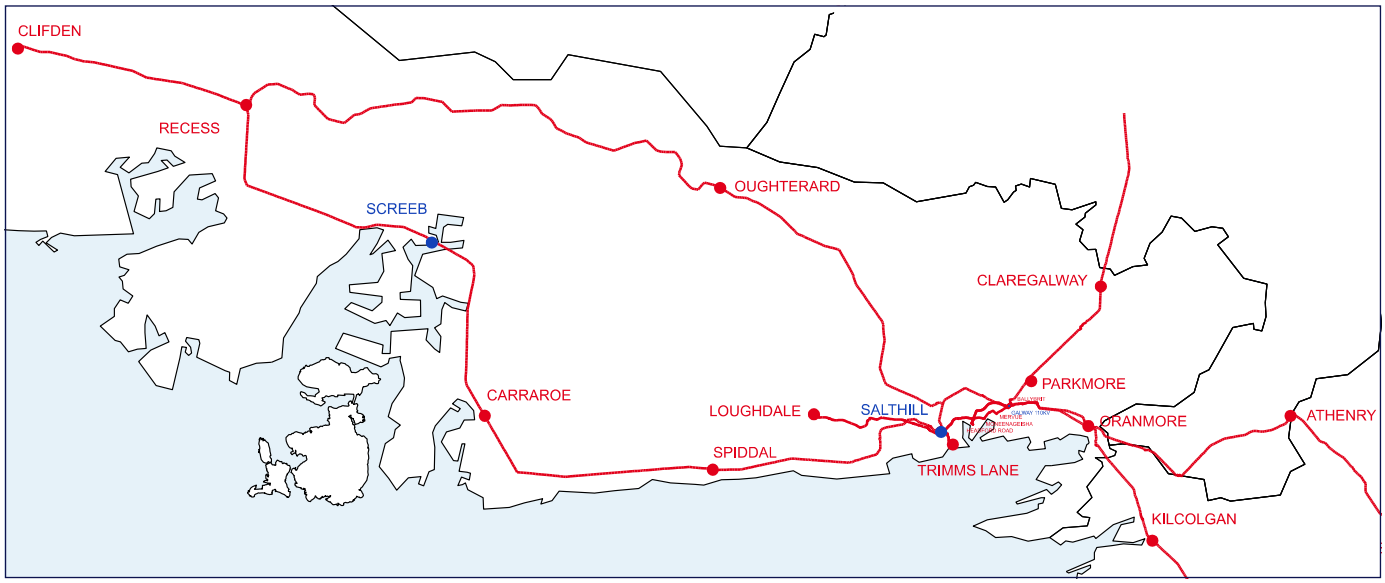
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	3030
		Maximum Individual values (MW)	31
Upward Flexibility Need	2028	Cumulated annual values (MWh)	6960
		Maximum Individual values (MW)	64
Upward Flexibility Need	2030	Cumulated annual values (MWh)	6380
		Maximum Individual values (MW)	60

The flexible needs presented in Table 107 are calculated across the full Zone. The assessment includes flexibility driven by some (but not all) new customer applications in the area. Flexible needs driven by new customer connections may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.24 Zone 24: Galway, Salthill and Screebe

Figure 28: Zone 24 110 kV and 38 kV Distribution Network



Zone Summary

Zone 24 is supplied from three 110 kV Bulk Supply points at Galway (110 kV/38 kV and 110 kV/MV), Salthill (110 kV/38 kV and 110 kV/MV) and Screeb, as shown in Figure 28.

There are fourteen 38 kV distribution substations in the Zone at Parkmore, Claregalway, Athenry, Oranmore, Kilcolgan, Moneenageisha, Headford Road, Oughterard, Trimms Lane, Spiddal, Recess, Clifden, Carraroe and Screeb.

There is one 38 kV customer substation in the Zone connected at Ballybrit.

There is one 38 kV generation substation in the Zone connected at Loughdale.

