6 March 2024

Outturn Availability and Generator Forum

EirGrid

Agenda

Generation Outage Planning

Outturn Availability Overview

Outturn Availability Ex-Post 2023 Report

Transmission Capital Works 2023

Transmission Outage Programme 2024

Distribution Outage Programme Update

Wind Dispatch Tool Constraint Group Overview

EirGrid

Generation Outage Planning

EirGrid

Outage Planning

Generator Outage Requirements

31 March 2024

Committed Outage Programme

September 2024:

- Publish Committed Outage Programme for 2025
- Publish Provisional Outage Programme for 2026 & 2027

Mar Y-1

Sep Y-1

Change Management

EirGrid

Submission of Annual Outage Plans

Submission of Annual Outage Plans- Form GEN03

Year of Outage	Company Name	Station Name	Unit Name	# days	Proposed Start Date	Proposed End Date	Outage Reason	Additional Information
2025	ABC Co		1	14	09-Jun-25	22-Jun-25	GT minor inspections, repairs	
2026	ABC Co		1	20	06-Jul-26	26-Jul-26	GT minor inspections and Stautory Inspections	
2027	ABC Co		2	10	10-May-27	20-May-27	GT minor inspections, repairs	

Please e-mail the completed form to OutagePlanning@eirgrid.com

You can also contact us at 01-2370878 or 01-2370493

Notes on completing the Submission of Annual Outage Plans form

1) Year of Outage - please insert year that the outage is due to occur in
2) Company Name - please insert the name of the Company which owns the generator
3) Station Name - please insert the name of the Station where the generator is located
4) Unit Name - please insert the name of the Unit (generator)
5) # Days - please insert the duration of the outage in days
6) Proposed Start Date - if an exact start date is required (ie 1st May), please insert the date and time here
7) Proposed Finish Date - this must be the Proposed Start Date + number of days
8) Outage Reason - please clearly state the outage reason, the work that will be carried out. If the registered characteristics of the unit might change to the outage work, then this must be stated here also
9) Additional Information - please state any other information that would be of use to EirGrid

https://www.eirgrid.ie/industry/customer-information/outage-information

Generator Outage Detail -Form GEN04(V2.1)

Section 4: Commissioning & Energisation Requirements

Will there been any *material* change to any of the HV equipment at the generator's site such that:	Y/N	If Yes please provide details (including estimated dates)
an EirGrid **Energisation Instruction** (and hence an ESBI commissioner) is required e.g. changes to HV plant including CBs, VTs, CTs, connections, transformer, transformer auxiliaries etc.?	N	
design and/or **works** are required to be carried out on the EirGrid side of the connection e.g. design and/or works affecting the interface such as protection, metering, interlocking, earthing, etc.?	N	
a change to the **Operating Instruction** for the associated HV transmission station is required?	N	
5 If yes to question 2, will the HV		

https://www.eirgrid.ie/industry/customer-information/outage-information

Generation Outage Planning: Renewables

- Grid Code requirements for outage planning apply (OC2)
- EirGrid endeavour to align maintenance with outages wherever possible

- **Renewables Outage Request Form (SGU05)**: for all outages greater than 5 MW
- **Request for Transmission Outage Form (Voluntary Outage)**: for work requiring an ESBN operator

- Any questions, please contact your EirGrid customer account manager.

Note: Distribution connected assets:

All communications are through the DSO except SGU Outage Request Form - Send directly to TSO & copy DSO

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Transmission Outage Request - VO

EirGrid Customer Form:

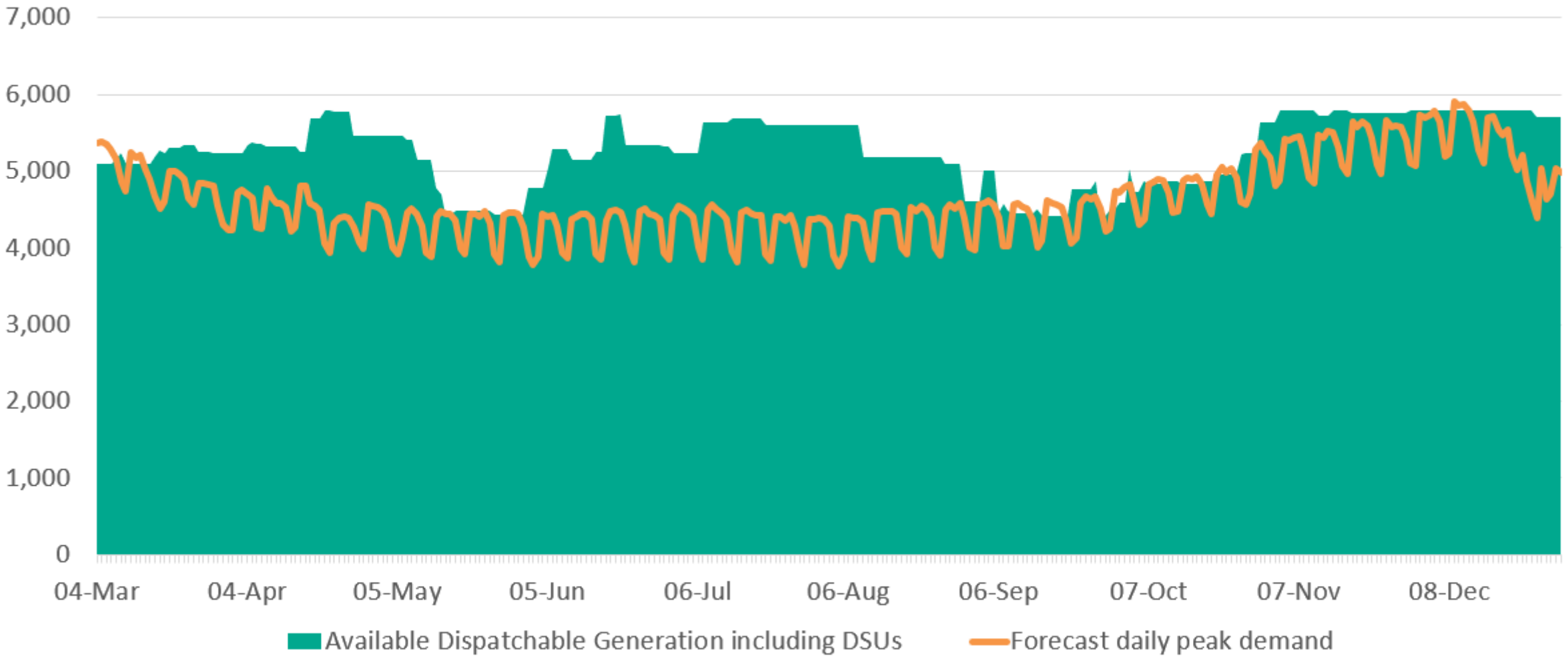
REQUEST FOR TRANSMISSION OUTAGE

To:	*Transmission Outage Planning (TOP) & System Operations, EirGrid*	
Company Name:		**Date of Application:**
Contact Details of Requesting Party: **Name:** **Email:** **Phone no:**		
Plant:		
From:	**Hrs on:**	
To:	**Hrs on:**	
Description of works/Purpose of Switching[1]		
Is an Energisation Instruction (EI) Required?[2]		
Station In Charge of Switching:		
Declaration of Fitness Required(Y/N):		
Signed:		
Copies to: ➢ neartime@eirgrid.com; & TOP@eirgrid.com; ➢ Cc: Info@eirgrid.com		

[1] All outage requests must be submitted at least three weeks ahead of the planned outage. This will ensure a sufficient notice period is provided for relevant studies to be conducted by EirGrid System Operations and for ESBN to assign the required Network Technician resources. **Ideally, all outage requests should be submitted as far in advance as possible, to ensure works can be scheduled onto the Transmission Outage Programme.**

[2] The basic philosophy is that any new, refurbished or modified plant that cannot be fully demonstrated and proven fit for service before connecting to the transmission system, requires an Energisation Instruction. What this means is that anytime the HV plant is fundamentally changed, an EI should be employed in connecting this HV plant to the system. Any works requiring an EI, must be submitted to EirGrid System Operations no later than five weeks in advance of the planned outage, to allow for preparation and due diligence of relevant documentation.

System Margins Outlook



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Outturn Availability (OA) Overview

TSO implementation of Outturn Availability
Decision SEM-15-071

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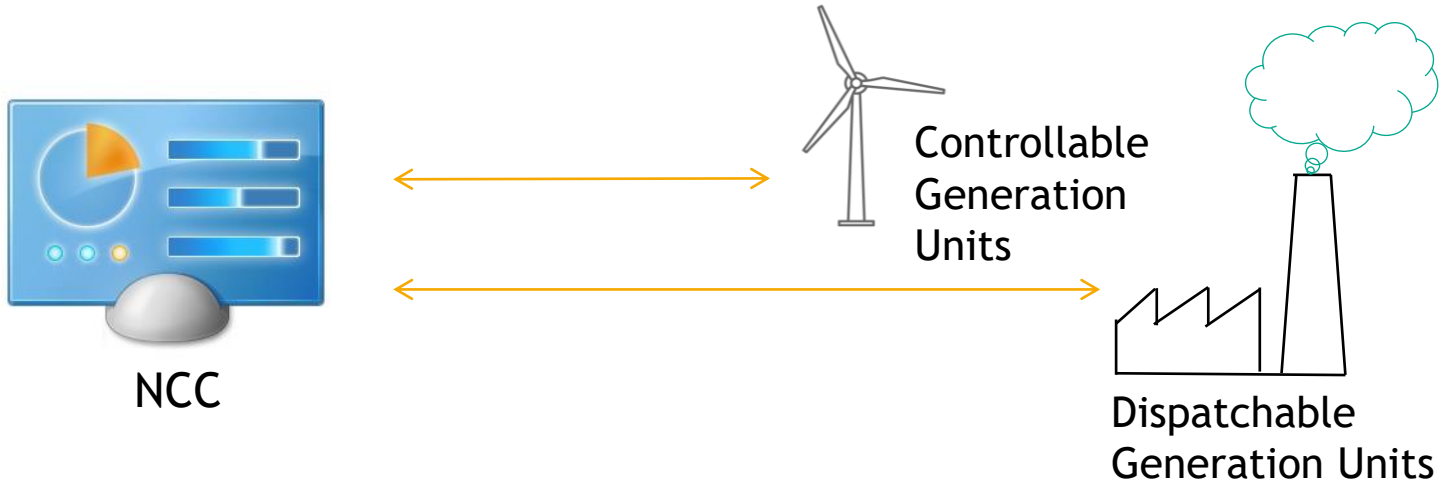
Scope of Outturn Availability

- SEM Dispatchable and Controllable Unit(s)
- *For disconnection of Outturn Availability Connection Asset(s)* (**OACAs**) *on the transmission system*



What is Outturn Availability?

- Applicable generation units must declare their Availability as per the relevant Grid Code
- Except for the following events where they must declare Availability as zero
  - Up to five calendar days for TSO scheduled annual maintenance work on Outturn Availability Connection Assets (OACAs)
  - Where transmission work is being carried that is related to the relevant generation unit
- The TSO will schedule Annual Maintenance to coincide with Generation Unit outages whenever possible.
- OACA - Any equipment that is part of the Transmission System between and including the Connection Point and the busbar clamps at the Meshed Transmission Station for which the TSO Schedules outages

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Assignment of 5 Designated Days

1. Will align OACA Maintenance with the Generator Outage wherever possible.
2. Schedule the maintenance as close to the beginning of the Generator Outage as possible.
3. Minimise the duration of any OACA Maintenance that is not overlapping with the Generator's Outage.
4. Generator's requests for specified dates of scheduling of OACA Maintenance that is not overlapping with the Generator's Outage shall be reflected where possible.

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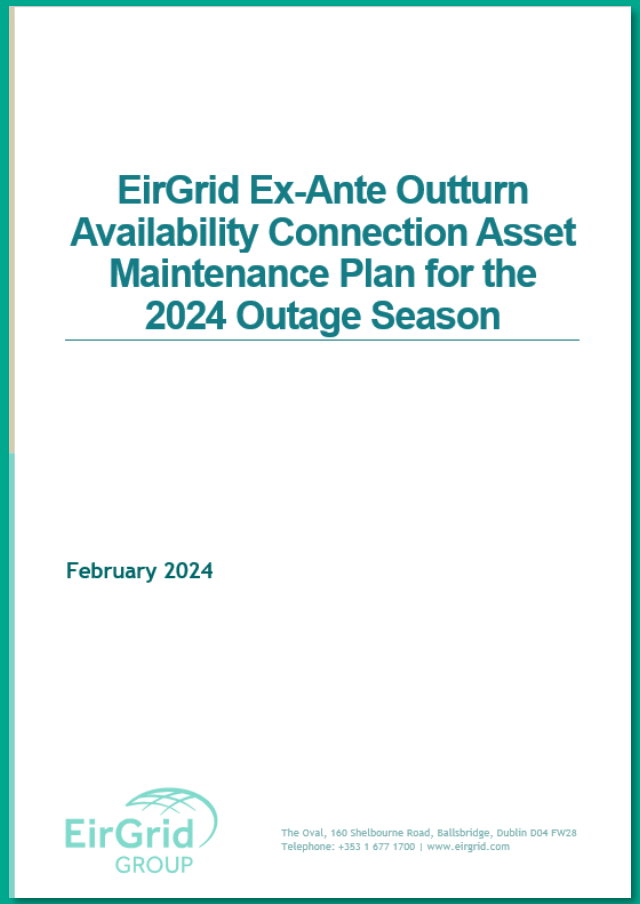
Provision of Controllable Generator Availability to SEM

EirGrid provide a forecast of a renewable generator power output, sourced from our vendors, to SEM for the period where the wind farm or solar farm is outturn available but disconnected due to a transmission outage.

2024 Ex-Ante Report



- Report contains the overview of 2024 OACA Maintenance Programme.
- The Ex-Ante report was sent to the CRU for review.
- Following CRU approval it was published on the EirGrid website.
- Comments on the format and content can be sent to **OutagePlanning@EirGrid.com**

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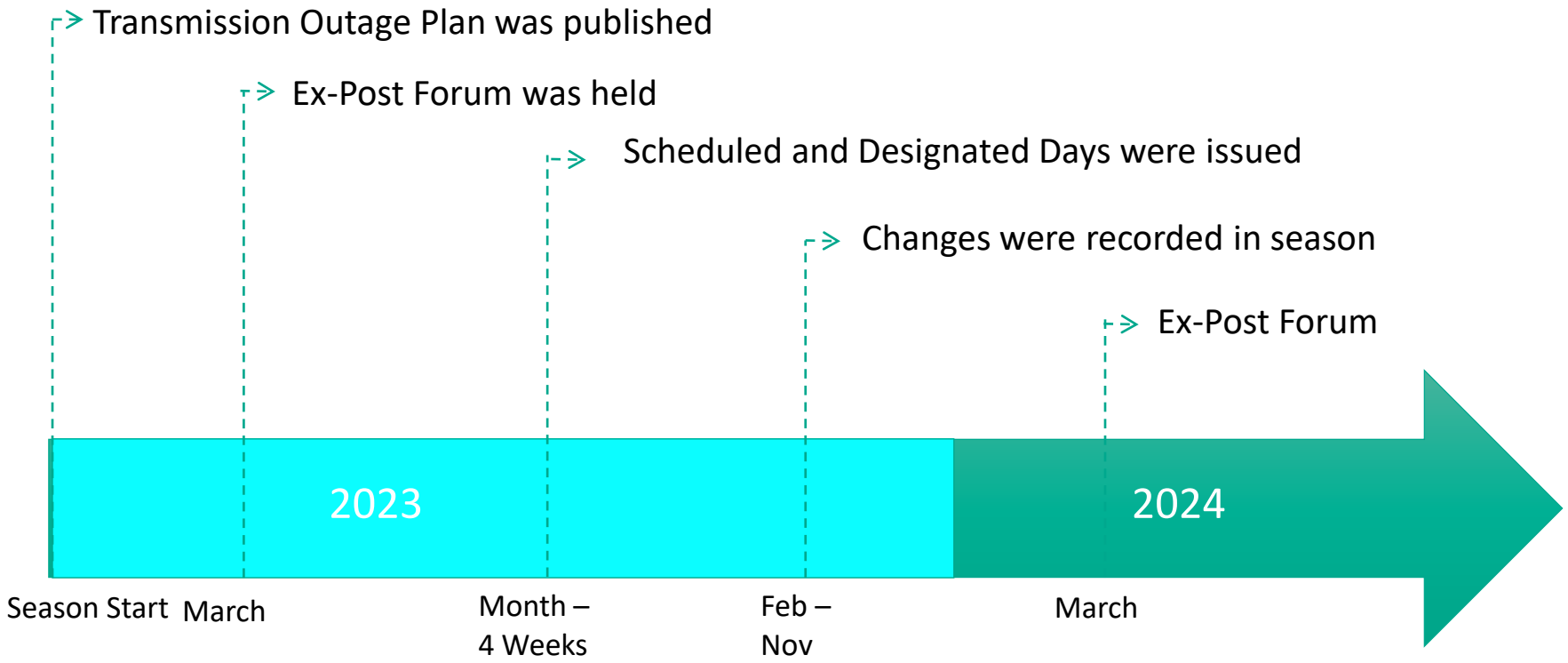
Ex-Post Overview of 2023

Overview of the 2023 OACA Outage Season

EirGrid

2023 Outage Season in Review



Month-4 weeks Scheduled and Designated Days

- Throughout the season, each generator received details of the days scheduled for the works and the designated days for the purposes of Outturn Availability (OA).

Hello XXX,

The following works are now scheduled:

GENERATOR TRANSFORMER - XXXXX

TO-XX-XX-XXXXX-XX ISO week: **17mo - 17sa** Date: **24 Apr - 29 Apr** Duration: **6 Days (5 WD)** Status: Scheduled

WORK	LOCATION	WORK ID	STATUS	DAYS	DESCRIPTION/COMMENTS
				6	Total Maintenance Outage Duration Requested
OS	XX		DO	5	220kV SF6 Cubicle Ordinary Service
AMCAB	XX		DO	2	Annual Insp. 400 & 220 Station OF Cable
PROT	XX		DO	1	P1 - Maintenance of the bay protection relays
CMCAB	XX	XXXX	DO	1	Replace Low & Differential Oil Alarm Gauge

The designated days are the 24, 25, 26, 27, 28 April.

Regards,

Generation Outage Planning

EirGrid

Standard Reasons for Changes Used

System security (tight generation margins)	Changed to align with capital works
TAO resourcing constraints	Completed in previous year
Customer request	Generator requested change to Committed Outage Program

Feb - Nov Changes Recorded in season

- Changes to the following were recorded in season.

#	Category	Communicated
1	Indicative window	February
2	Initial duration	February
3	Scheduled days	M-4 Weeks
4	Designated days	M-4 Weeks
5	Change to Works description	Publication of Ex-Post Report
6	Generator outage dates	Publication of COP
7	Scheduled works not completed	Publication of Ex-Post Report

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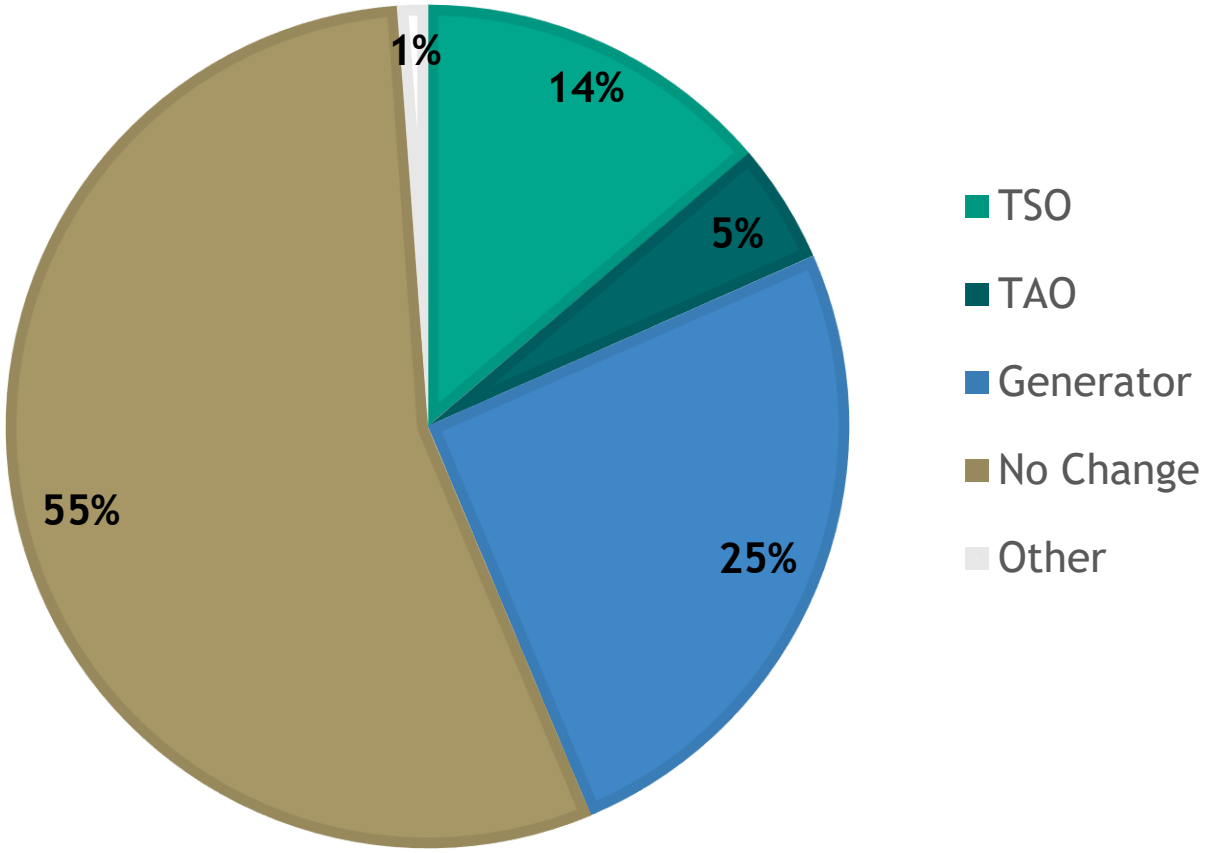
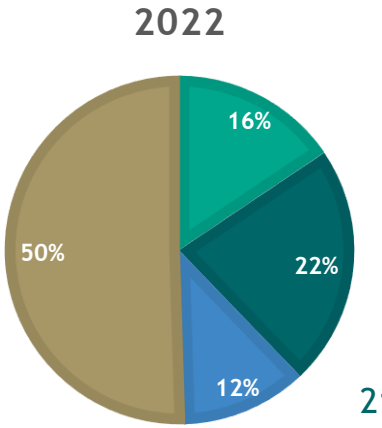
Category 1 : Indicative Window Communicated