HV Substation Summary

Table 108: Zone 24 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	220.5
110 kV / MV Bulk Supply Point	2	103
38 kV / MV Distribution Substation	14	170
38 kV Customer Substation	1	0
110 kV Generation Substation	0	0
38 kV Generation Substation	1	0

Intervention Summary

Table 109: Zone 24 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	2	189
38 kV	5	40

Detailed Intervention Summary

Table 110: Zone 24 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Clifden	Substation Capacity	Uprate 38 kV substation	10	PR7	Pipeline
East Galway	Substation Capacity	New 110 kV substation	156	2030	Development
North Galway City	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Headford-J130	Circuit Capacity	Uprate 38 kV line	-	2029	Pipeline
Galway-Athenry-Oranmore	Circuit Capacity	Uprate 38 kV line	-	2027	Pipeline
Galway-Kilcolgan-Oranmore	Circuit Capacity	Uprate 38 kV line	-	2027	Pipeline
Clifden-Recess-Screeb	Circuit Capacity	Refurbishment of 38 kV line.	-	2028	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 111: Zone 24 Flexibility Needs

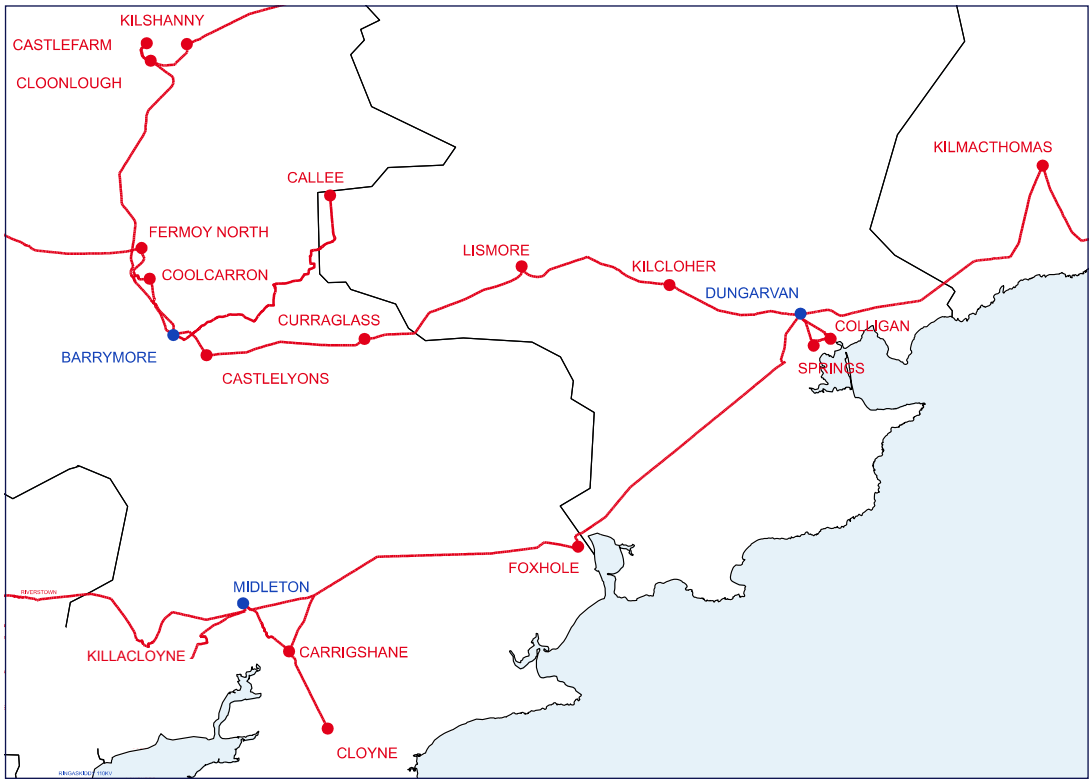
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	3150
		Maximum Individual values (MW)	11
Upward Flexibility Need	2028	Cumulated annual values (MWh)	6160
		Maximum Individual values (MW)	16
Upward Flexibility Need	2030	Cumulated annual values (MWh)	11200
		Maximum Individual values (MW)	20

The flexible needs presented in Table 111 are calculated across the full Zone. The assessment includes flexibility driven by some (but not all) new customer applications in the area. Flexible needs driven by new customer connections may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.25 Zone 25: Barrymore, Midleton and Dungarvan

Figure 29: Zone 25 110 kV and 38 kV Distribution Network



Zone Summary

Zone 25 is supplied from three 110 kV Bulk Supply points at Barrymore, Midleton (110 kV/38 kV and 110 kV/MV) and Dungarvan, as shown in Figure 29.

There are fourteen 38 kV distribution substations in the Zone at Coolcarron, Fermoy North, Castlelyons, Curraglass, Cloonlough, Carrigshane, Cloyne, Killacloyne, Kilcloher, Lismore, Foxhole, Springs, Colligan and Kilmacthomas.

There is one 38 kV customer substation in the Zone at Castlefarm.

There is one 38 kV generation substation in the Zone connected at Callee.

HV Substation Summary

Table 112: Zone 25 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	126
110 kV / MV Bulk Supply Point	1	40
38 kV / MV Distribution Substation	14	174
38 kV Customer Substation	1	0
110 kV Generation Substation	0	0
38 kV Generation Substation	1	0

Intervention Summary

Table 113: Zone 25 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	7	504
38 kV	6	20

Detailed Intervention Summary

Table 114: Zone 25 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Barrymore	Substation Capacity	Uprate 110 kV substation	63	2030	Pipeline
Fermoy	Substation Capacity	New 110 kV substation	63	2030	Development
Midleton	Substation Capacity	Uprate 110 kV substation	94.5	2028	Development
Cloyne	Substation Capacity	Uprate 38 kV substation	20	2029	Development
Midleton	Circuit Capacity	Uprate 38 kV line	-	2028	Pipeline
Killacloyne	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Barrymore - Coolcarron	Circuit Capacity	Uprate 38 kV line	-	2027	Development
Dungarvan	Substation Capacity	New 110 kV substation	126	PR7	Pipeline
Dungarvan-Foxhole	Circuit Capacity	Refurbishment of 38 kV line	-	2028	Pipeline

Projects Driven by Contracted Generators

Table 115: Zone 25 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Barrymore	Substation Capacity	Uprate 110 substation	31.5	Contracted
Dungarvan	Substation Capacity	Uprate 110 substation	63	Contracted
Carrigshane - Cloyne	Circuit Capacity	Uprate 38 kV line	-	Contracted
Carrigshane - Midleton	Circuit Capacity	Uprate 38 kV line	-	Contracted

Estimated Flexibility Needs

Table 116: Zone 24 Flexibility Needs

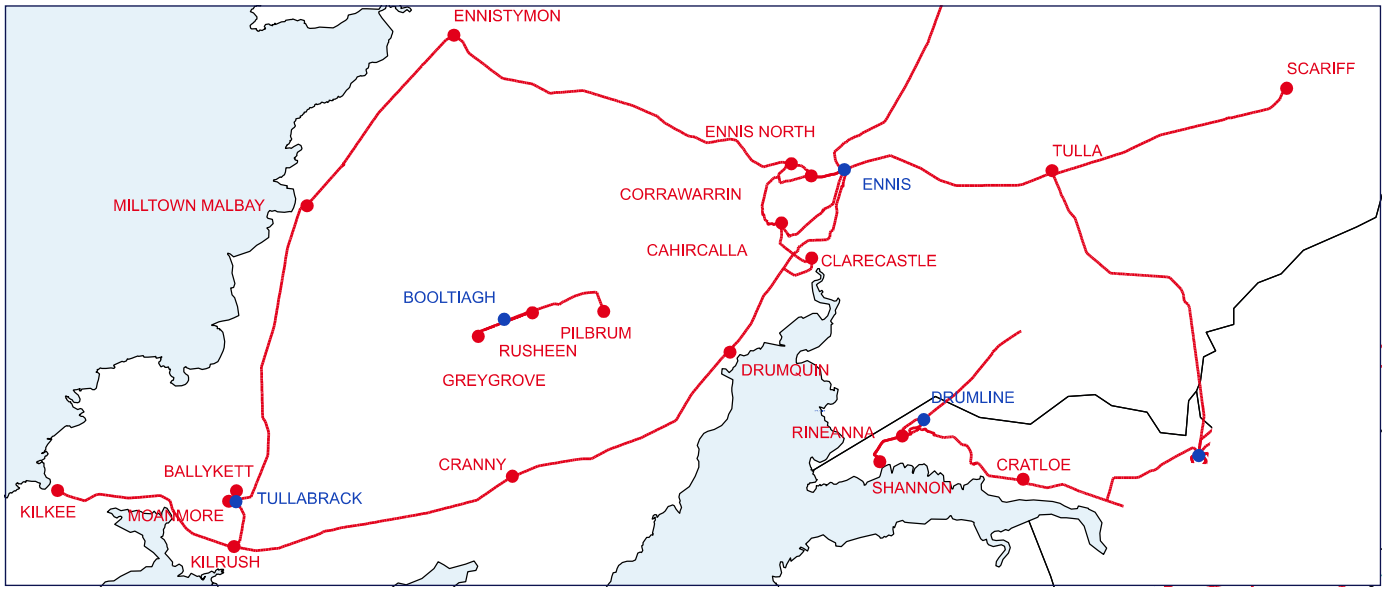
Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	5420
		Maximum Individual values (MW)	18
Upward Flexibility Need	2028	Cumulated annual values (MWh)	9310
		Maximum Individual values (MW)	28
Upward Flexibility Need	2030	Cumulated annual values (MWh)	15880
		Maximum Individual values (MW)	39