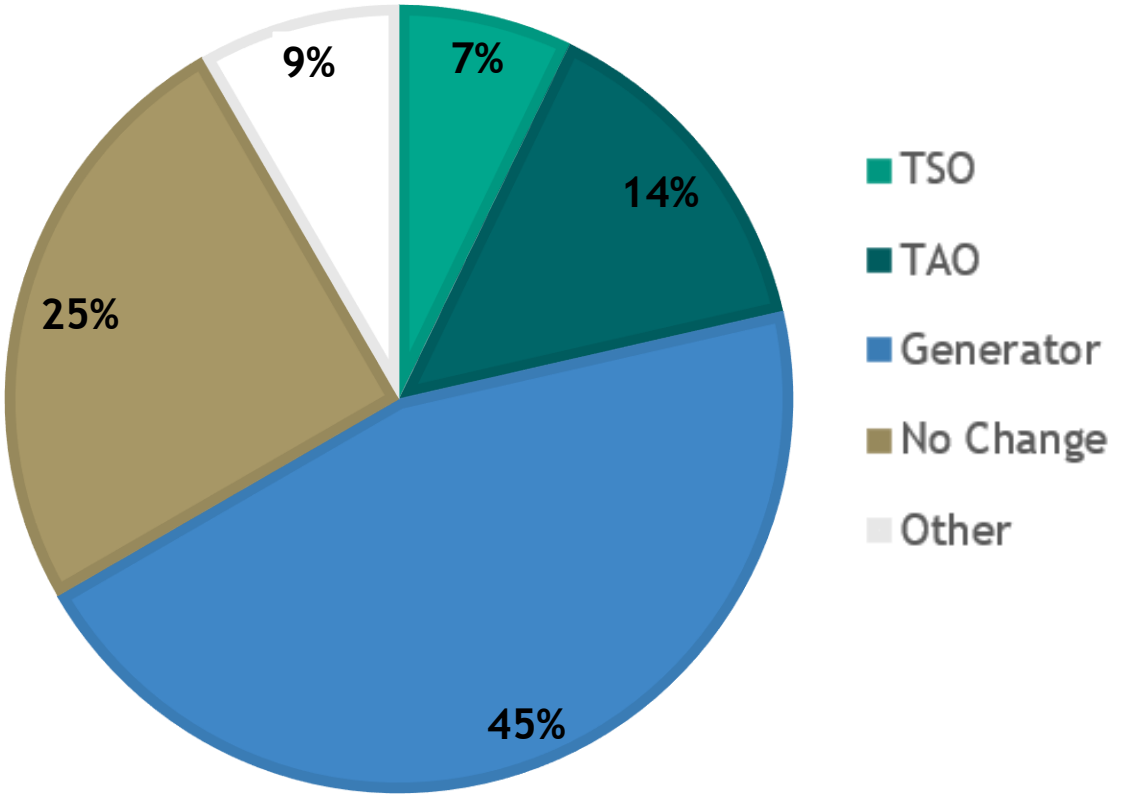
Change to the indicative window communicated in February 2023



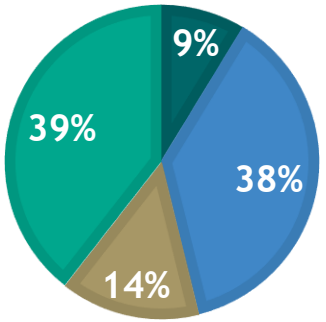


Category 2 : Initial Duration Communicated

Change to the number of days communicated in February 2023

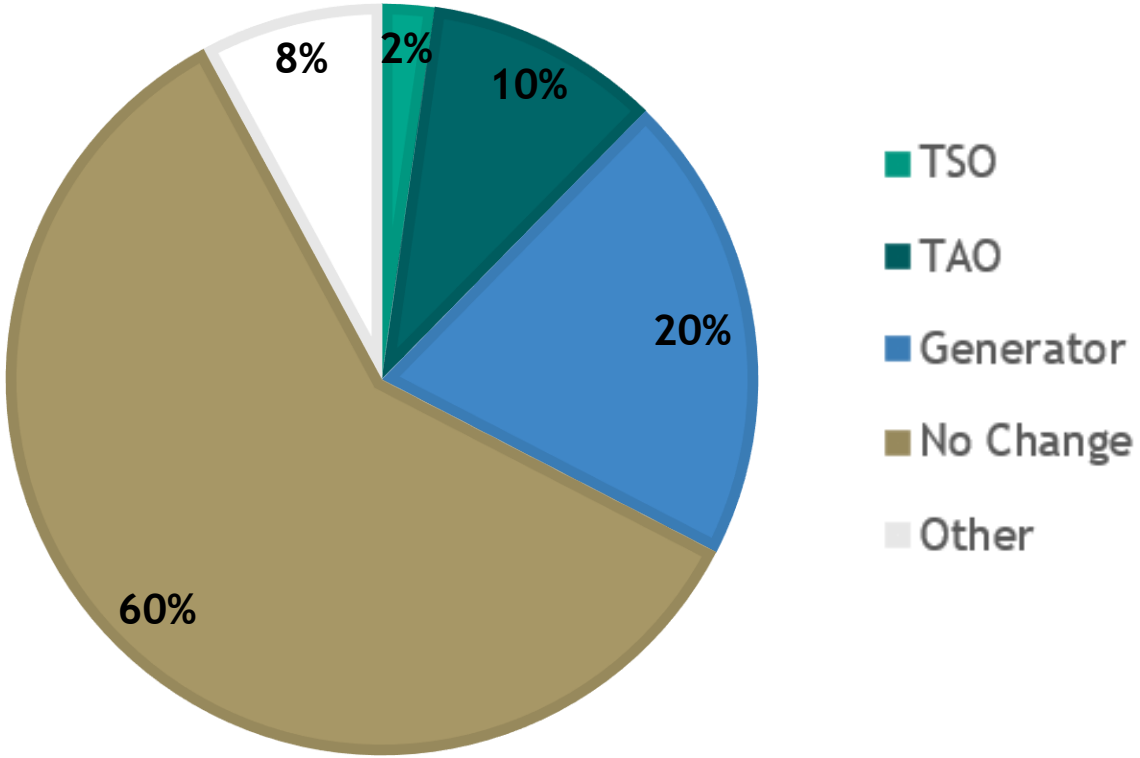


2022

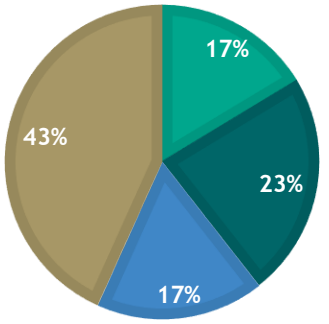


Category 3 : Scheduled Days Communicated

Change to scheduled days communicated M-1 to the generator and the actual outage days

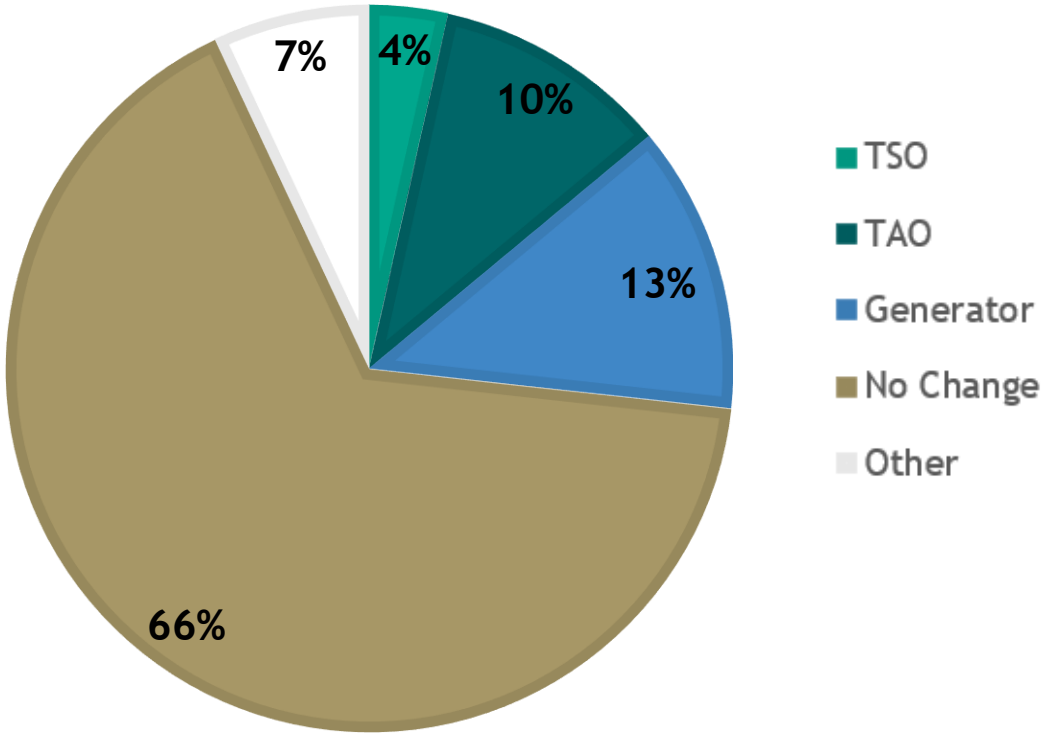


2022

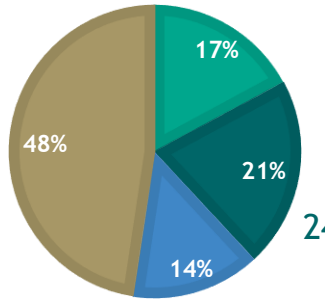


Category 4 : Designated Days Communicated

Change to the designated days (non-Outturn Available maintenance days) communicated M-1 to the generator and the actual outage

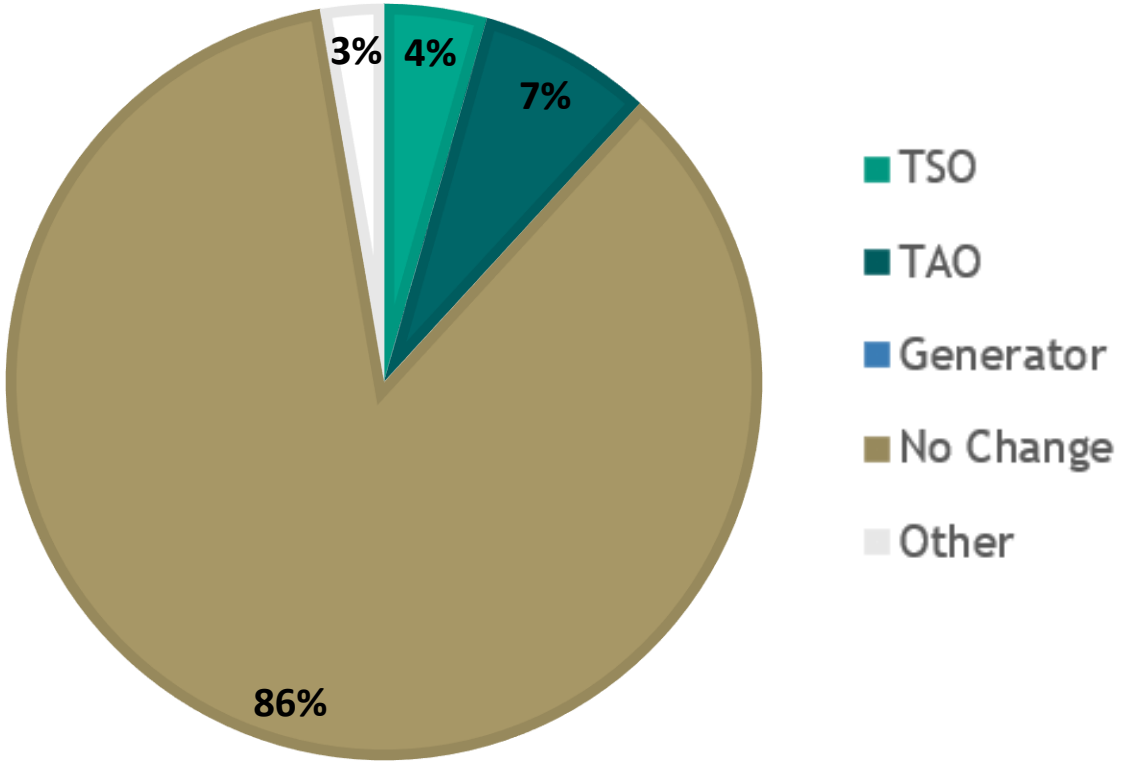


2022

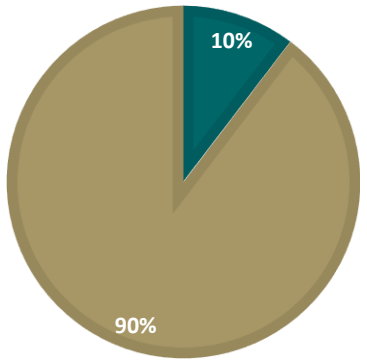


Category 5 : Works Description Communicated

Change to works description from those published in the Ex-Ante Report

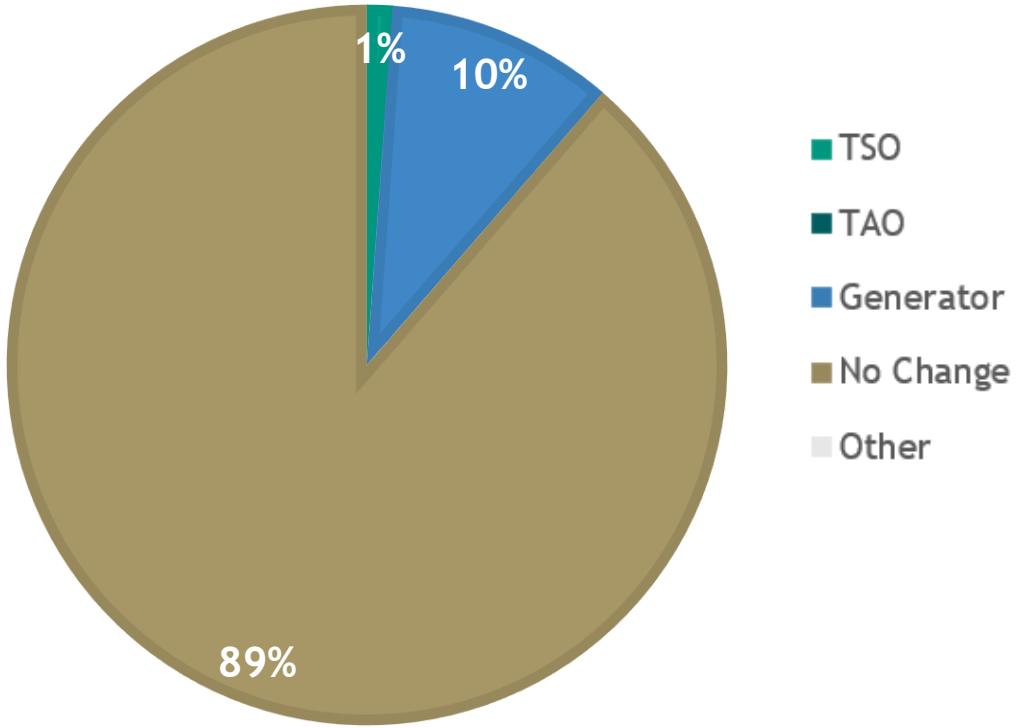


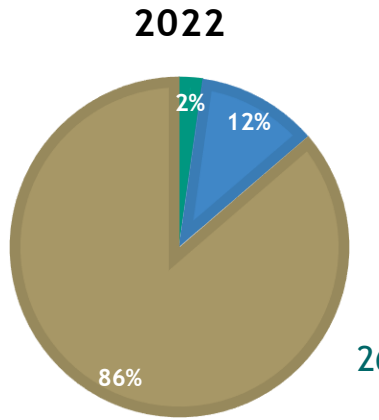
2022



Category 6 : Generator Outage Dates

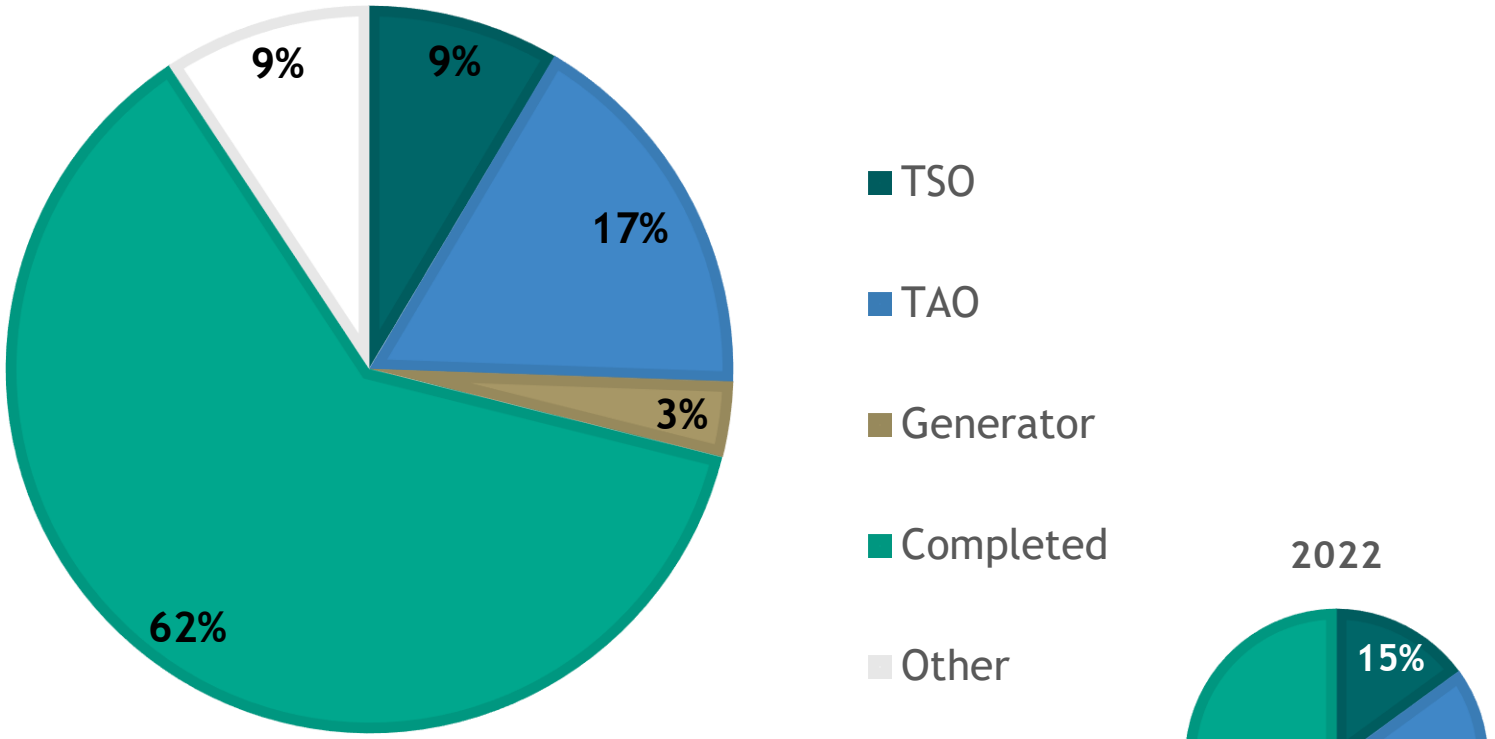
Change to generator outage dates resulting in a change to transmission maintenance dates

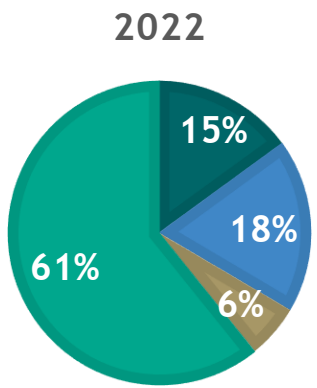




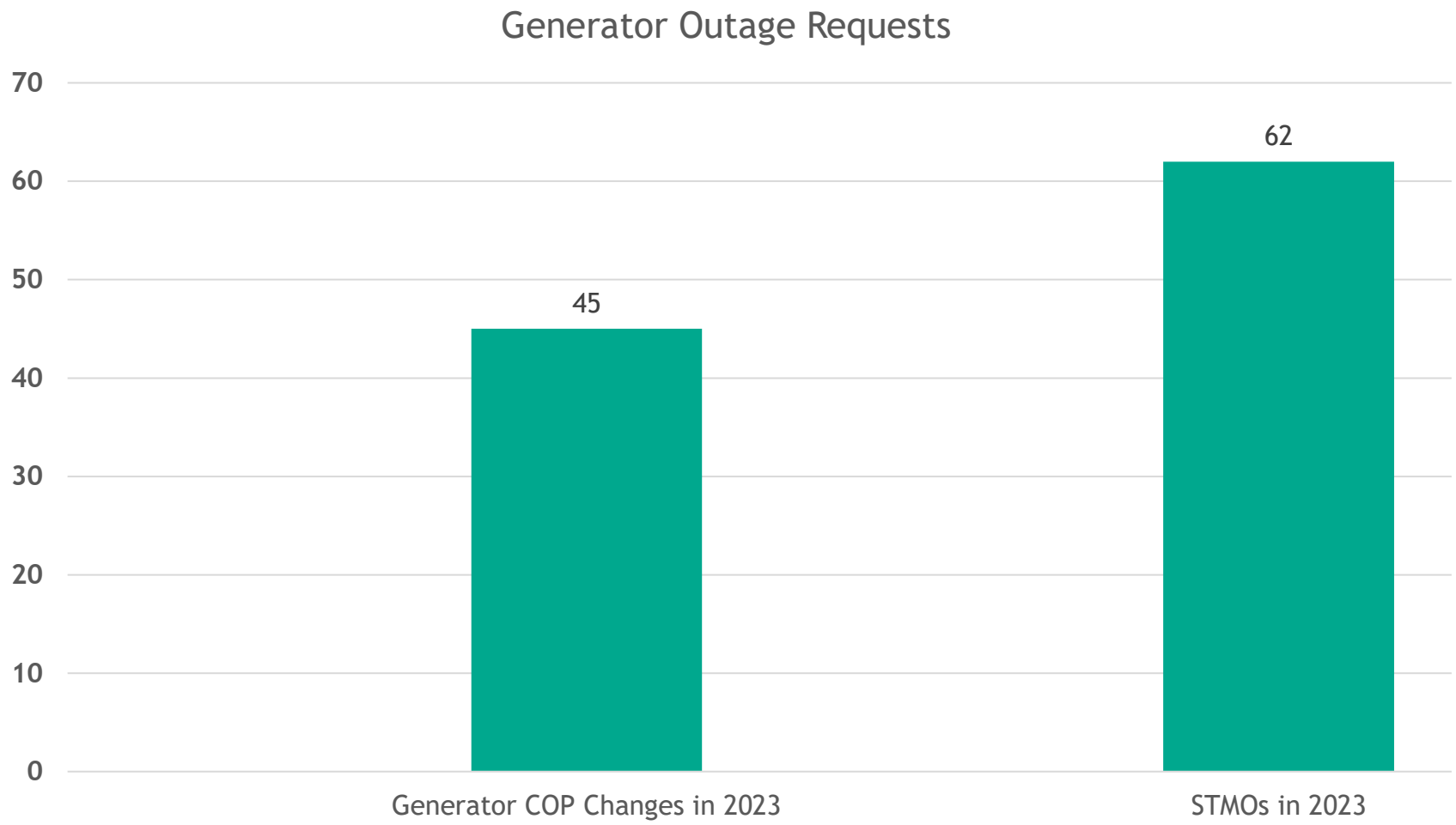
Category 7 : Scheduled Works Not Completed

Work items completed throughout the outage season

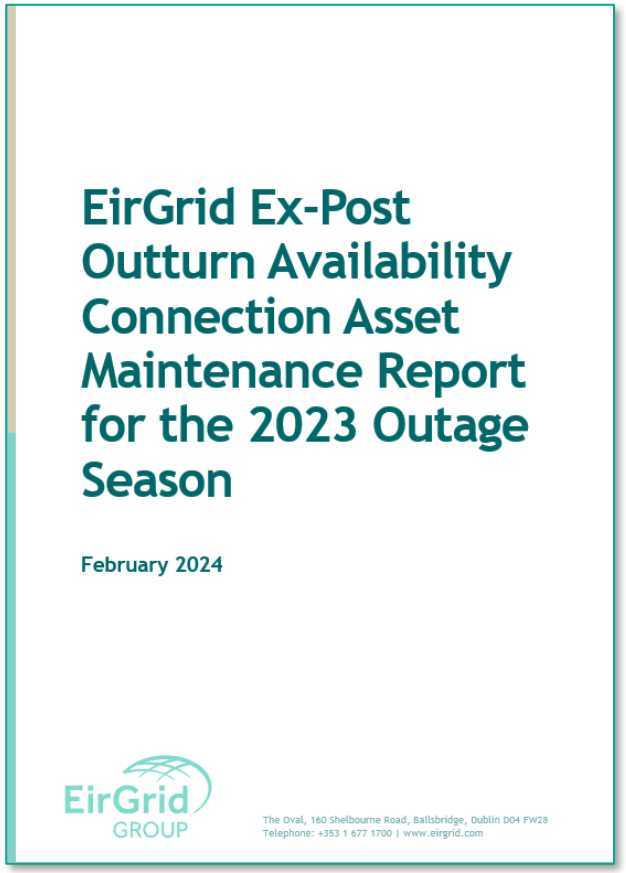




2023 Generator Change Requests



2023 Ex-Post Report



- Report contains the detailed information that was summarised in this presentation.
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Questions?