The flexible needs presented in Table 116 are calculated across the full Zone. The assessment includes flexibility driven by some (but not all) new customer applications in the area. Flexible needs driven by new customer connections may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.26 Zone 26: Ennis, Tullabrack and Drumline

Figure 30: Zone 26 110 kV and 38 kV Distribution Network



Zone Summary

Zone 26 is supplied from three 110 kV Bulk Supply points at Ennis (110 kV/38 kV and 110 kV/MV) Tullabrack and Drumline, as shown in Figure 30.

There is one 110 kV substation at Booltiagh where distribution generation is connected.

There are fourteen 38 kV distribution substations in the Zone at Ennis North, Ennistymon, Gort, Cahircalla, Drumquin, Cranny, Tulla, Scariff, Drumline, Rineanna, Shannon, Miltown Malbay, Kilrush and Kilkee.

There is one 38 kV customer substation in the Zone connected Clarecastle.

There are five 38 kV generation substation in the Zone connected at Ballykeyy, Greygrove, Moanmore, Pilbrum and Rusheen.

HV Substation Summary

Table 117: Zone 26 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
110 kV / 38 kV Bulk Supply Point	3	157.5
110 kV / MV Bulk Supply Point	1	40
38 kV / MV Distribution Substation	14	132
38 kV Customer Substation	1	0
110 kV Generation Substation	1	126
38 kV Generation Substation	5	0

Intervention Summary

Table 118: Zone 26 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
110 kV	1	63
38 kV	4	20

Detailed Intervention Summary

Table 119: Zone 26 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Ennistymon	Substation Capacity	Uprate 38 kV substation	20	2030	Pipeline
Ennis	Substation Capacity (Renewable Hub)	Uprate 110 kV substation	63	2027	Pipeline
Tullabrack-Milltown Malbay-Ennistymon	Circuit Capacity	Uprate 38 kV line	-	2028	Pipeline
Shannon (Rineanna)	Substation Capacity	Uprate 38 kV substation	-	2030	Pipeline
Ennis-Clarecastle-Cranny-Drumquin-Kilrush (J109,J110, J111)	Asset Replacement	Refurbishment of 38 kV overhead line	-	2028	Pipeline

Projects Driven by Contracted Generators

There are no HV projects driven by contracted generators in this Zone.

Estimated Flexibility Needs

Table 120: Zone 26 Flexibility Needs

Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	300
		Maximum Individual values (MW)	6
Upward Flexibility Need	2028	Cumulated annual values (MWh)	800
		Maximum Individual values (MW)	7
Upward Flexibility Need	2030	Cumulated annual values (MWh)	1670
		Maximum Individual values (MW)	9

The flexible needs presented in Table 120 are calculated across the full Zone. The figures do not include applications for new connection which may increase flexible needs. These needs may be possible to meet from the provision of flexible services, or from new customers entering into flexible connection agreements for a period of time.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

3.27 Zone 27: Greater Dublin Area

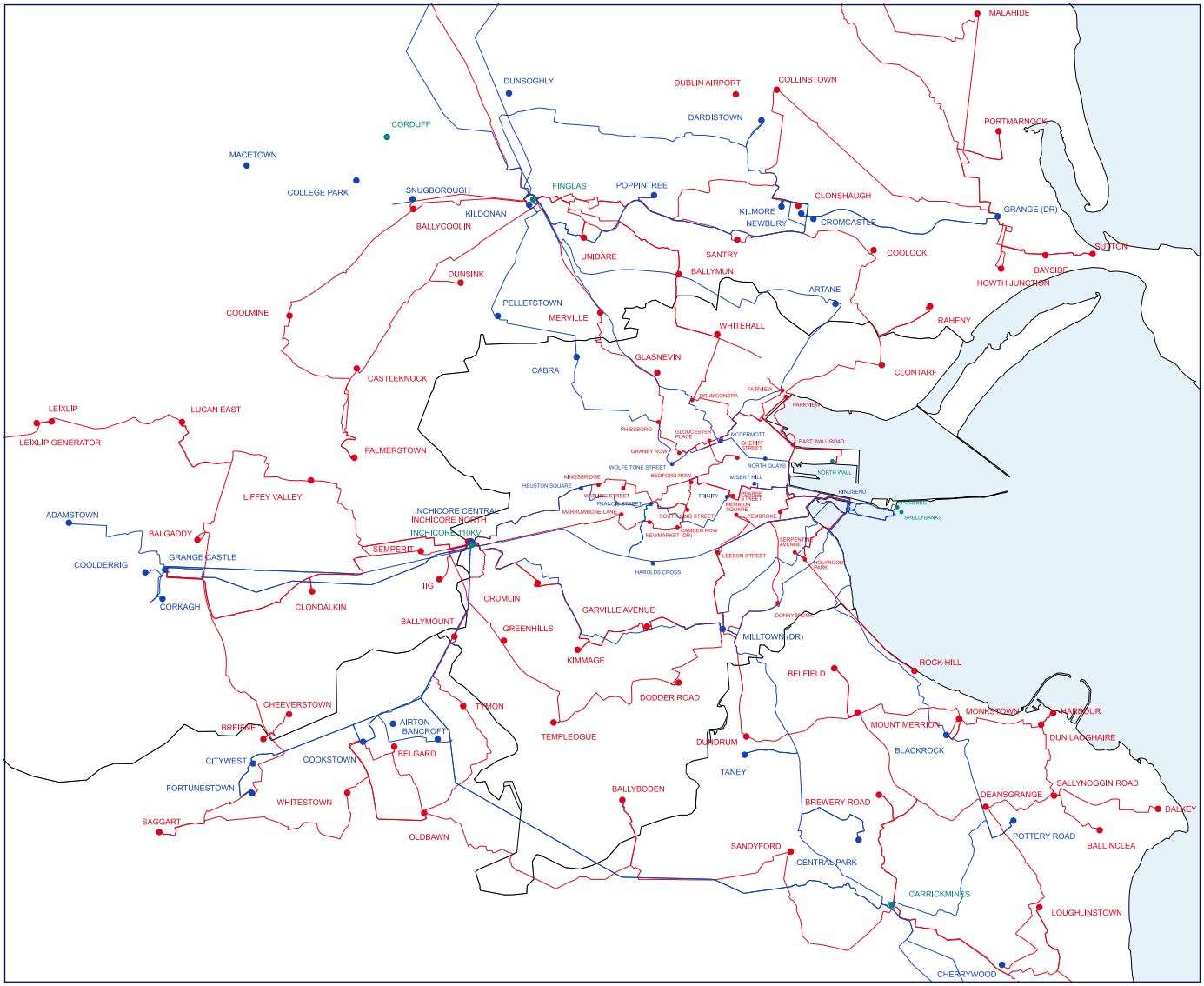
Figure 31: Zone 27 110 kV and 38 kV Distribution Network

Zone Summary

The distribution system in the Greater Dublin Area is supplied at 110 kV, 38 kV, medium voltage (10 kV and 20 kV), and low voltage network. ESB Networks has divided the Greater Dublin Area into three Planner Groups: Central, North, and South as shown in the Figure 31.