Agenda

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Distribution Outage Programme Update

Wind Dispatch Tool Constraint Group Overview

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Transmission Capital Works 2023

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Completed Transmission Capital Projects 2023

- The following projects were complete in 2023. Our published NDP includes these projects with a 2023 EI date.

  - 13 new customer connections
  - Corduff - Ryebrook 110 kV line uprate
  - Thornsberry 110 kV station uprate
  - Moneypoint - Oldstreet 400 kV line refurbishment
  - Oldstreet - Woodland 400 kV line refurbishment
  - Ballynahulla STATCOM
  - Ballyvouskill STATCOM
  - Refurbished Moneypoint Transformer

Partially Complete Transmission Network Projects 2023

- The following network projects had outage related works in 2023 but require outage(s) in future year(s) before completion.

Grid Reinforcement

- Laois-Kilkenny grid upgrade
- Thurles STATCOM

Station Upgrades

- Galway 110 kV station redevelopment
- Tarbert 220 kV station upgrade
- Inchicore 220 kV station upgrade
- Knockraha 220 kV station upgrade
- Louth 220 kV station upgrade
- Kilbarry 110 kV GIS station
- Corduff 220 kV station deep reinforcement

Safety/Asset Replacement

- Flagford Station CB replacements
- Cashla Station CB replacements
- Tower painting nationwide

Protection Upgrades Projects

- Transformer protection upgrade nationwide
- Gorman and connected stations protection upgrade
- Ballydine, Cahir and connected stations protection upgrade
- Tipperary, Cahir and connected stations protection upgrade
- Arva and connected stations protection upgrade
- Cullenagh and connected stations protection upgrade
- Coolroe, Inniscarra and connected stations protection upgrade
- Cashla and connected stations protection upgrade

SONI
NI TOP 2024

System Operations SONI

NI TOP 2023 review

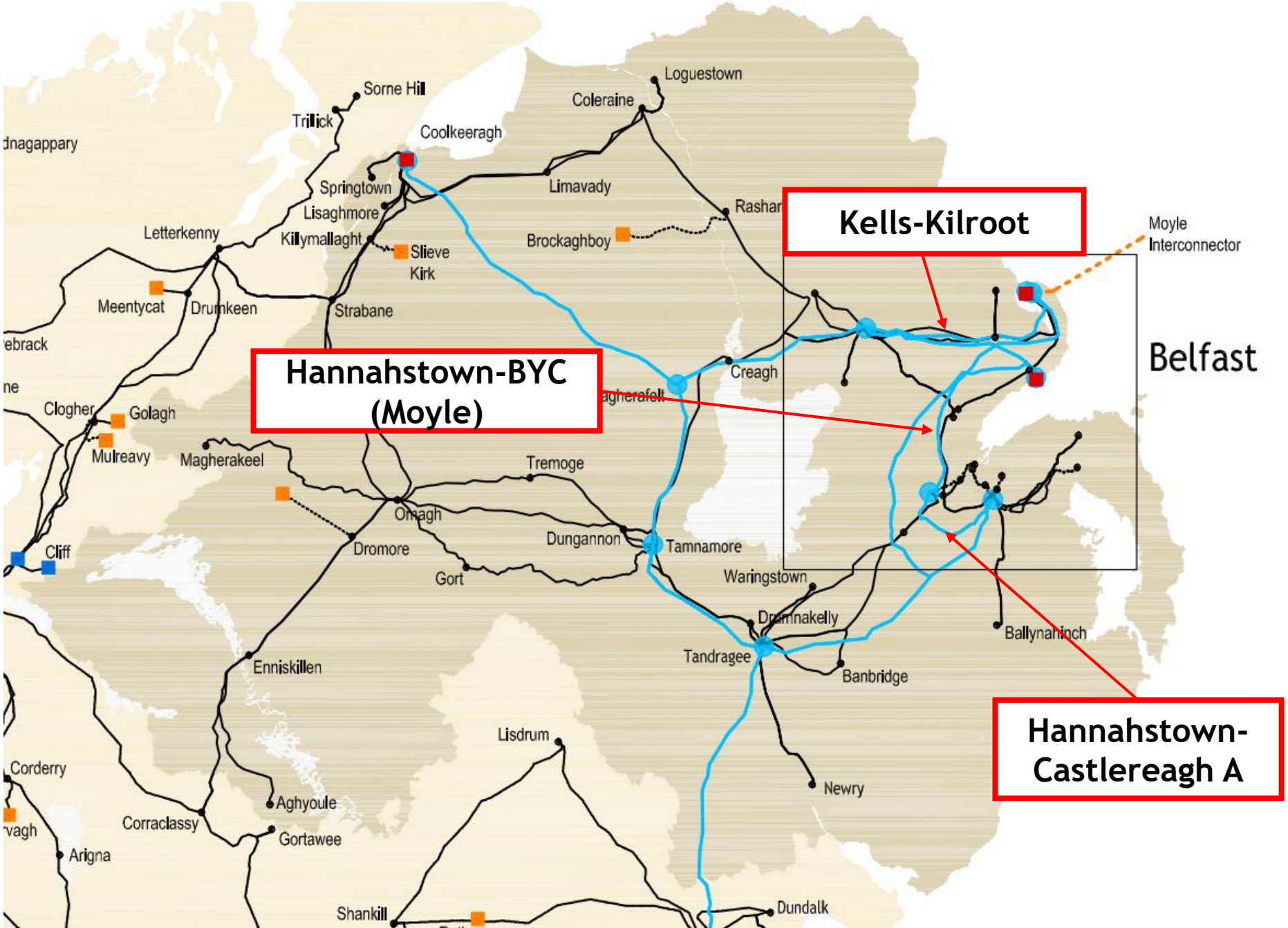
Major Projects completed in 2023

110 kV Overhead Line Re-string projects;

- Omagh – Dromore A&B circuits (North / West NI)
- Ballylumford – Eden A&B circuits (East NI)

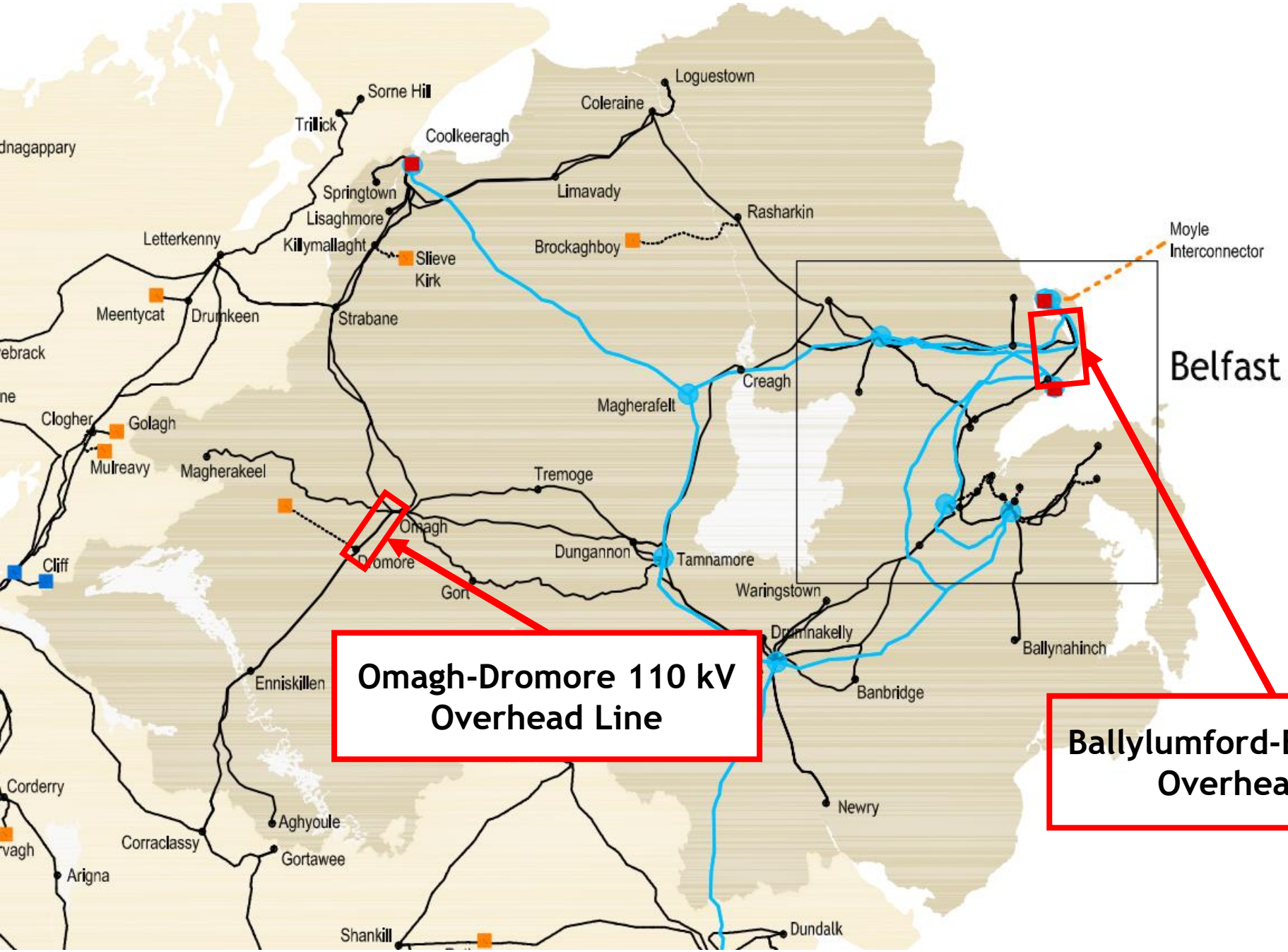
275 kV Circuit Protection Upgrades/replacements

- Kells – Kilroot
- Hannahstown – Ballycronanmore
- Hannahstown – Castlereagh ‘A’



Significant 275 kV outages completed 2023

Circuit protection upgrades



Significant 110 kV outages completed 2023

Overhead Line Re-string projects

Omagh - Dromore Overhead Line Re-string Project 2023

(Tower 106)

Omagh-Dromore re-string Project 2023

(Tower 130)

Omagh-Dromore re-string Project 2023

Omagh S/S

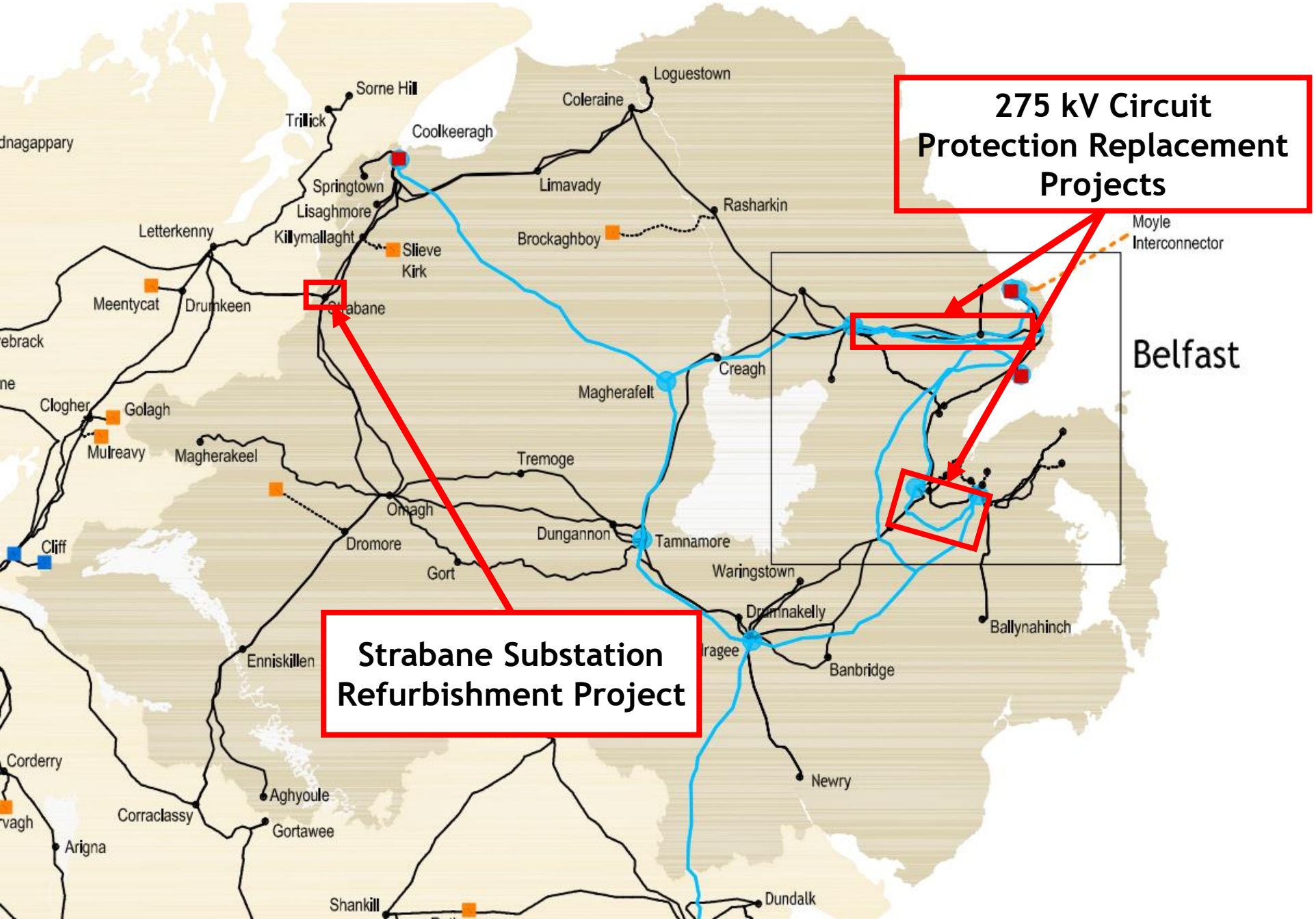
NI TOP 2024 Major Projects

Strabane 110 kV Substation refurbishment project;

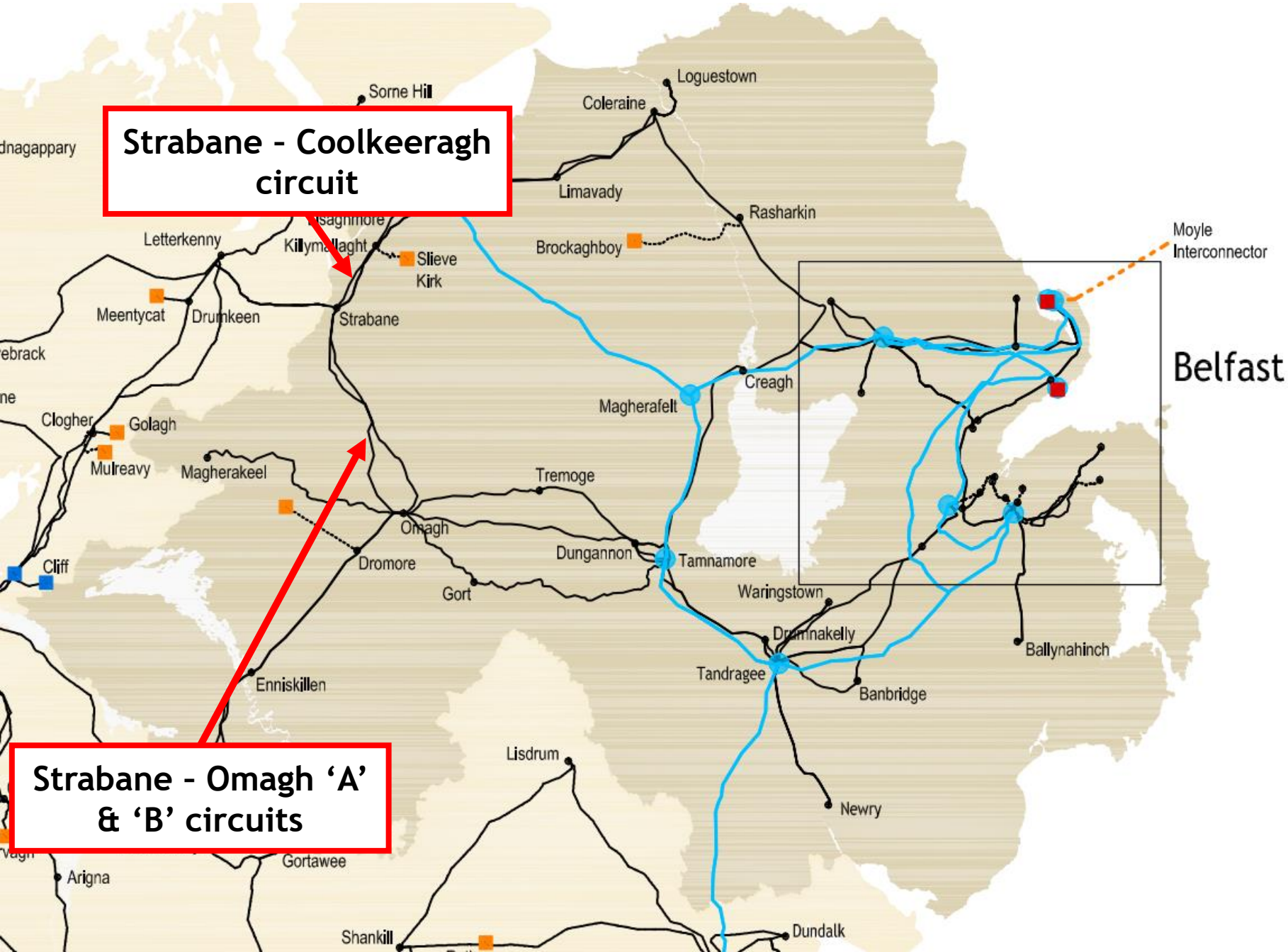
- Multiple circuit outages required in North-West area of NI

275 kV circuit Protection upgrades/replacements

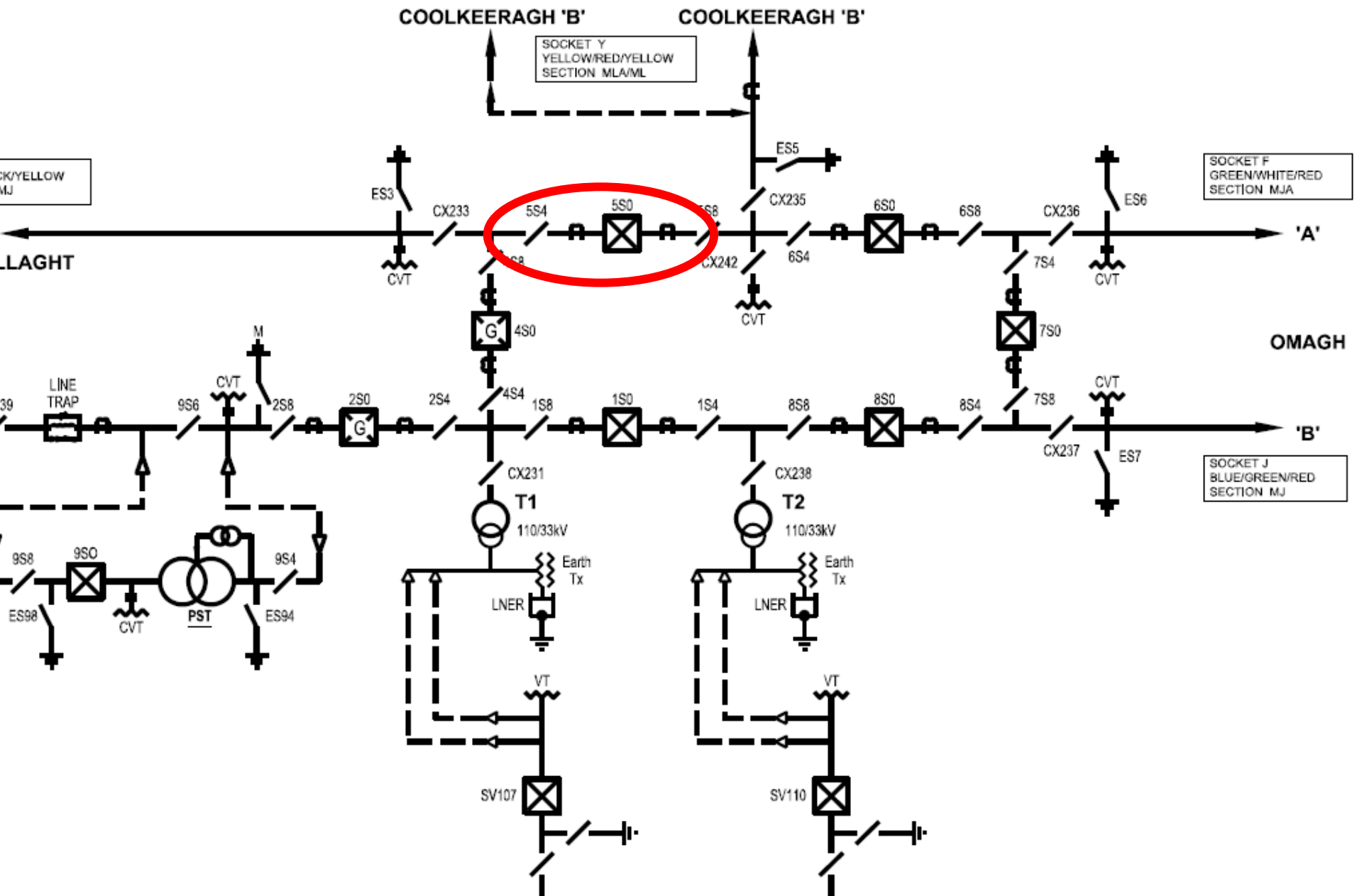
- Kells – Ballylumford circuit
- Hannahstown – Ballylumford circuit



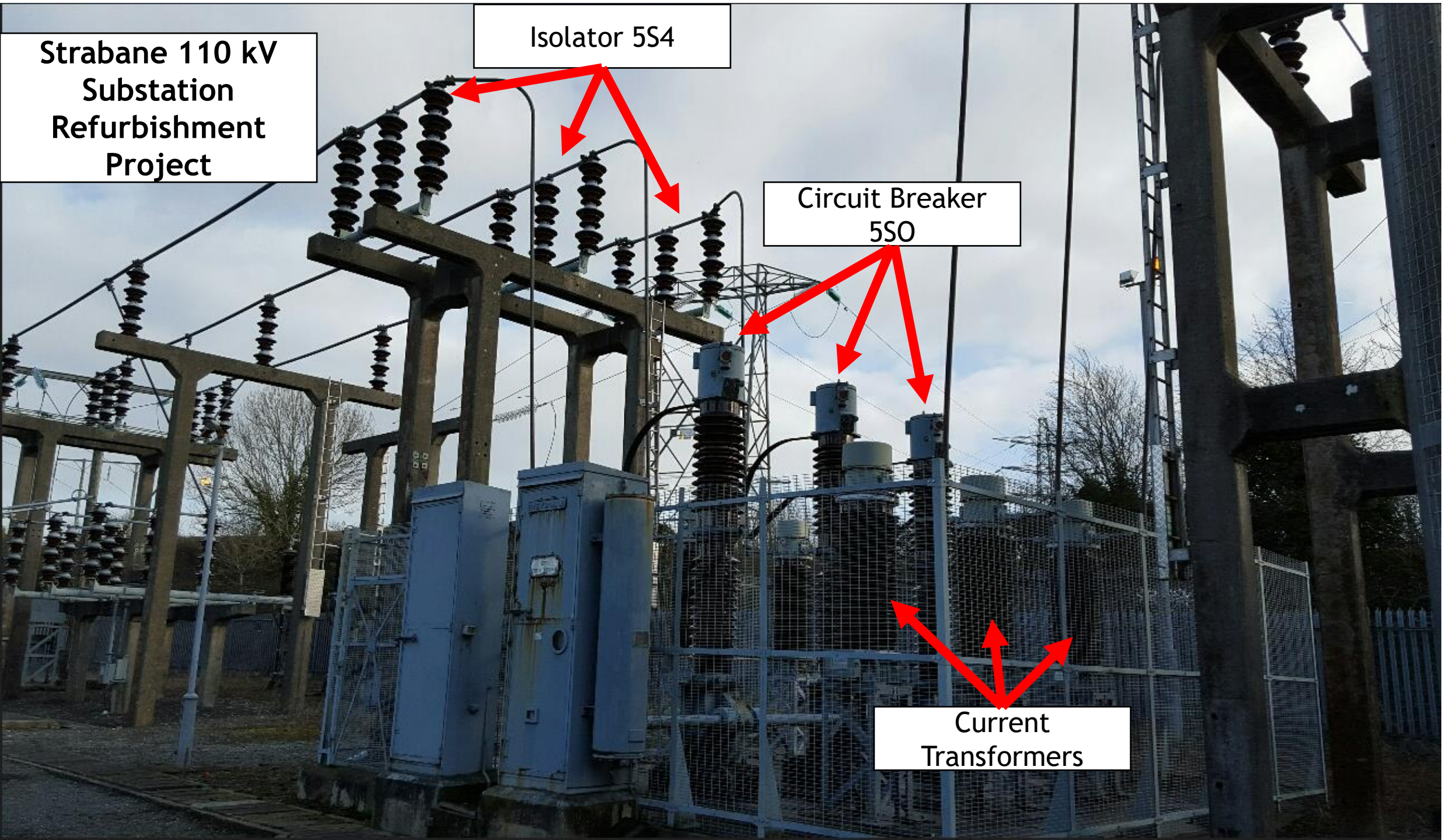
NI TOP 24 Overview Major Projects



NI TOP 24 Strabane Substation Refurbishment



Strabane Substation Refurbishment Project


Strabane 110 kV Substation Refurbishment Project
Isolator 5S4
Circuit Breaker 5SO
Current Transformers

Strabane 110 kV refurbishment Project
Why its required?

- Circuit Breaker & Isolators:
  - Year of manufacture: 1975
  - Maker: Reyrolle

- Current Transformers
  - Year of manufacture : approx. 1975
  - Maker: EMEK

When are 2024 projects scheduled to happen?

- **Strabane 110 kV Substation Refurbishment Project**
  - Omagh ‘A’ Circuit (May-Jul 2024)
  - Omagh ‘B’ Circuit (Aug-Oct 2024)
  - Coolkeeragh Circuit (TBC Oct-Nov 2024)

- **275 kV circuit protection changes**
  - Kells – Ballylumford circuit (Feb-Apr 2024)
  - Hannahstown – Ballylumford circuit (Jul-Oct 2024)

Questions?

SONI

Delivering a cleaner energy future

TOP24 Overview

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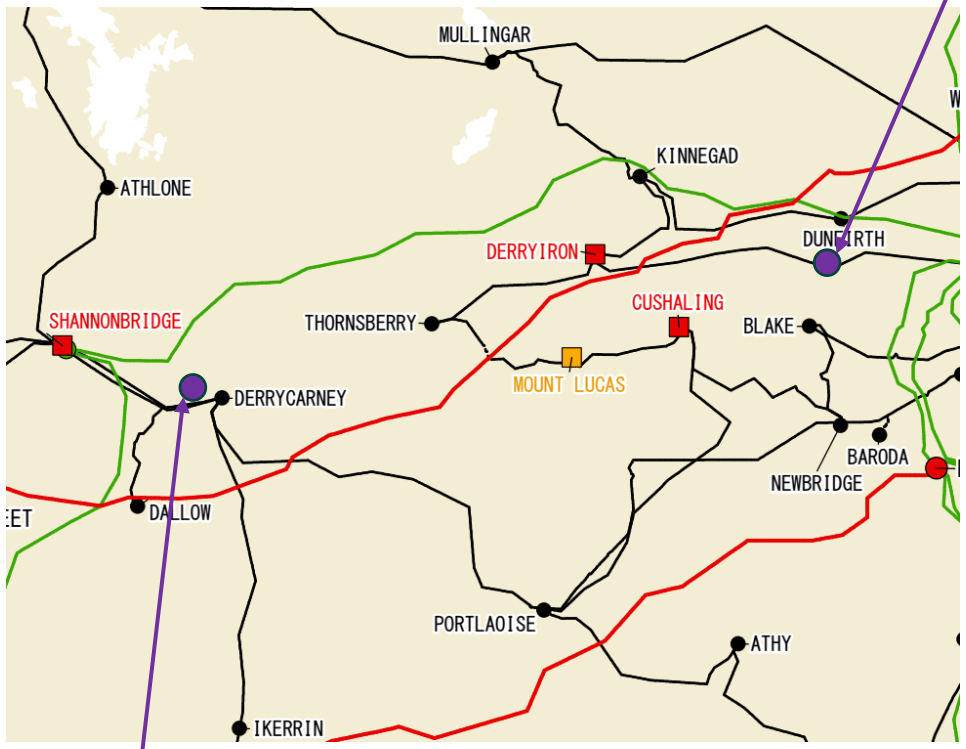
Agenda

- New Connections
- Line Uprates
- Line Refurbishments
- Network Reconfigurations
- Station Refurbishments
- Protection Upgrades

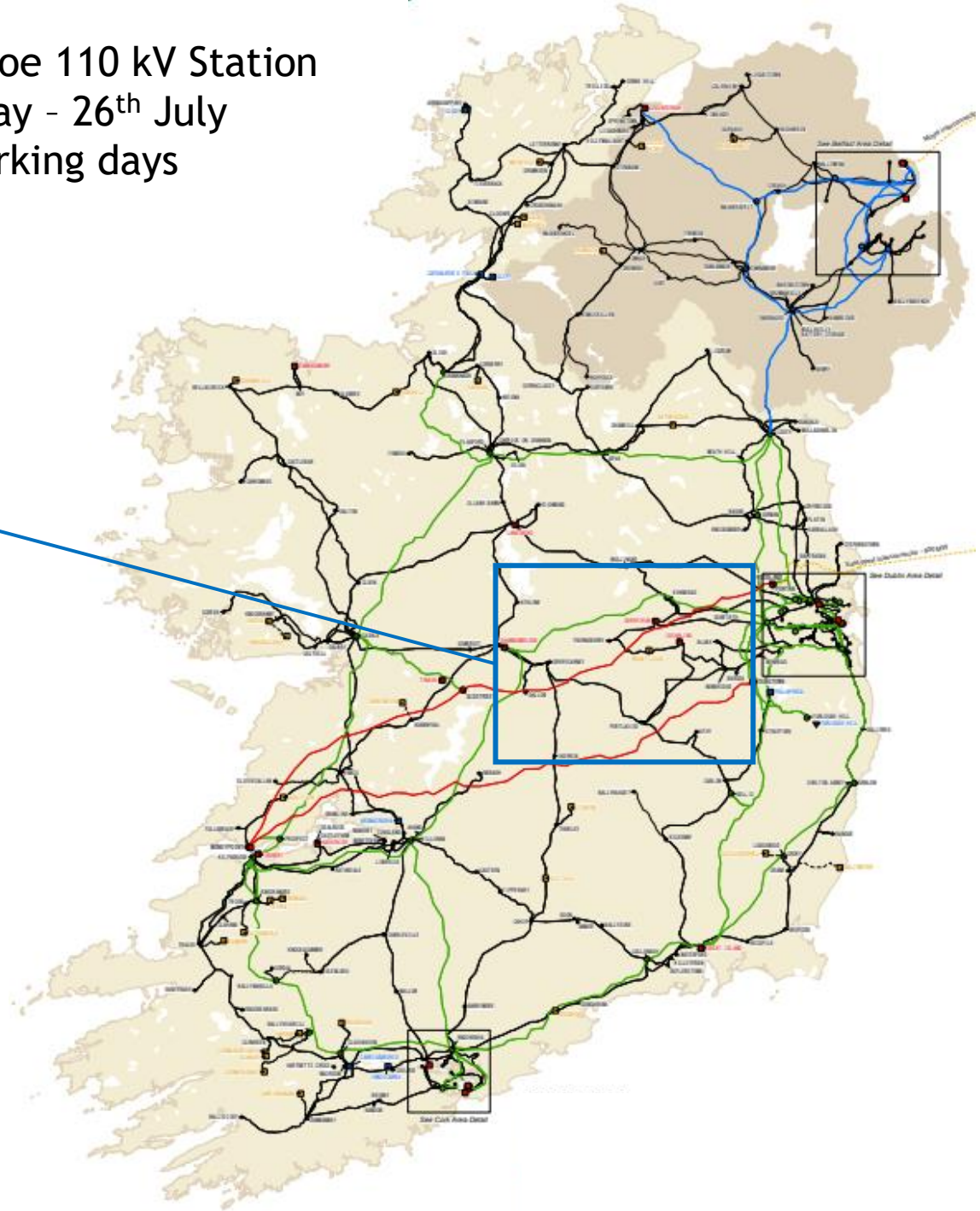
New Connections

- CP1272 Derryiron Busbar Uprate
- CP1041 Timahoe 110 kV Station – Timahoe 70 MW Solar Farm
- CP1329 Stonestown 110 kV Station – Derrinlough 105 MW Wind Farm
- CP1145 Rathnaskilloge 110 kV Station – Rathnaskilloge 95 MW Solar Farm
- CP1136 Deenes 110 kV Station – Gaskinstown 85 MW Solar Farm
- CP1088 Greenlink - Loughtown 220 kV Station & Campile Convertor Station
- CP1293 Oldpier 220 kV Station - Tarbert TEG Phase 2

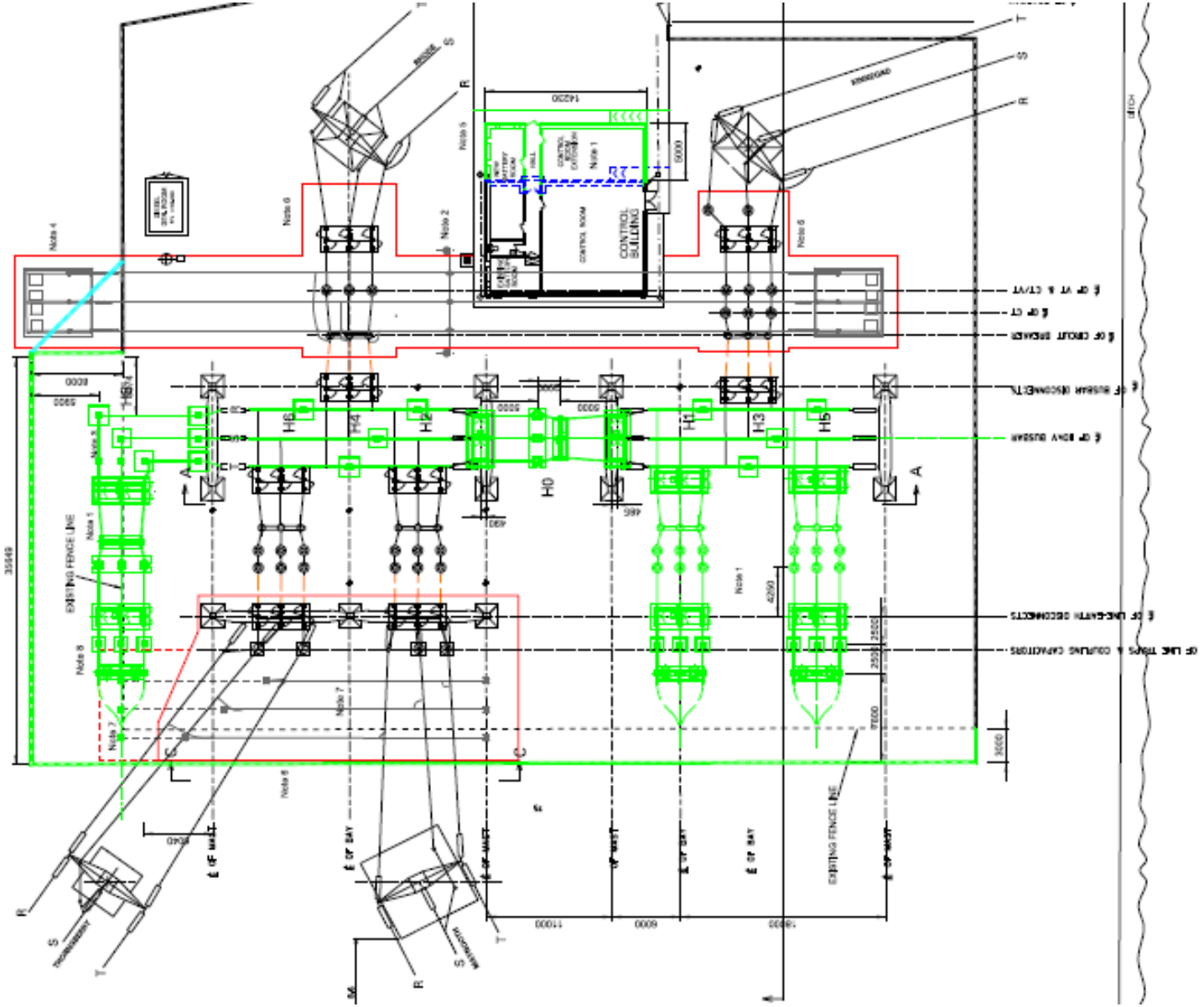
Timahoe 110 kV Station
2nd May – 26th July
60 working days

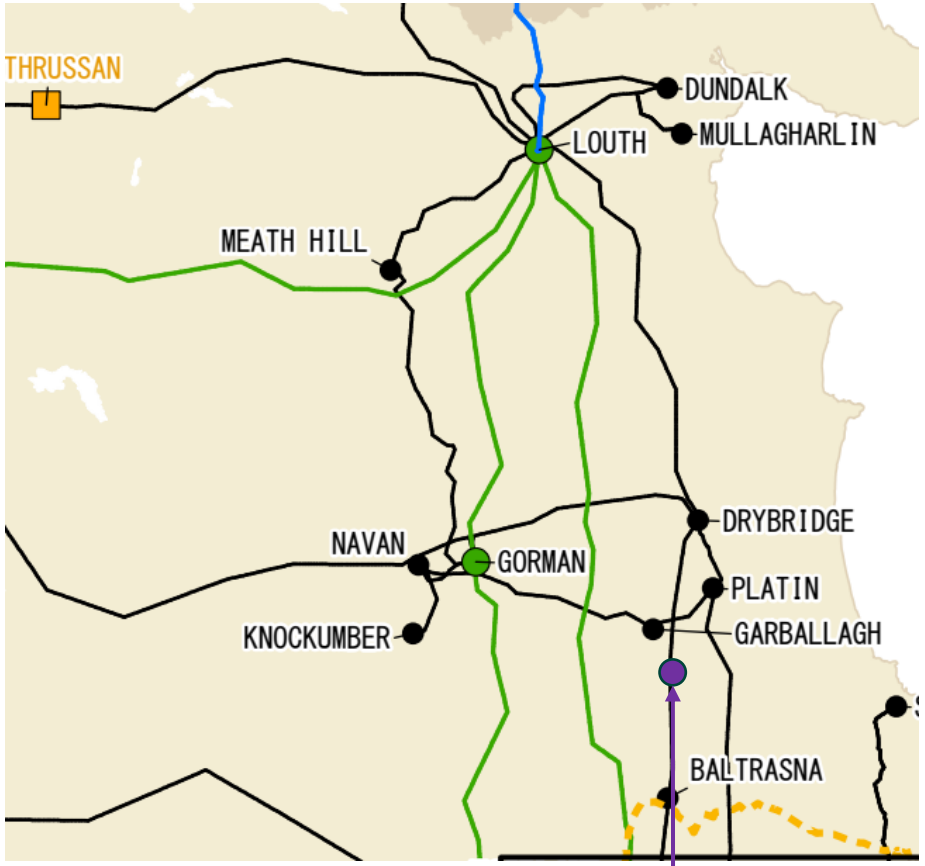


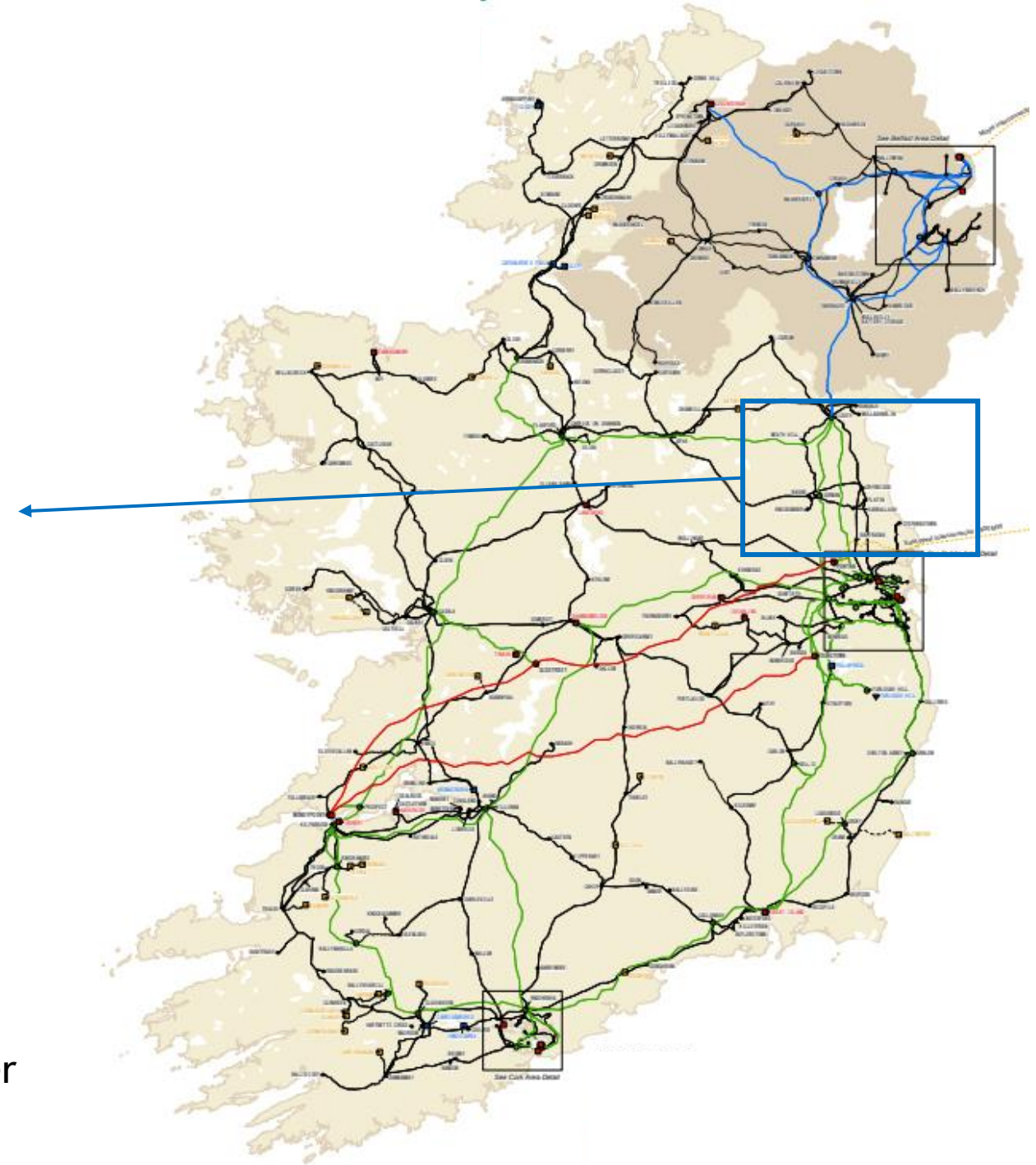
Stonestown 110 kV Station
26th March – 21st August
100 working days