The HV distribution network in Zone 27 is shown in Figure 32.

Figure 32: Zone 27 110 kV and 38 kV Distribution Network



Zone 27 is supplied from four 220 kV Bulk Supply Points at Finglas, Ringsend, Carrickmines and Inchicore.

Zone 27 is supplied from five 110 kV Bulk Supply Points at Baltrasna, College Park, Corduff, Griffinrath, and Macetown.

There are thirty-two distribution 110 kV substations in the Zone at Adamstown, Artane, Blackrock, Cabra, Carrickmines, Central Park, Cherrywood, Citywest, Cookstown, Fassaroe, Finglas, Francis Street, Fortunestown, Glasmore, Grange, Grange Castle, Harolds Cross, Heuston Square, Inchicore, Kilmore, McDermott, Milltown, Misery Hill, North Quays, Pelletstown, Poppintree, Pottery Road, Ringsend, Stephenstown, Taney, Trinity and Wolfe Tone Street.

There are eight 110 kV distribution customer substations in the Zone connected at Airton, Bancroft, Coolderrig, Dardistown, Grangecastle, Kilmore, Newbury, and Yellowmeadows.

There are two 110 kV substations at Whitebank and Kylemore where distribution generation is connected.

There are eighty six 38 kV distribution substations in the zone at Ashbourne, Balbriggan, Balgaddy, Ballinclea, Ballyboden, Ballycoolin, Ballymount, Ballymun, Batter Lane, Bedford Row, Belfield, Belgard, Boghall Road, Bray, Brewery Road, Camden Row, Carrickmines, Castleknock, Celbridge, Clarkstown, Clondalkin, Clonshaugh, Clontarf, Collinstown, Coolmine, Coolock, Crumlin, Deansgrange, Dodder Road, Donnybrook, Drumcondra, Dun Laoghaire, Dundrum, East Wall Road, Fairview, Garville Avenue, Glasmore, Glasnevin, Gloucester Place, Granby Row, Grange, Greenhills, Greystones, Howth Junction, Inchicore Central, Inchicore North, Kilcock, Kilcoole, Kimmage, Kingsbridge, Leeson Street, Leixlip, Liffey Valley, Little Bray, Loughlinstown, Loughshinny, Lucan East, Malahide, Marrowbone Lane, Merrion Square, Merville, Moneycooley, Monkstown, Mount Merrion, Mountgorry, Newmarket, Oldbawn, Palmerstown, Pembroke, Phibsboro, Saggart, Sallins, Sallynoggin Road, Sandyford, Santry, Semperit, Sheriff Street, South King Street, Sutton, Swords, Templeogue, Tymon, Unidare, Watling Street, Whitehall and Whitestown.

There are seventeen 38 kV customer substations in the Zone connected Bayside, Belfield, Carlisle, Cheeverstown, Dalkey, Harbour, Holyrood, IIG, Malahide, Parkview, Pearse St, Portmarnock, Raheny, Rathdown, Rock Hill, Serpentine Avenue and Shankill.

There are two 38 kV generation substations in the Zone connected at Dunsink, and Leixlip.

HV Substation Summary

Table 121: Zone 27 High-Voltage Substation Summary

Existing substation type	Number of substations	Total Installed Capacity (MVA)
220 kV Bulk Supply Point	4	3250*
110 kV Bulk Supply Point	5	329
110 kV / 38 kV Distribution Substation	14	1953
110 kV / MV Distribution Substation	23	980
110 kV Customer Substation	10	0
38 kV / MV Distribution Substation	86	1650
38 kV Customer Substation	17	0
110 kV Generation Substation	2	0
38 kV Generation Substation	2	0

** 1000 MVA of this capacity is transmission assets, however, it supplies distribution customers only.*

Intervention Summary

Table 122: Zone 27 Intervention Project Summary

Project type	Number of projects	Installed capacity added (MVA)
220 kV	5	2000
110 kV	41	2511.5
38 kV	12	90