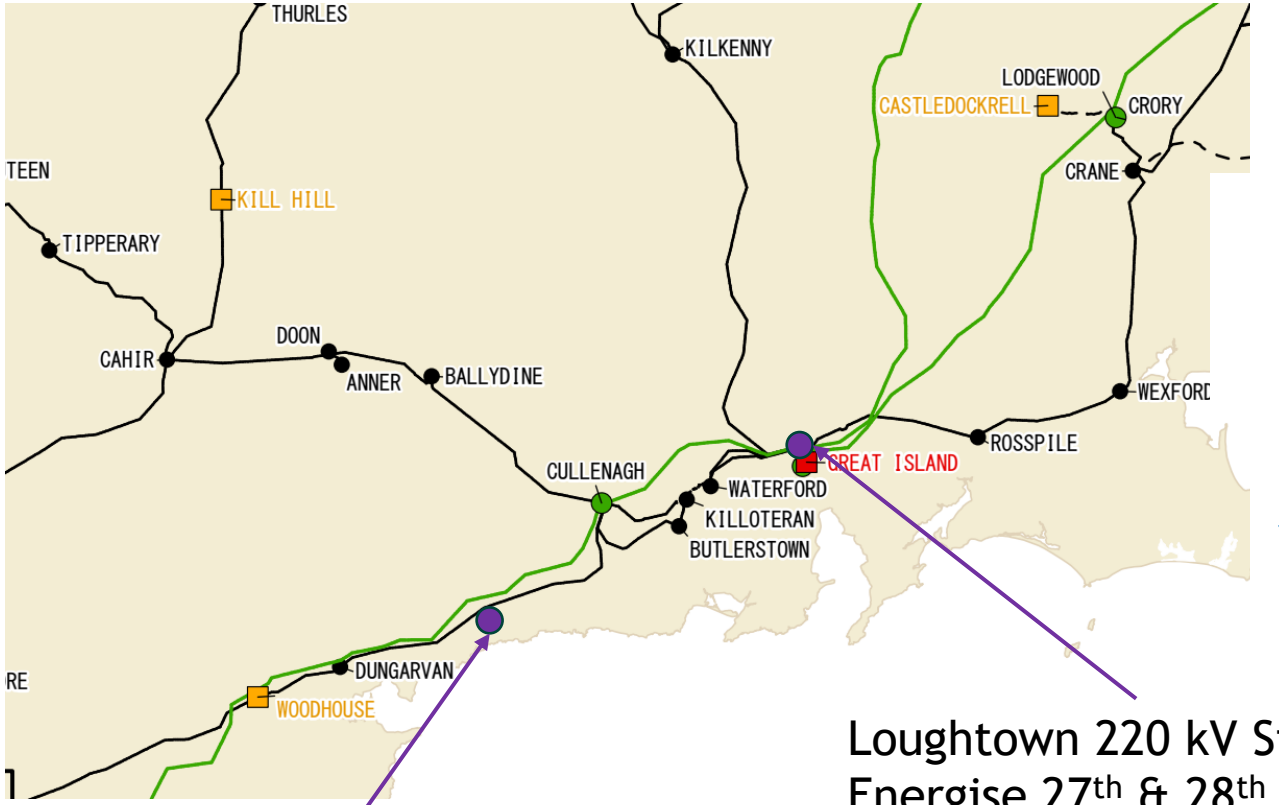
CP1272 Derryiron Busbar





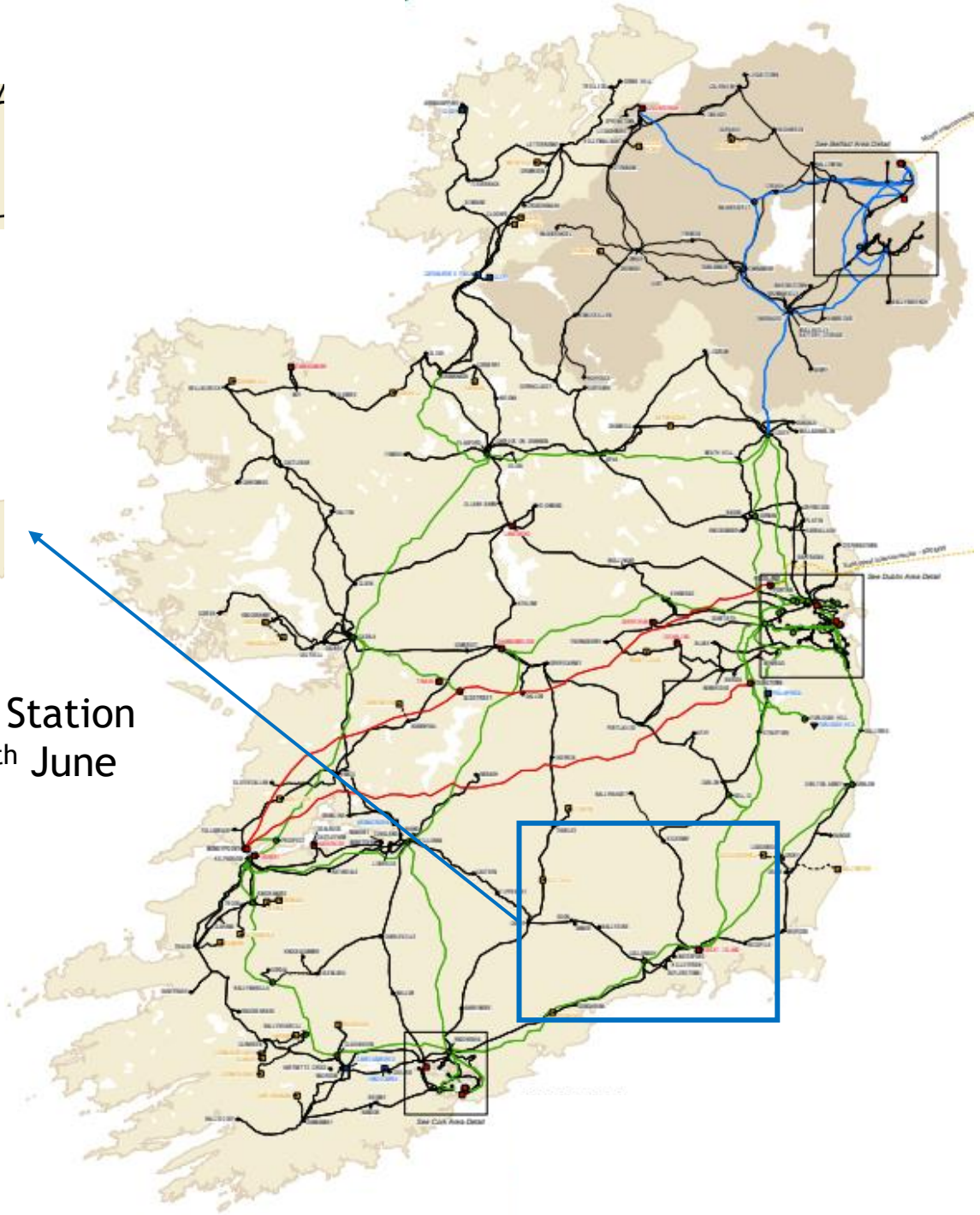


Deenes 110 kV Station
22nd April – 18th September
105 working days



Loughtown 220 kV Station
Energise 27th & 28th June

Rathnaskilloge 110 kV Station
8th July – 15th October
71 working days



CP1088 Greenlink

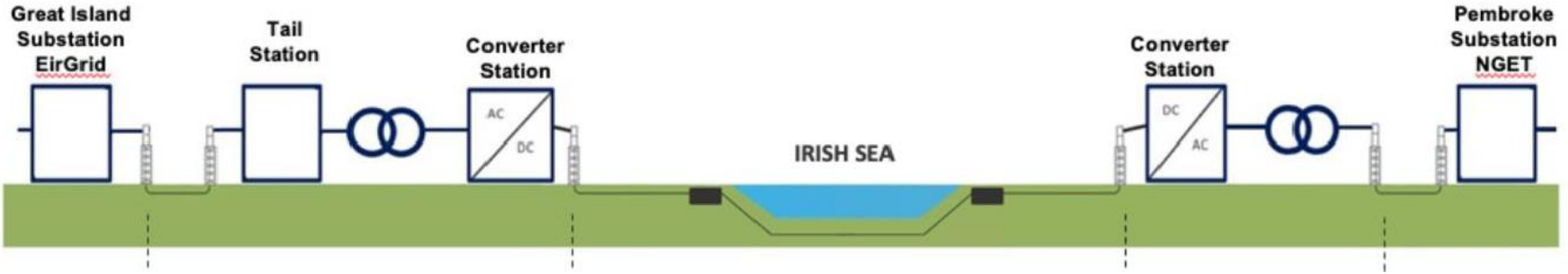


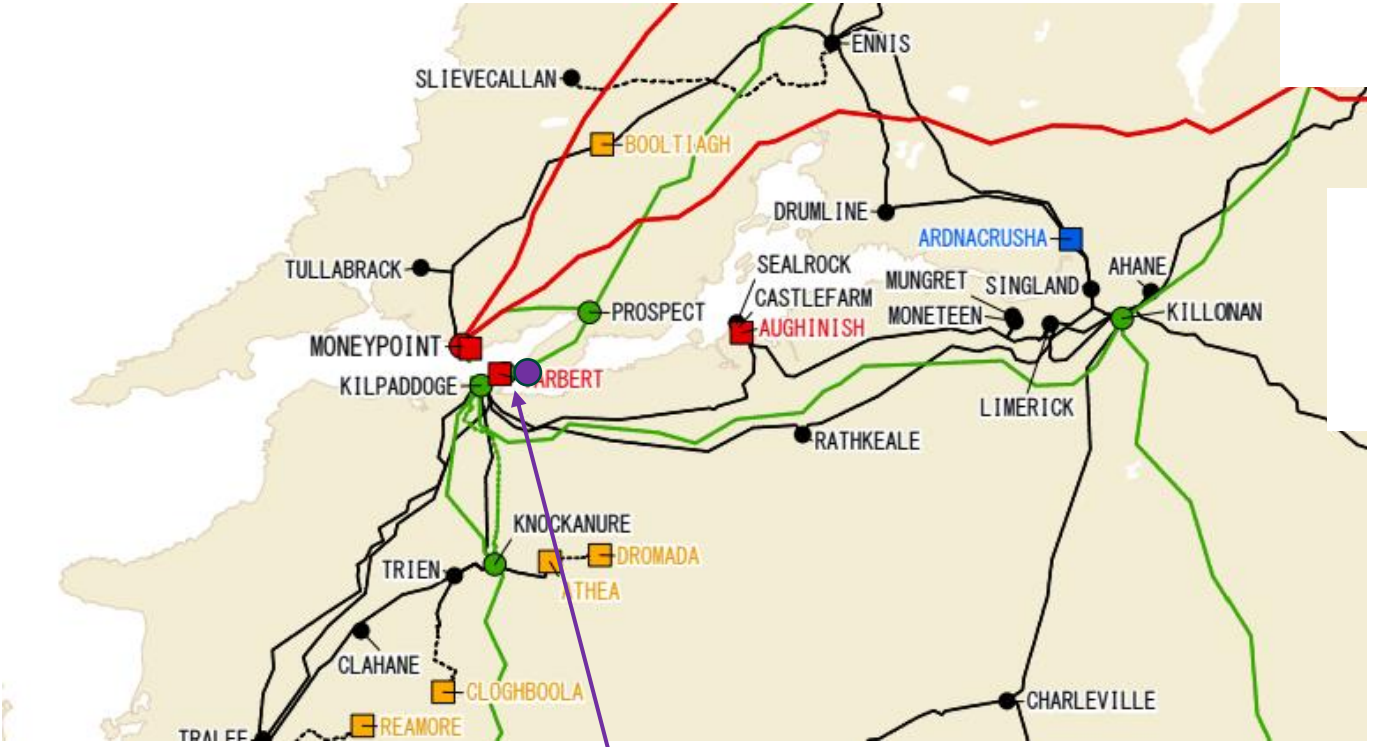
Image: Siemens Energy

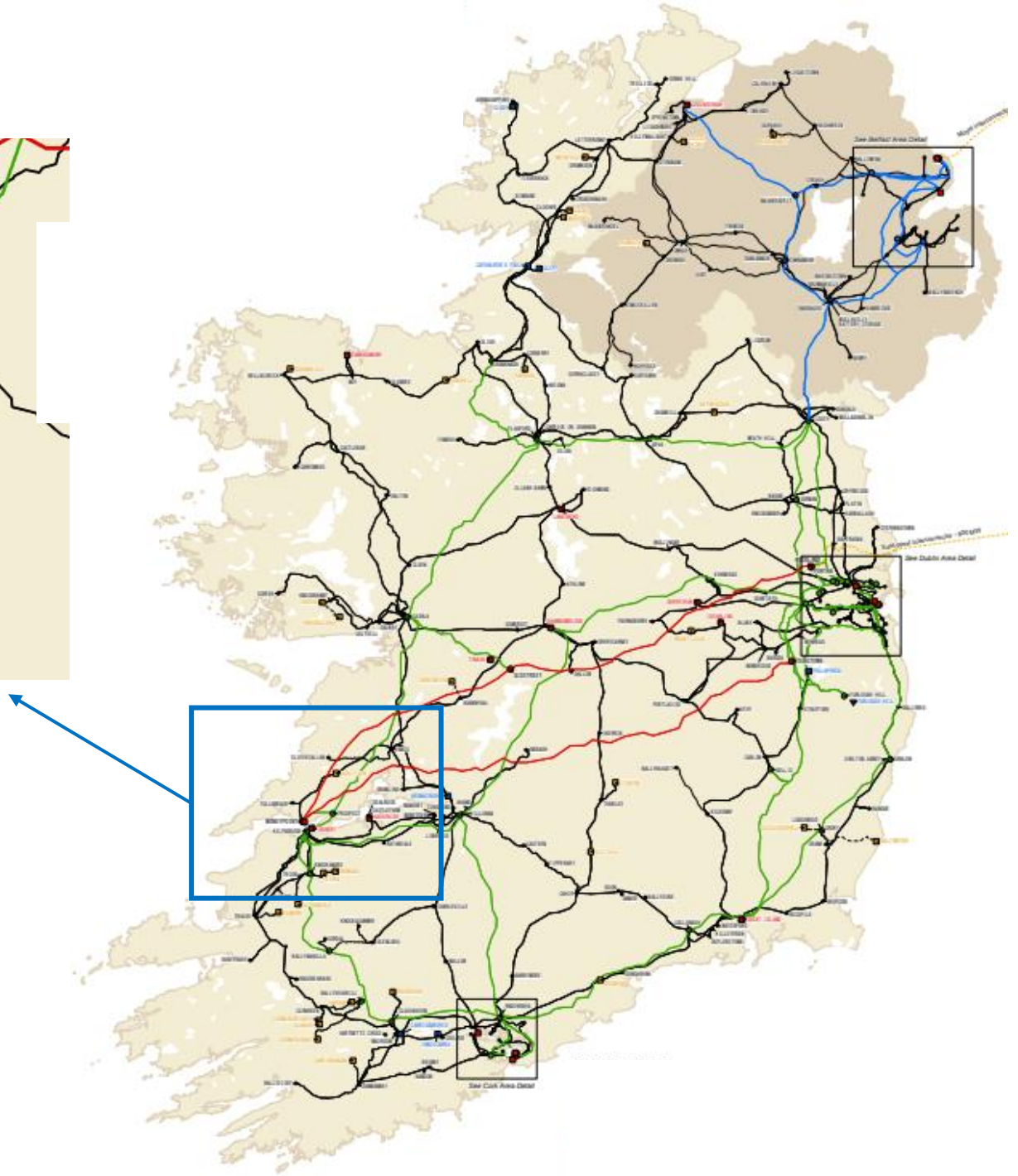
- Ireland (Great Island Sub-station) - UK (Pembroke Sub-station)
- 220 kV Loughtown Tail Station
- 504MW
- 220kV AC Ireland grid connection

- DC Cable: 160km sea, 30+km Land cable
- +/- 320kV DC Cable

- Indoor DC yard
- Approx. 1km AC cable on both sides for connection to the grid substations
- 400 kV AC UK grid connection

EirGrid





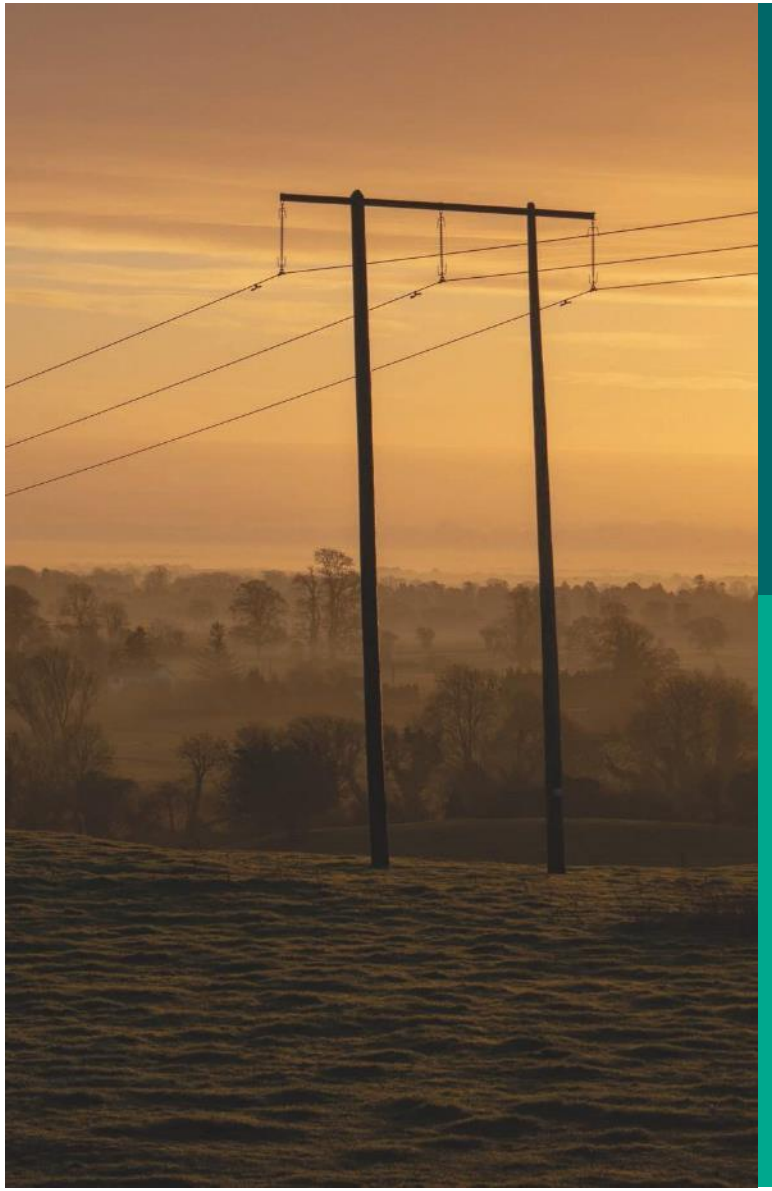
Oldpier 220 kV Station
Tarbert A1 B1 220 kV half station, January to July
Energising 11th & 12th July

EirGrid

Network Upgrades

Line Uprates

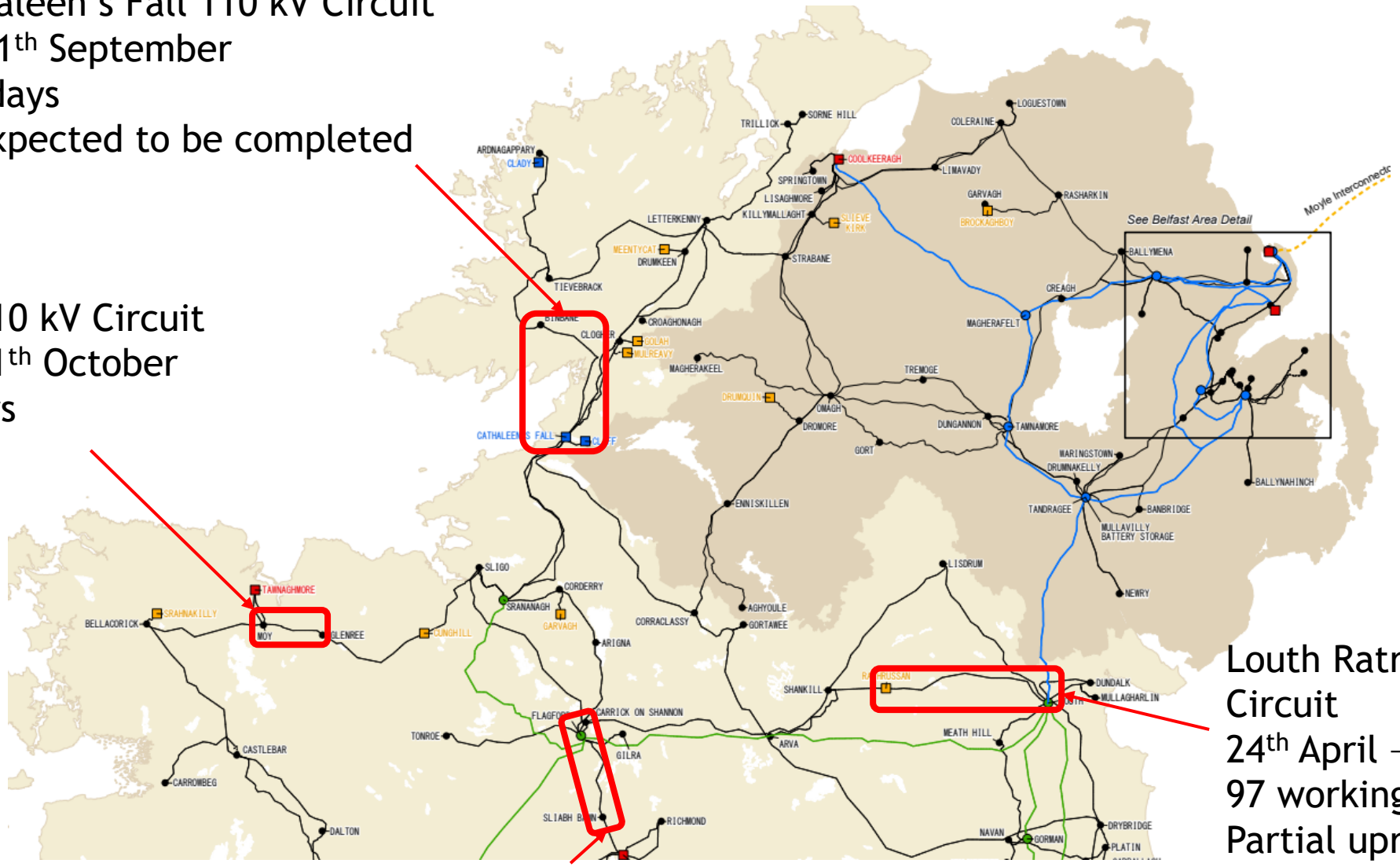
- CP0817 Flagford Sliabh Bawn 110 kV Circuit (partial)
- CP1079 Binbane Cathaleen's Fall Circuit
- CP0905 Louth Ratrussan 110 kV Circuit (partial)
- CP1155 Glenree Moy 110 kV Circuit (partial)
- CP0869 Kellystown Woodland 220 kV Circuit
- CP1172 Crane Wexford 110 kV Circuit (partial)



EirGrid

Binbane Cathaleen's Fall 110 kV Circuit
22nd April – 11th September
100 working days
Full uprate expected to be completed

Glenree Moy 110 kV Circuit
26th August – 11th October
45 working days
Partial uprate



Louth Ratrussan 110 kV Circuit
24th April – 10th September
97 working days
Partial uprate

Flagford Sliabh Bawn 110 kV Circuit
4th March – 19th April
32 working days Partial uprate