Detailed Intervention Summary

Table 123: Zone 27 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Newbury (Belcamp)	Circuit Capacity	New 110 kV cable	-	2026	Delivery
Carrickmines-Cherrywood	Security of Supply	New 110 kV cable	-	2030	Development
Batter Lane	Substation Capacity	New 110 kV substation	63	2026	Delivery
Blundlestown	Substation Capacity	New 110 kV substation	126	2030	Delivery
Steevens Lane (Watling St.)	Substation Capacity	New 110 kV substation	63	2029	Pipeline
Walterstown	Substation Capacity	New 110 kV substation	126	2030	Pipeline
Belmayne	Substation Capacity	New 110 kV substation	126	2030	Pipeline
Nutley Lane	Substation Capacity	New 110 kV substation	63	2029	Development
Carpenterstown	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Courtlough	Substation Capacity	New 110 kV substation	126	2030	Pipeline
North City Junction	Substation Capacity	New 110 kV substation	63	2030	Pipeline
Yellowmeadows	Substation Capacity	New 110 kV substation	63	2027	Development
South Lott's Road	Substation Capacity	New 110 kV substation	23	2028	Development
Griffinrath	Short Circuit Level	Upgrade 38 kV switchgear	-	2027	Development
McDermott redevelopment	Substation Capacity	Uprate 110 kV substation	63	2030	Development
Poppintree	Substation Capacity	Uprate 110 kV substation	31.5	2028	Development
Carrickmines	Substation Capacity	Uprate 220 kV substation	250	2030	Pipeline
Dublin Central	Substation Capacity	New 220 kV substation	500	2031	Pipeline

Detailed Intervention Summary continued

Table 123: Zone 27 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Fingal	Substation Capacity	New 220 kV substation	500	2031	Pipeline
West County Dublin	Substation Capacity	New 220 kV substation	500	2033	Pipeline
Francis Street - Camden Street	Asset Replacement	Uprate 38 kV cable	-	2030	Delivery
Phibsboro Granby Row	Asset Replacement	Uprate 38 kV cable	-	2030	Development
Fassaroe	Short Circuit Level	Upgrade 38 kV switchgear	-	2027	Development
Cherryhound	Substation Capacity	New 110 kV substation	126	PR7	Pipeline
Dublin Central-North Quays-North City 110 kV Circuit	Security of Supply	New 110 kV cable	-	PR7	Pipeline
Glasmore-North County	Security of Supply	New 110 kV circuit	-	PR7	Pipeline
West County-Coolderrig	Security of Supply	New 110 kV cable	-	PR7	Pipeline
Grange Castle West Junction	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Rinawade	Substation Capacity	New 110 kV substation	126	2030	Pipeline
St. Margarets	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Bray	Substation Capacity	New 38 kV substation	30	PR7	Pipeline
Greystones	Substation Capacity	New 38 kV substation	30	PR7	Pipeline
North Wicklow	Substation Capacity	New 110 kV substation	126	PR7	Pipeline
Mulhuddart	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Collinstown Substation	Asset Replacement	Uprate 38 kV substation	20	2030	Pipeline

Detailed Intervention Summary continued

Table 123: Zone 27 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
East Wall Road	Asset Replacement	Upgrade 38 kV switchgear	10	2030	Delivery
Kilcoole-Kilmartin	Asset Replacement	Refurbishment of 38 kV line	-	2028	Pipeline
Fassaroe-Greystones-Kilcoole (J002)	Asset Replacement	Refurbishment of 38 kV line	-	2028	Pipeline
Inchicore	Asset Replacement	Uprate 110 kV substation	-	2030	Pipeline
Fassaroe	Asset Replacement	Uprate 110 kV substation	-	2030	Pipeline
Poolbeg/Ringsend	Asset Replacement	Uprate 220 kV substation	250	2030	Pipeline
Drumcondra	Security of Supply	New 110 kV substation	63	PR7	Pipeline
Ballymun	Security of Supply	New 110 kV substation	63	PR7	Pipeline
Donnycarney	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Ashbourne	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Stillorgan	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Stephens Green	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Spencer Dock	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Ringsend IGB	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Phibsboro	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Pearse St.	Substation Capacity	New 110 kV substation	63	PR7	Pipeline