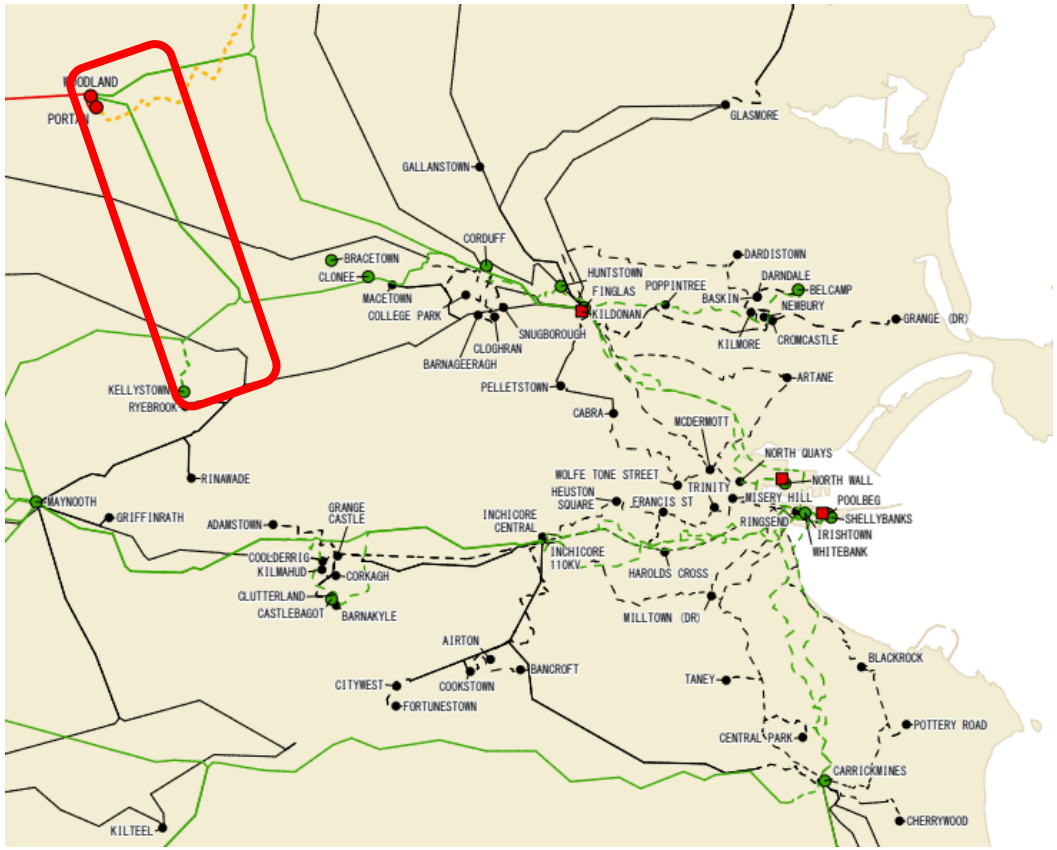
CP1079 Binbane Cathaleen's Fall

Enabling works completed in 2023

Difficult Land Access

Land access can often prove very difficult for several line uprate and refurb projects increasing the duration required to complete works

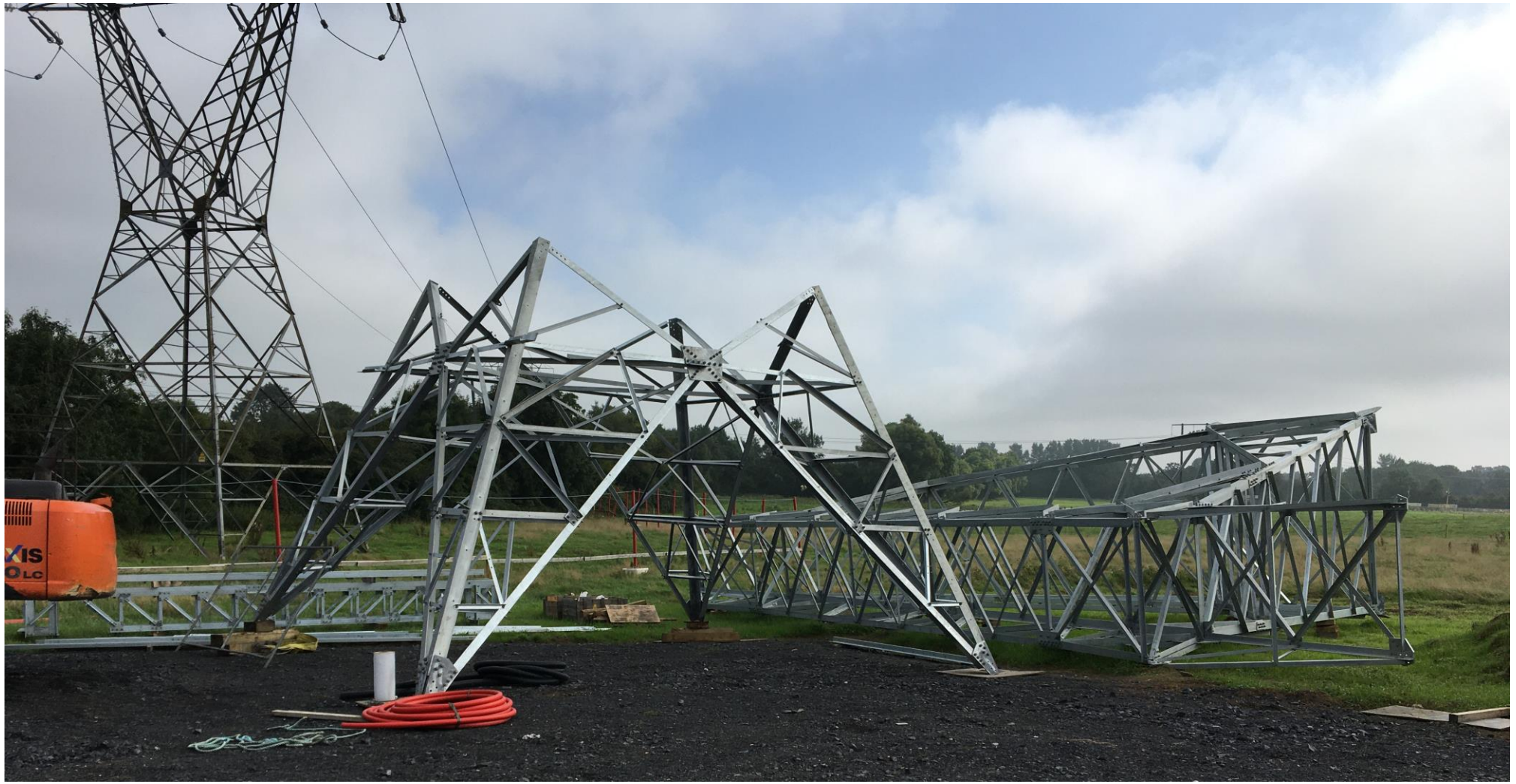
Example of land access infrastructure needed for Cloon Lanesboro 110 kV Circuit Uprate Project



Kellystown Woodland 220 kV Circuit Uprate
Clonee Woodland 220 kV Circuit proximity
17th May – 9th September : 80 working days
Full uprate works expected to be completed

Crane Wexford 110 kV Circuit Uprate
16th September 25th November : 50 working days
Partial uprate

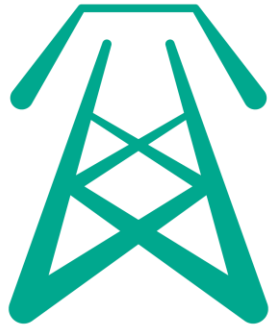
CP0869 Maynooth (Kellystown) Woodland



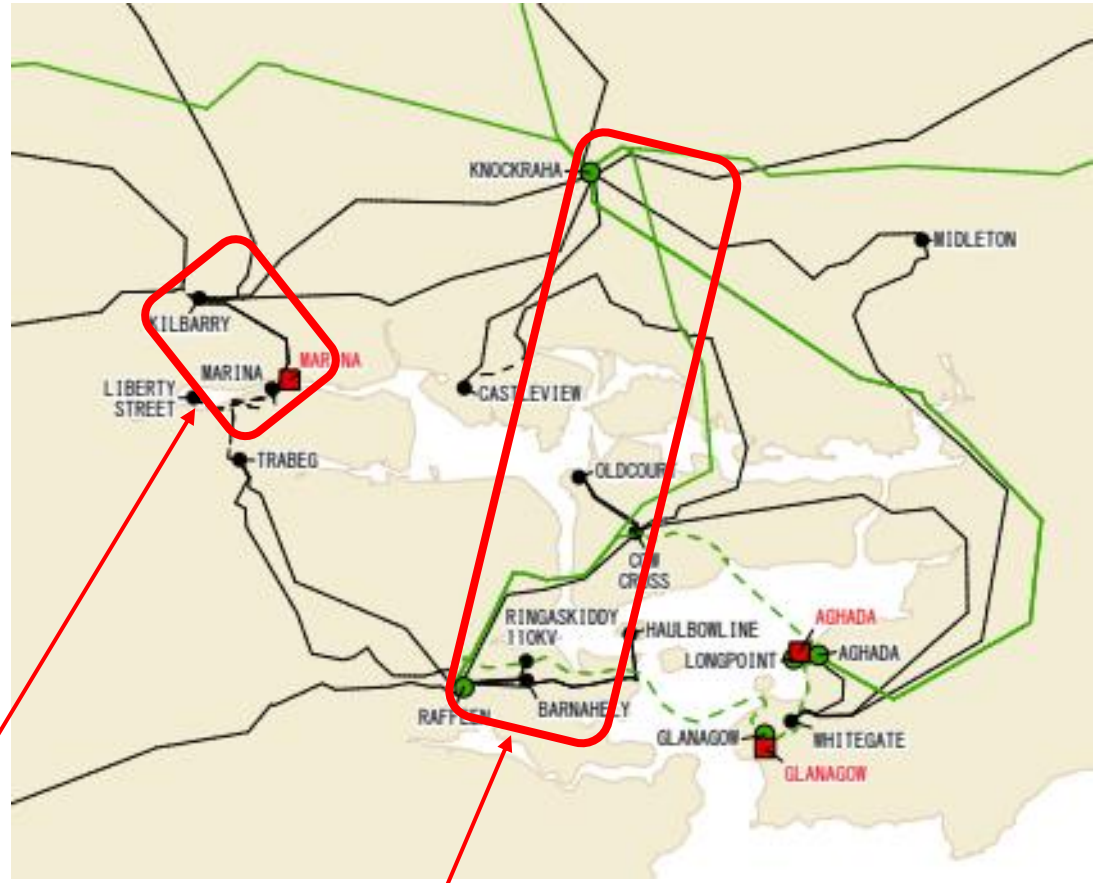
Network Upgrades

Line Refurbishments

- Knockraha Raffeen 220 kV Circuit
- Kilbarry Marina 1 ONE and Kilbarry Marina 2 TWO 110 kV Circuits
- Dunstown Moneypoint 400 kV Circuit

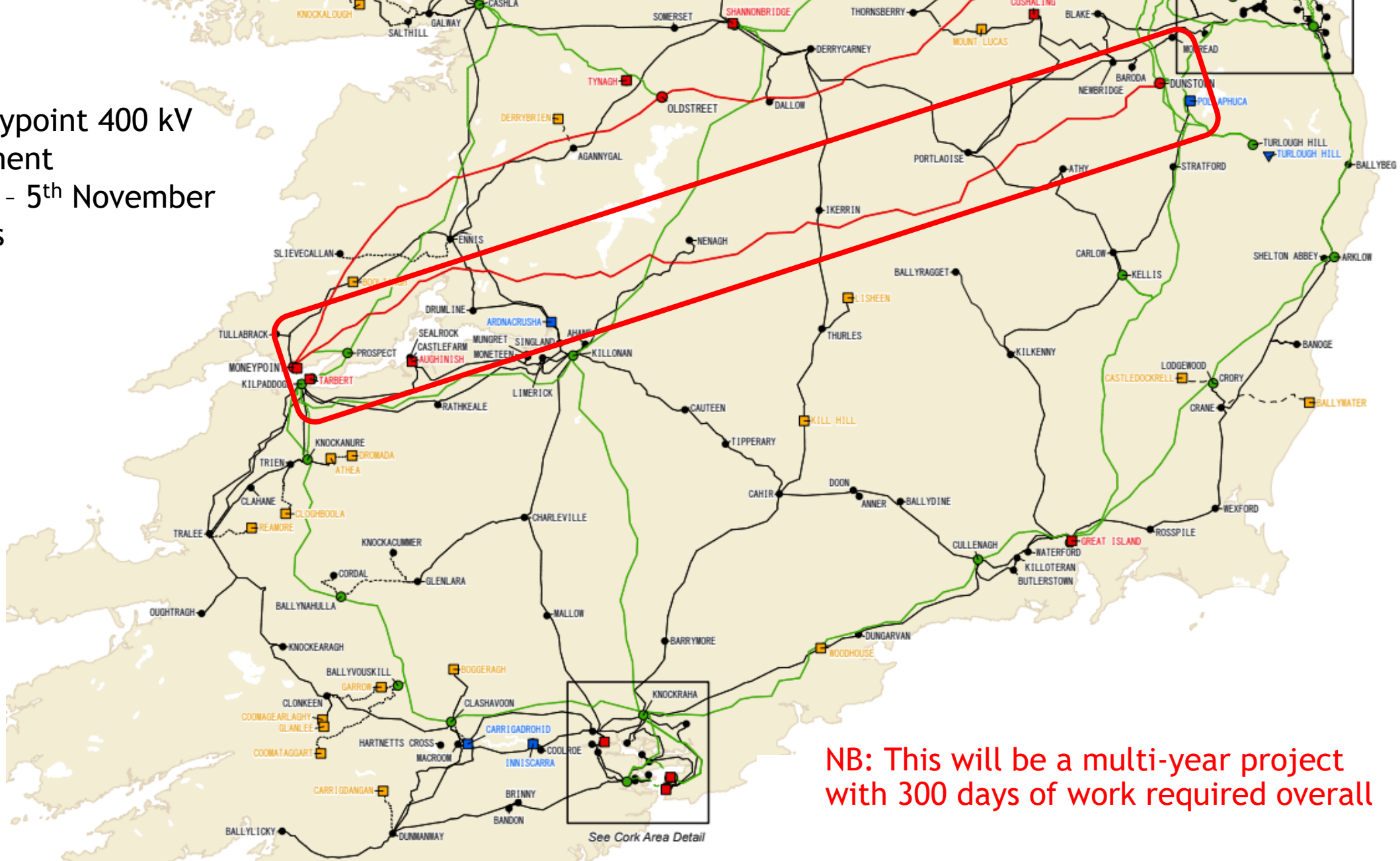


Kilbarry Marina 1 & 2 110 kV Double Circuit
27th May 10th September : 75 working days
Partial refurbishment



Knockraha Raffeen 220 kV Circuit Refurbishment
Expected to be completed this year
15th April – 1st May : 13 working days (within a longer outage for network reconfiguration)
Cullenagh Knockraha 220 kV Circuit proximity
18th September – 26th September : 7 working days
Aghada Knockraha 220 kV Circuit proximity

Dunstown Moneypoint 400 kV
Line Refurbishment
10th September – 5th November
40 working days



NB: This will be a multi-year project with 300 days of work required overall

EirGrid

Network Upgrades

Network Reconfigurations

- CP1113 Corduff 220 kV Station – new Corduff T2104 tie transformer
- CP0872 Castlebagot 220 kV Station – second loop in
- CP0646 Finglas 110 kV GIS – Finglas T2104 110 kV transfer
- CP1093 Barnageeragh 110 kV – network reconfiguration
- CP0796 Knockraha 220 kV Station Reconfiguration – A4 B4 Busbars circuit transfers
- Hartnett's Cross 110 kV Station – New distribution 110 kV load station
- CP1437 Clahane Tralee 110 kV Line Diversion

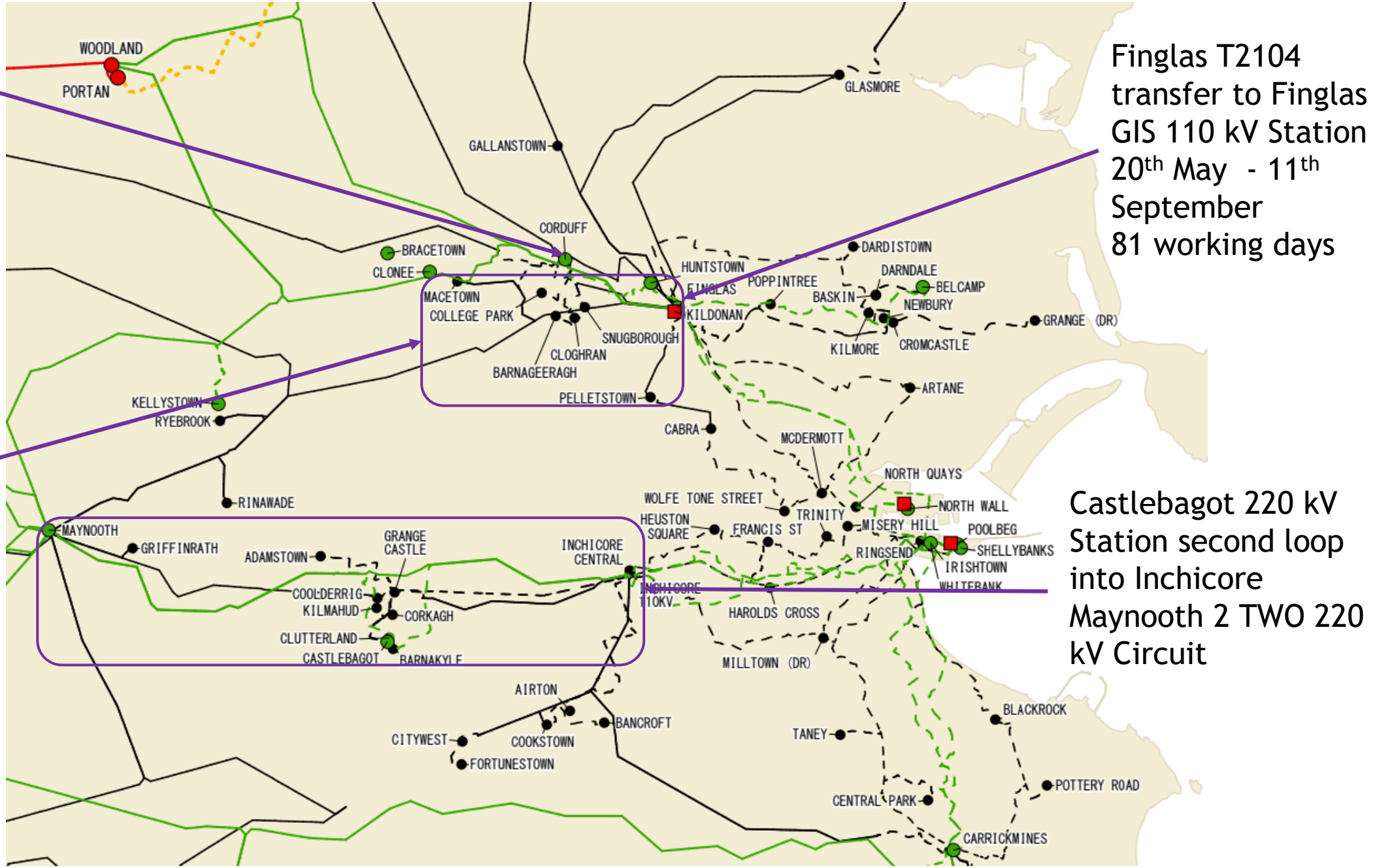
EirGrid

New Corduff T2104 energising Q1 2024

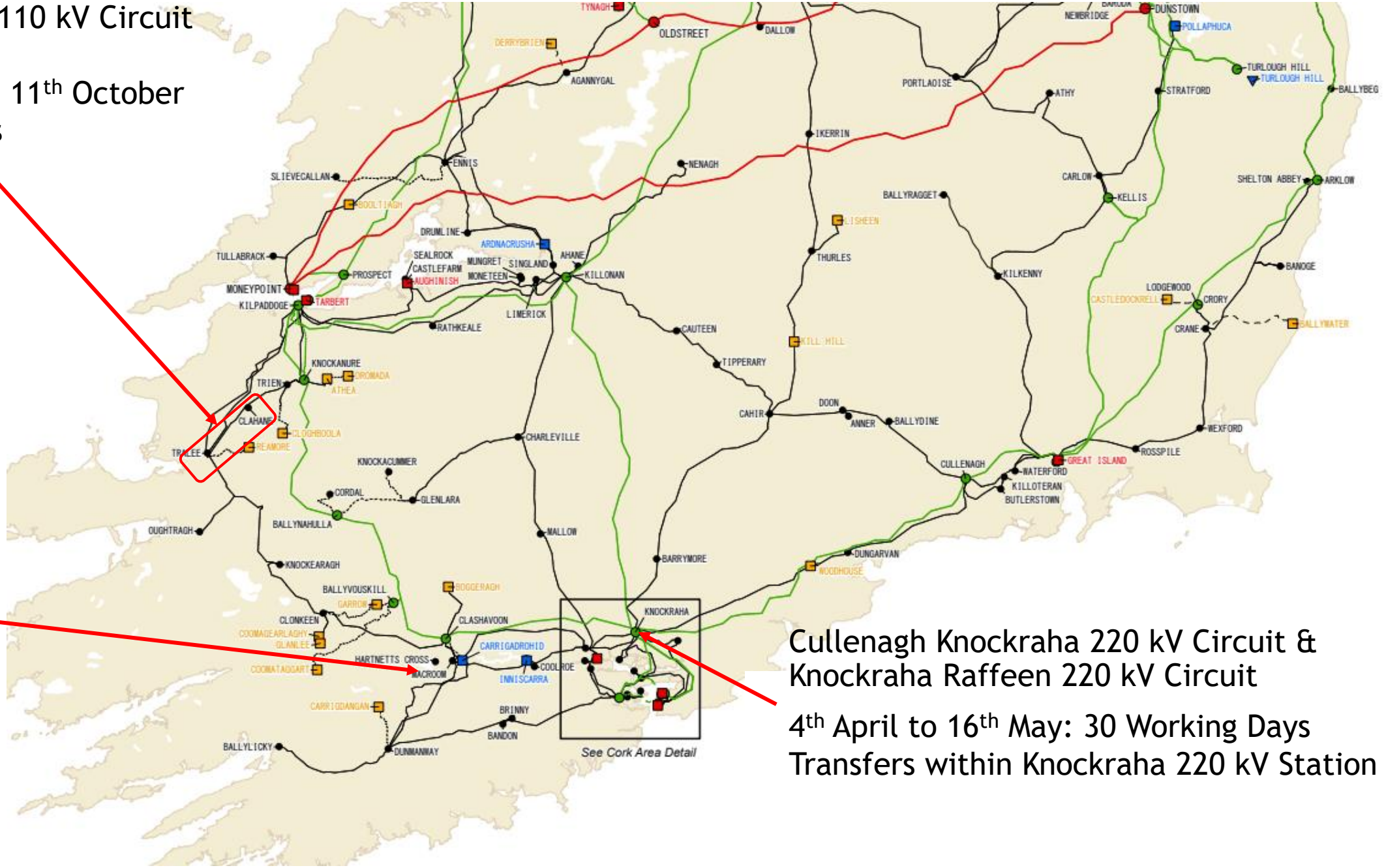
Reconfiguration of 110 kV load stations from Corduff & Finglas bulk supply points

Finglas T2104 transfer to Finglas GIS 110 kV Station 20th May - 11th September 81 working days

Castlebagot 220 kV Station second loop into Inchicore Maynooth 2 TWO 220 kV Circuit



Clahane Tralee 110 kV Circuit Line Diversion
2nd September – 11th October
30 working days



Hartnett's Cross 110 kV Station connection to Macroom
24th September

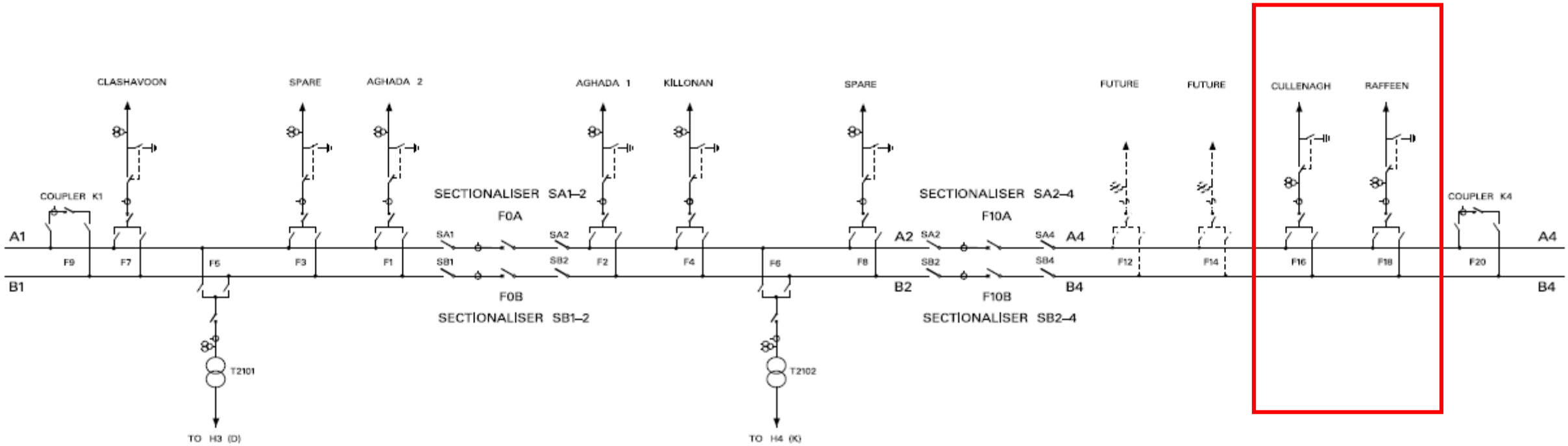
Cullenagh Knockraha 220 kV Circuit & Knockraha Raffeen 220 kV Circuit

4th April to 16th May: 30 Working Days
Transfers within Knockraha 220 kV Station

EirGrid

CP0796 Knockraha Station Reconfiguration

Reconfiguration work in Knockraha a prerequisite to the connection of Celtic Interconnector



Network Upgrades

Station Refurbishment

- Arteche CT Replacements – Ratrussan, Agannygal, Clonkeen, & Coomagearlahy
- CP0799 Louth 220 kV – new SB1-2 disconnect
- CP0799 In Louth Station new Ratrussan and Mullagharlin 110 kV Cubicle refurbishments
- CP1031 & CP1032 Sprecher & Schuh CB Replacements – Cashla & Flagford

EirGrid

Arteche CT Replacements

Ratrussan Week 17 – Week 21

- 24th April – 22nd May

CT replacements on all 110 kV Bays

Agannygal Week 10 – Week 13

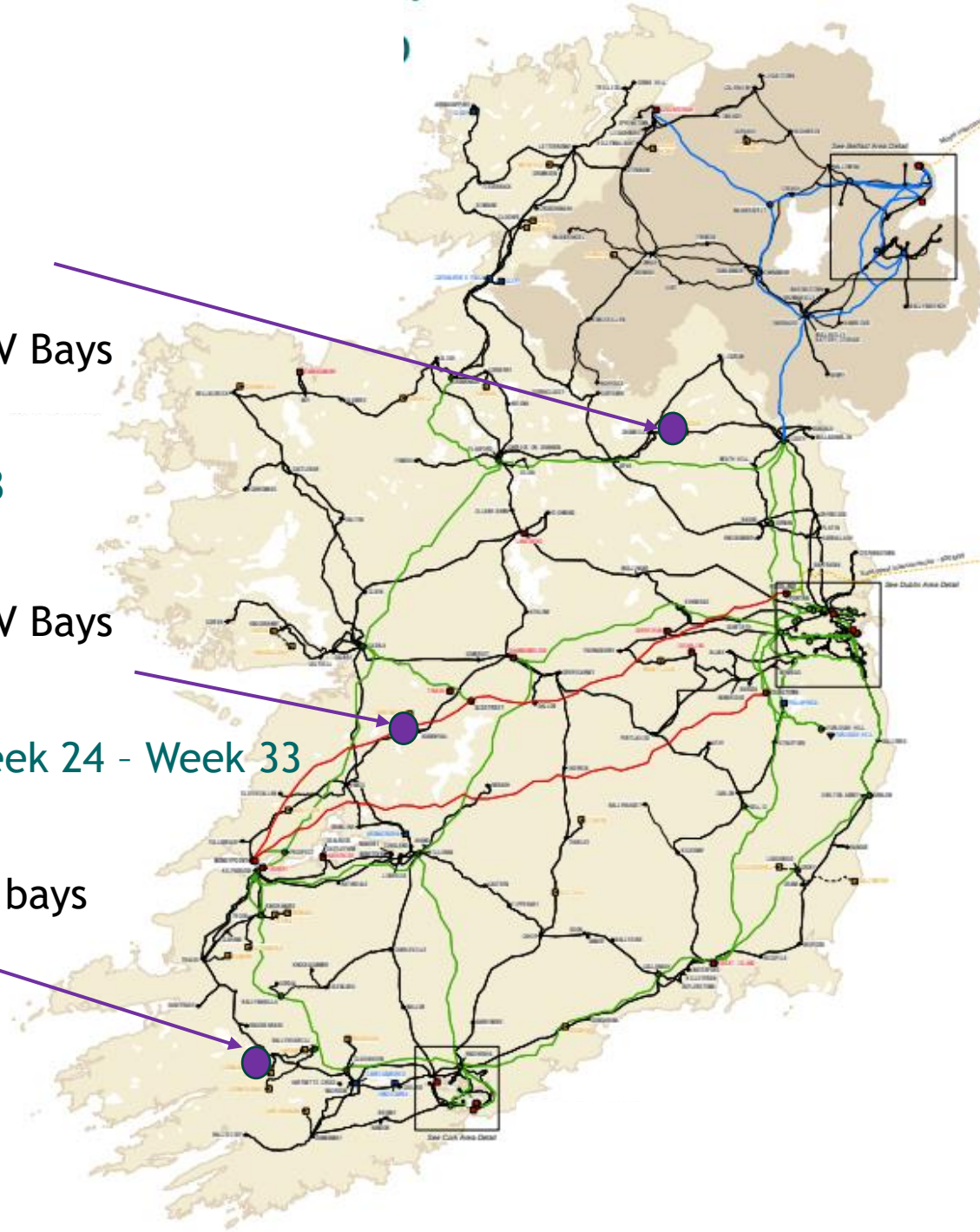
- 4th March – 25th March

CT replacements on all 110 kV Bays

Clonkeen, Coomagearlahy Week 24 – Week 33

- 22nd April – 10th May

CT replacement on impacted bays



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Sprecher & Schuh CB

Flagford

Carrick on Shannon Flagford 1 ONE 110 kV Circuit

22nd April – 18th June : 40 working days

Relay replacement in Carrick on Shannon

Carrick on Shannon Flagford 2 TWO 110 kV Circuit

30th September – 25th November : 40 working days

Relay replacement in Carrick on Shannon

Cashla

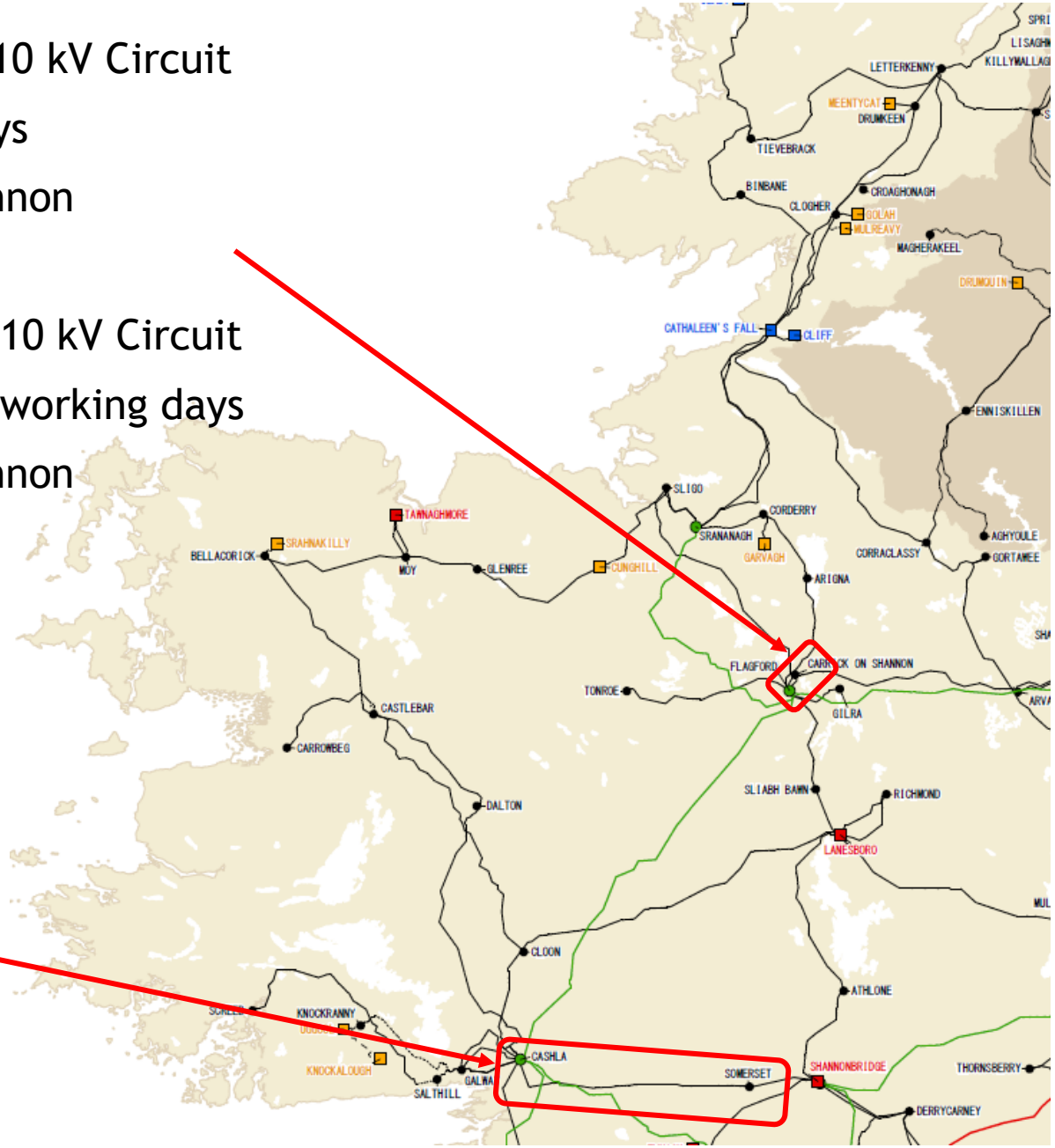
Cashla T2102, both 220 kV & 110 kV CB

2nd May – 19th July : 55 working days

Relay replacements also to be completed during this outage

Cashla Shannonbridge Somerset Tee 110 kV Circuit

9th September – 13th November : 40 working days plus days for breaking and remaking tee and EI



CP0799 Louth 220 kV Station Refurb

Louth Ratrussan 110 kV Circuit
24th April – 10th September

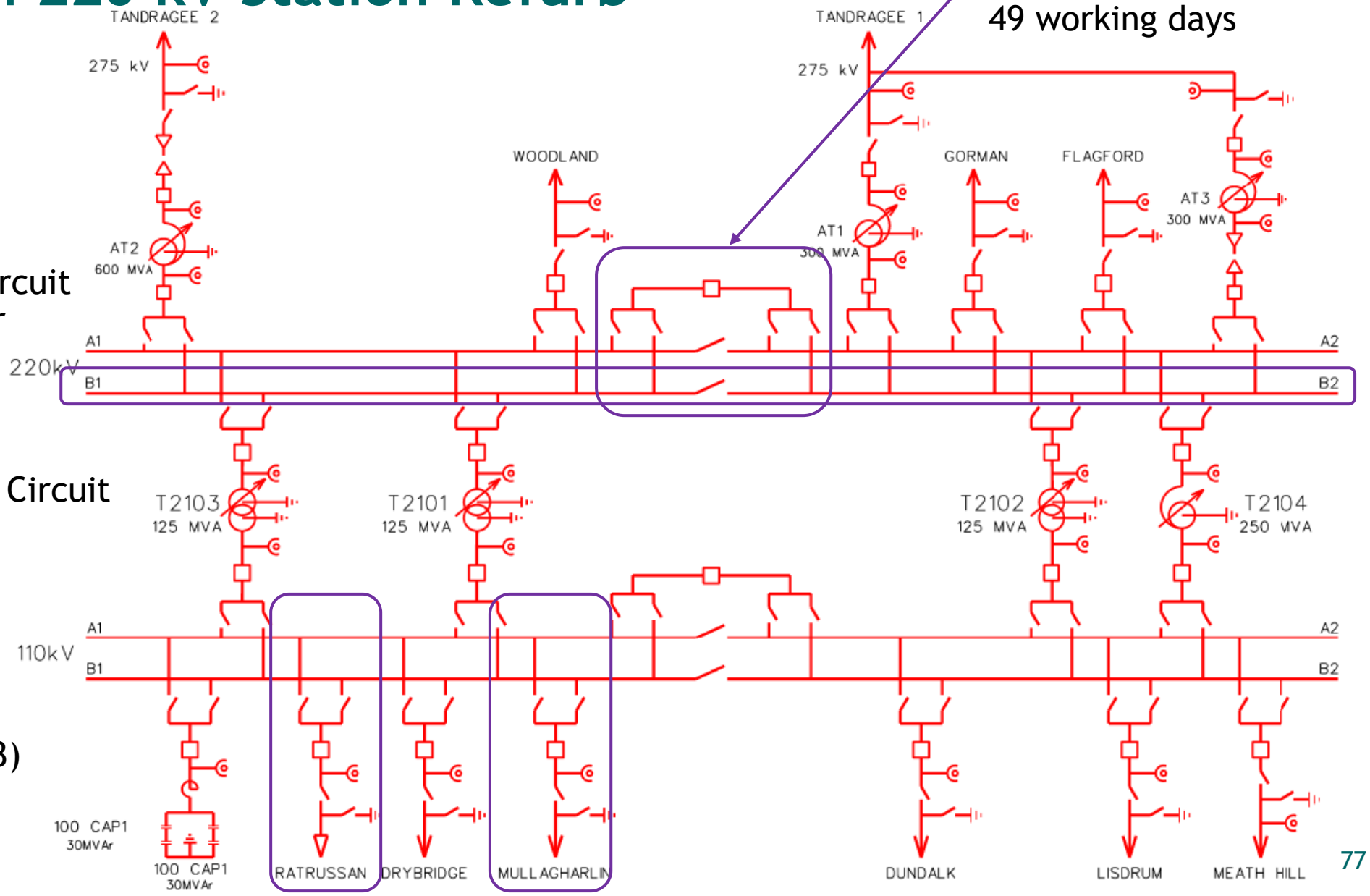
97 working days

Louth Mullagharlin 110 kV Circuit
15th May – 30th September

97 working days

110 kV A1 B1 Half Station

12th – 16th August (week 33)



Protection Upgrades

- CP1153 Cashla Tynagh 220 kV Circuit, 21st June – 23rd August : 45 working days *

- CP1161 Cathaleen's Fall Srananagh 1 ONE 110 kV Circuit, 5th June – 30th July : 40 working days *

- CP1114 Platin T101/2/3/4 1st February - 16th April : 50 working days
- CP1114 Gallanstown Platin 110 kV Circuit, 7th October – 11th October : 5 working days
- CP1114 Garballagh Platin 110 kV Circuit , 14th October – 18th October : 5 working days
- CP1114 Oldbridge Platin 110 kV Circuit, 21st October – 25th October : 5 working days

- CP1159 Cullenagh 220 kV K1-2 and Cullenagh 110 kV K1-2 Couplers, 25th September – 20th November : 40 working days

- CP1116 Cahir Tipperary 110 kV Circuit, 25th September – 20th November : 40 working days

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Protection Upgrades

- CP1141 Kellis 220 kV Coupler Protection upgrade, 13th May – 8th July : 40 working days
- Half Station on both sides to get PI from K1-2 coupler DA1 & DA2
    - 27th May – 31st May 220 kV A1
    - 4th June – 10th June 220 kV A2

- CP1160 Coolroe 110 kV A1 Busbar, 8th April – 12th April : 5 working days
- CP1160 Coolroe 110 kV A2 Busbar, 15th April – 19th April : 5 working days
- CP1160 Inniscarra 110 kV A1 Busbar, 13th May – 17th May : 5 working days
- CP1160 Coolroe T121, 20th May - 22nd July :45 working days
- CP1160 Coolroe T122, 23rd July – 24th September :45 working days

- CP1164 Clashavoon 220 kV K1-2 Coupler, 17th July – 28th August : 30 working days
- CP1164 Clashavoon Macroom 2 TWO 110 kV Circuit, 16th September – 18th November : 45 working days

Protection Upgrades

- CP1152 Arva Shankill 1 ONE 110 kV Circuit, 9th Feb – 23rd April : 50 working days

- CP1109 Navan T141 2nd April – 18th May : 40 working days
- CP1109 Gorman Navan 2 TWO 110 kV Circuit, 4th June – 29th July : 40 working days
- CP1109 Gorman Navan 1 ONE110 kV Circuit, 6th August – 30th September : 40 working days

- CP1186 Drumline Ennis 110 kV Circuit, 10th June – 12th August : 45 Working days
- CP1186 Drumline T141, 12th August – 11th November : 60 Working days

- CP1227 Cashla T2104, 26th February – 1st May : 45 Working Days
- CP1227 Cashla T2101, 22nd July – 23rd September : 45 Working Days

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Transmission Capital Works 2023

Transmission Outage Programme 2024

Distribution Outage Programme update

Wind Dispatch Tool overview

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Distribution Outage Programme Update

Wind Dispatch Tool Constraint Group Overview

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Distribution Outage Programme (DOP) Update 2024

EirGrid Outturn Availability Forum
6th March 2024
John Whelan
Distribution Outage Programmer, HV Operations, ESB Networks

The DOP

The **D**istribution **O**utage **P**rogramme (DOP) is a mechanism to capture and align DSO outages with HV Customer outages.

The following outages are included on the DOP:

- Outages of HV Customer plant (where ESBN operators are needed to create PoDs).
- All DSO/TSO outages which force a HV Customer off the system.
- All 110 / 38 kV transformers (for HV planning).
- Selected 110 / MV transformers (for portfolio management).

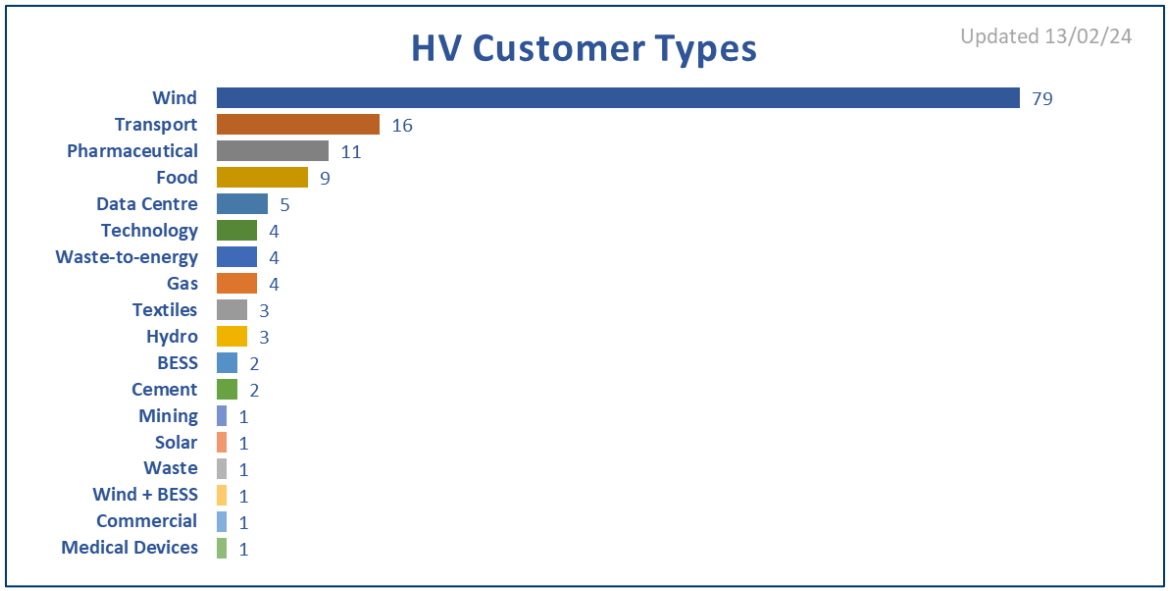
All communication through – dsooutageprogramme@esb.ie

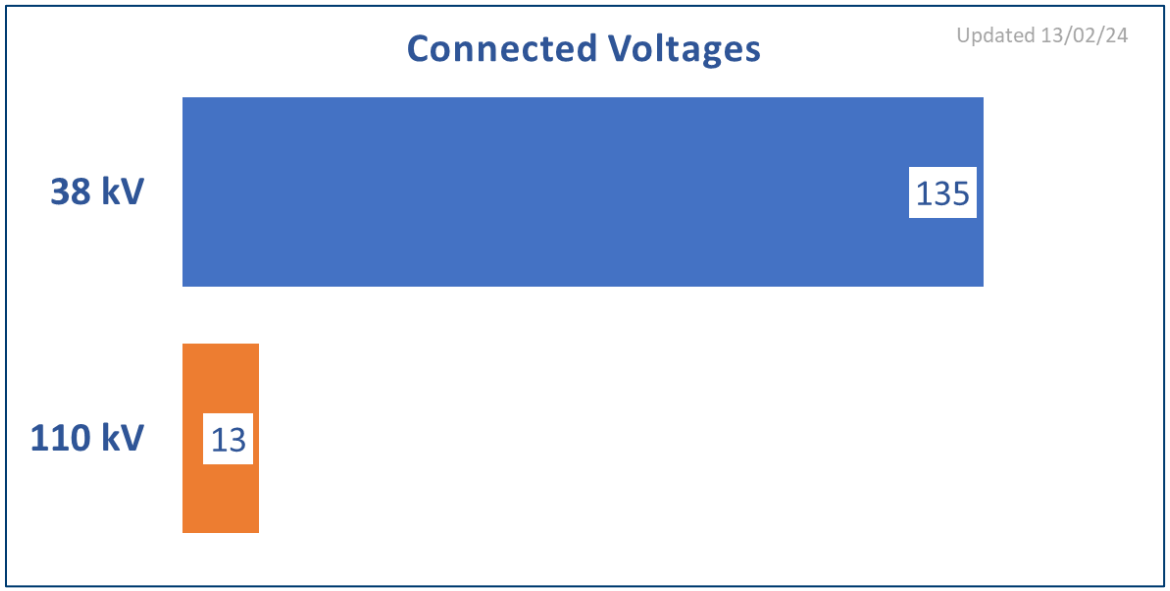
Coordinated by John Whelan and supported by the HVSM and the HV Planners.