Detailed Intervention Summary continued

Table 123: Zone 27 Detailed Intervention Project Summary

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Expected By	Project Status
Naas Road	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Leopardstown	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Kimmage	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Grove Road	Substation Capacity	New 110 kV substation	63	PR7	Pipeline
Greenogue	Substation Capacity	New 110 kV substation	63	PR7	Pipeline

Projects Driven by Contracted Generators

Table 124: Zone 27 Projects Driven by Contracted Generators

Network Area	Driver	Solution	Installed Capacity Added (MVA)	Project Status
Grange - Portmarnock	Circuit Capacity	Uprate 38 kV line	-	Contracted
Mountgorry - Portmarnock	Circuit Capacity	Uprate 38 kV line	-	Contracted

Estimated Flexibility Needs

Table 125: Zone 27 Flexibility Needs

Direction	Year	Type of value	Flexibility network needs (total)
Upward Flexibility Need	2026	Cumulated annual values (MWh)	1970
		Maximum Individual values (MW)	23
Upward Flexibility Need	2028	Cumulated annual values (MWh)	7130
		Maximum Individual values (MW)	56
Upward Flexibility Need	2030	Cumulated annual values (MWh)	19670
		Maximum Individual values (MW)	91

The flexible needs presented in Table 125 are calculated across the full Zone. As there are large number of new connection applications in Dublin, the assessment does include flexible requirements driven by these new connections where such connections are contracted.

While the need for upward flexibility will vary on a case by case basis, the need is expected to be more focused around winter period and the peak hours of 4pm to 8pm.

As noted in the Part 1 of DNDP published alongside this document, in Dublin capacity is further constrained based on transmission system constraints. As a result the flexible services identified may not fully address challenges with the connection of new demand.

Consideration on this issue will be further explored as part of the Flexible Needs Assessment work to be initially published in Q3 2026.

4. Other Sources of Information

Additional information on ESB Networks' distribution network can be found on ESB Networks' website including:

- Published Capacity Workbooks
- Published Availability Capacity Heatmap
- Published Distribution System Security and Planning Standards
- Published Distribution Annual Performance Report 2023
- Published ESB Networks Price Review 6 Business Plan

5. Glossary

Abbreviation	Meaning
AIS	Air Insulated Switchgear
BSP	Bulk Supply Point. A BSP on the network is defined as a major interface point between the transmission and distribution system. In some BSPs there are both 110 kV/38 kV and 110 kV/MV transformers installed
CA	Capital Approval
CAP	Climate Action Plan
CRU	Commission for the Regulation of Utilities
DAO	Distribution Asset Owner
DART	Dublin Area Rapid Transit
DER	Distributed Energy Resources
DG	Distributed Generator
DNDP	Distribution Network Development Plan
DNDR	Distribution Network Development Report
DSO	Distribution System Operator
ECP	Enduring Connection Policy
EU	European Union
GIS	Gas Insulated Switchgear
GW	gigawatt (1GW = 1,000,000,000 watts)
GWh	gigawatt-hour
HV	high voltage
IA	Investment Appraisal
kV	kilovolt
kVA	kilovolt-amperes
kWh	kilowatt-hour
kVA	Kilovolt-Amperes
LCT	Low Carbon Technology
LV	Low Voltage

Abbreviation	Meaning
LV	Low Voltage
MV	Medium Voltage
MVA	Megavolt-Amperes
MW	Megawatt (1 MW = 1,000,000 watts)
NSHR	Network Scenario Headroom Report
OHL	Overhead Line
PR6	Price Review 6 (2026-2030)
PR7	Price Review 6 (2031-2035)
RES	Renewable Energy Sources
TA	Technical Approval
TAO	Transmission Asset Owner
TSO	Transmission System Operator
V	Volt

6. References

1. ESB Networks' Networks for Net Zero Strategy
2. DNDP, Part 1: Summary Document and Methodology Statement
3. DNDP, Part 3: Network Scenario Headroom Report
4. ESB Networks Price Review 6 Business Plan

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