System Controllers

Voltage	System Manager	System Controller	Operator
400 kV	TSO	NCC	NCC / NTs
220 kV	TSO	NCC	NCC / NTs
110 kV	TSO/DSO	NCC / NDCC	NCC / NDCC / NTs
38 kV	DSO	NDCC	NDCC / NTs
MV	CSS	NDCC	NDCC / NTs
LV	CSS	CSS	NTs

148 HV DSO Customers





Stakeholders – Owners / Assets Managers / Contractors

Voluntary Outages (VOs)

Outage Request Form
dsooutageprogramme@esb.ie

↓

Operator Available

↓

Align ESB Networks Work

↓

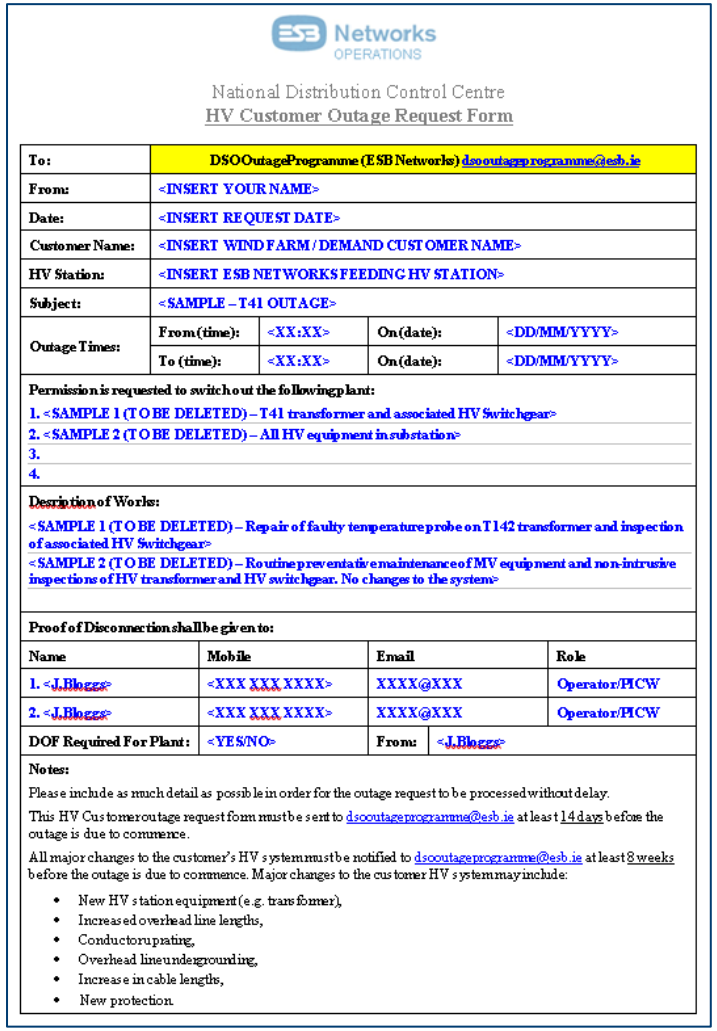
HV Planner Checks for Conflicts

↓

VO is Issued

↓

Control Room Switching Plan



Networks
OPERATIONS

National Distribution Control Centre
HV Customer Outage Request Form

To:	**DSOOutageProgramme (ESB Networks) dsooutageprogramme@esb.ie**			
From:	<INSERT YOUR NAME>			
Date:	<INSERT REQUEST DATE>			
Customer Name:	<INSERT WIND FARM / DEMAND CUSTOMER NAME>			
HV Station:	<INSERT ESB NETWORKS FEEDING HV STATION>			
Subject:	<SAMPLE – T41 OUTAGE>			
Outage Times:	**From (time):**	<XX:XX>	**On (date):**	<DD/MM/YYYY>
	To (time):	<XX:XX>	**On (date):**	<DD/MM/YYYY>

Permission is requested to switch out the following plant:

1. <SAMPLE 1 (TO BE DELETED) – T41 transformer and associated HV Switchgear>
2. <SAMPLE 2 (TO BE DELETED) – All HV equipment in substation>
3.
4.

Description of Works:

<SAMPLE 1 (TO BE DELETED) – Repair of faulty temperature probe on T142 transformer and inspection of associated HV Switchgear>
<SAMPLE 2 (TO BE DELETED) – Routine preventative maintenance of MV equipment and non-intrusive inspections of HV transformer and HV switchgear. No changes to the system>

Proof of Disconnection shall be given to:

Name	Mobile	Email	Role
1. <J.Bloggs>	<XXX XXX XXXX>	XXXX@XXX	Operator/PICW
2. <J.Bloggs>	<XXX XXX XXXX>	XXXX@XXX	Operator/PICW
DOF Required For Plant:	<YES/NO>	**From:**	<J.Bloggs>

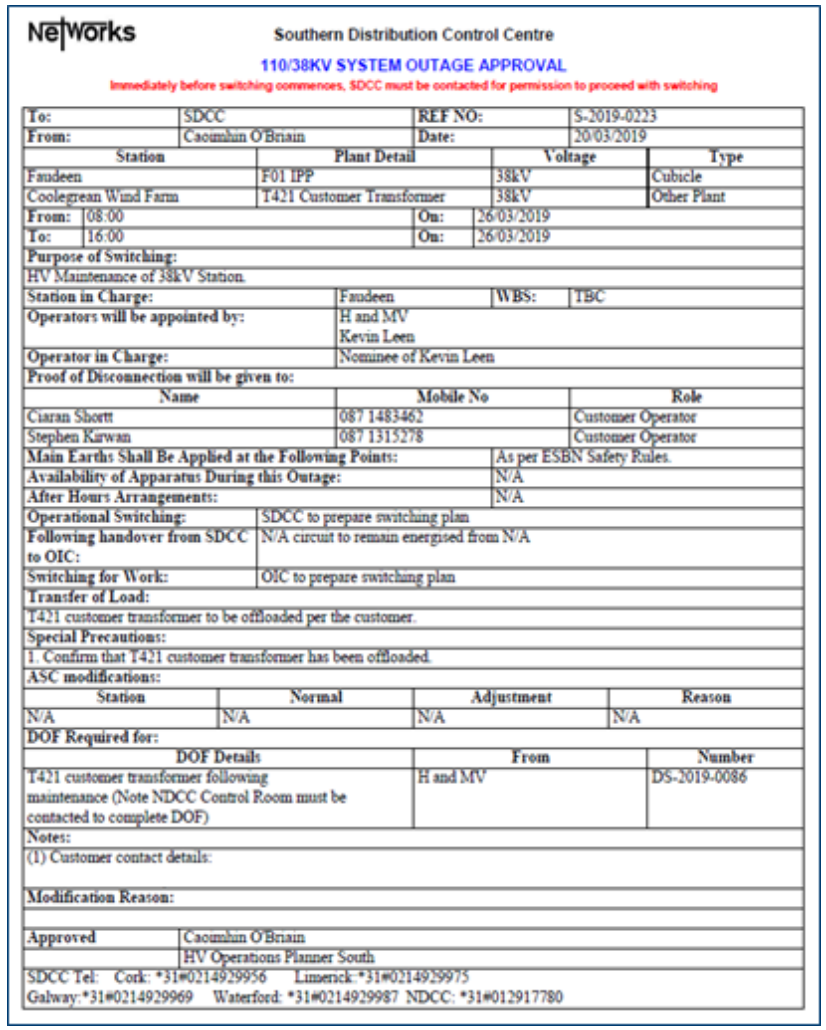
Notes:

Please include as much detail as possible in order for the outage request to be processed without delay.

This HV Customer outage request form must be sent to dsooutageprogramme@esb.ie at least 14 days before the outage is due to commence.

All major changes to the customer's HV system must be notified to dsooutageprogramme@esb.ie at least 8 weeks before the outage is due to commence. Major changes to the customer HV system may include:

- New HV station equipment (e.g. transformer),
- Increased overhead line lengths,
- Conductor uprating,
- Overhead line undergrounding,
- Increase in cable lengths,
- New protection.



Networks — Southern Distribution Control Centre

110/38KV SYSTEM OUTAGE APPROVAL

Immediately before switching commences, SDCC must be contacted for permission to proceed with switching

To:	SDCC	**REF NO:**	S-2019-0223
From:	Caoimhin O'Briain	**Date:**	20/03/2019

Station	Plant Detail	Voltage	Type
Faudeen	F01 IPP	38kV	Cubicle
Coolegrean Wind Farm	T421 Customer Transformer	38kV	Other Plant

From:	08:00	**On:**	26/03/2019
To:	16:00	**On:**	26/03/2019

Purpose of Switching:
HV Maintenance of 38kV Station.

Station in Charge:	Faudeen	**WBS:**	TBC
Operators will be appointed by:	H and MV Kevin Leen		
Operator in Charge:	Nominee of Kevin Leen		

Proof of Disconnection will be given to:

Name	Mobile No	Role
Ciaran Shortt	087 1483462	Customer Operator
Stephen Kirwan	087 1315278	Customer Operator

Main Earths Shall Be Applied at the Following Points:	As per ESBN Safety Rules.
Availability of Apparatus During this Outage:	N/A
After Hours Arrangements:	N/A
Operational Switching:	SDCC to prepare switching plan
Following handover from SDCC to OIC:	N/A circuit to remain energised from N/A
Switching for Work:	OIC to prepare switching plan

Transfer of Load:
T421 customer transformer to be offloaded per the customer.

Special Precautions:
1. Confirm that T421 customer transformer has been offloaded.

ASC modifications:

Station	Normal	Adjustment	Reason
N/A	N/A	N/A	N/A

DOF Required for:

DOF Details	From	Number
T421 customer transformer following maintenance (Note NDCC Control Room must be contacted to complete DOF)	H and MV	DS-2019-0086

Notes:
(1) Customer contact details:

Modification Reason:

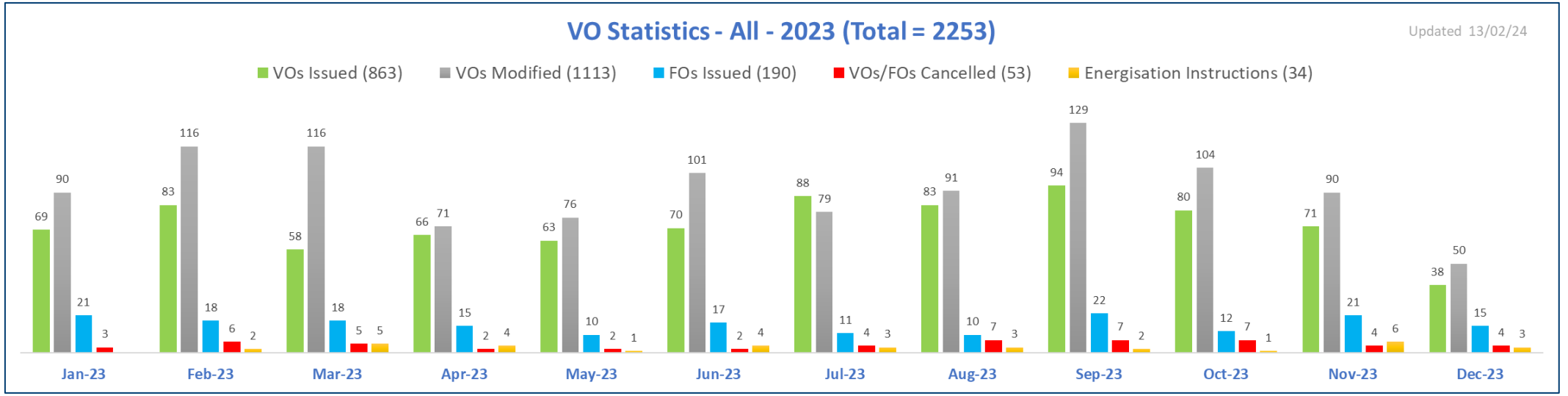
Approved	Caoimhin O'Briain
	HV Operations Planner South

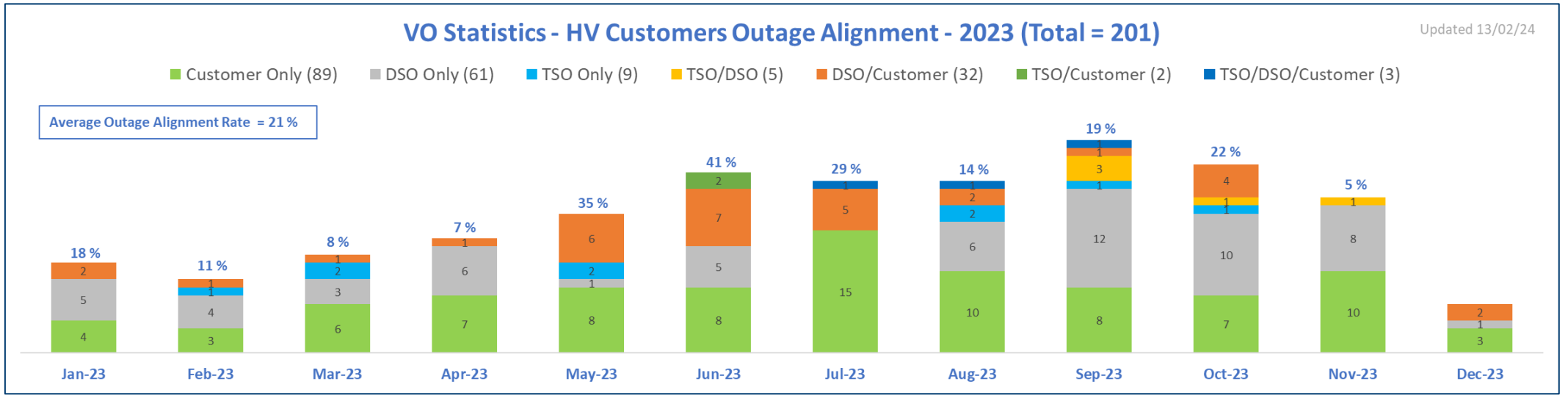
SDCC Tel: Cork: *31#0214929956 Limerick:*31#0214929975
Galway:*31#0214929969 Waterford: *31#0214929987 NDCC: *31#012917780

Reasons for DSO Outages

- HV Equipment Maintenance Cycles
- OHL Surveys / Construction Work
- Timber Cutting
- Circuit Diversions
- Equipment Faults
- Asset Replacement Programs
- Storm Damage
- New Connections
- TOP Outages

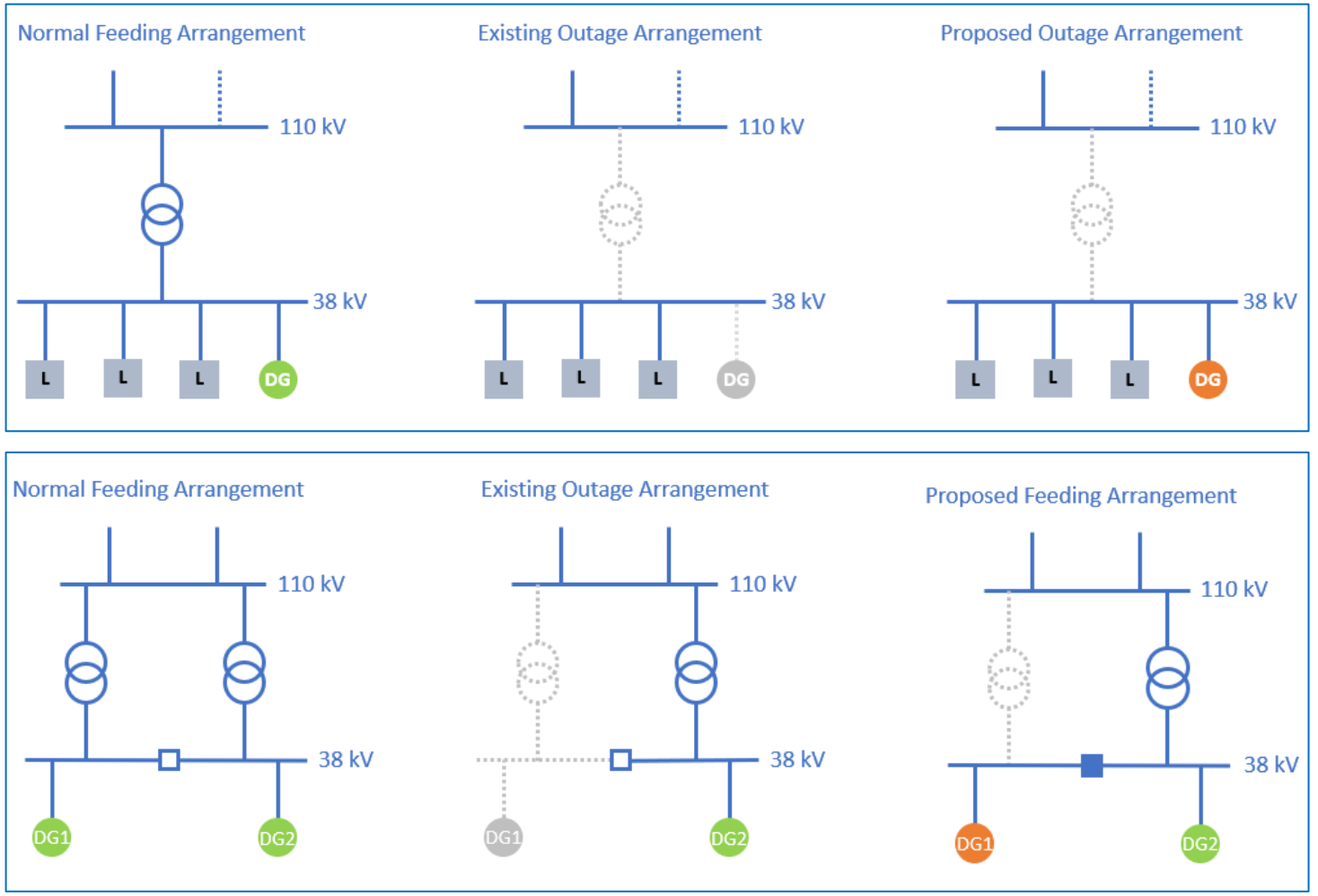
DOP Statistics 2023





Outage Mitigation

- Outage negation
- Outage duration reduction
- Early customer notification
- Keeping IPPs online as demand customers



End

Agenda

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Transmission Outage Programme 2024

Distribution Outage Programme Update

Wind Dispatch Tool Constraint Group Overview

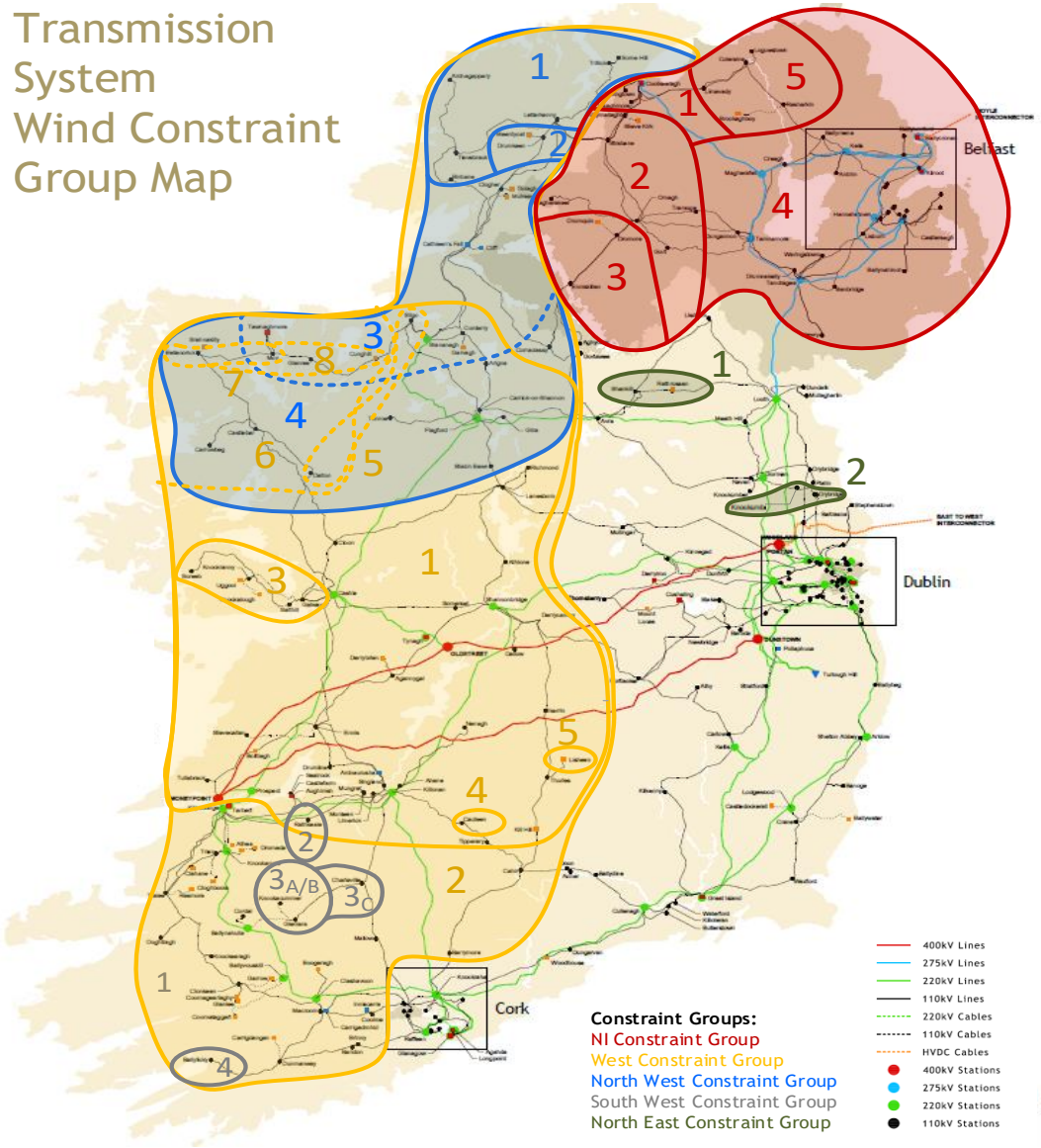
EirGrid

Ireland Renewable Constraint Groups

EirGrid

Renewable Constraint Group Overview

Transmission System Wind Constraint Group Map



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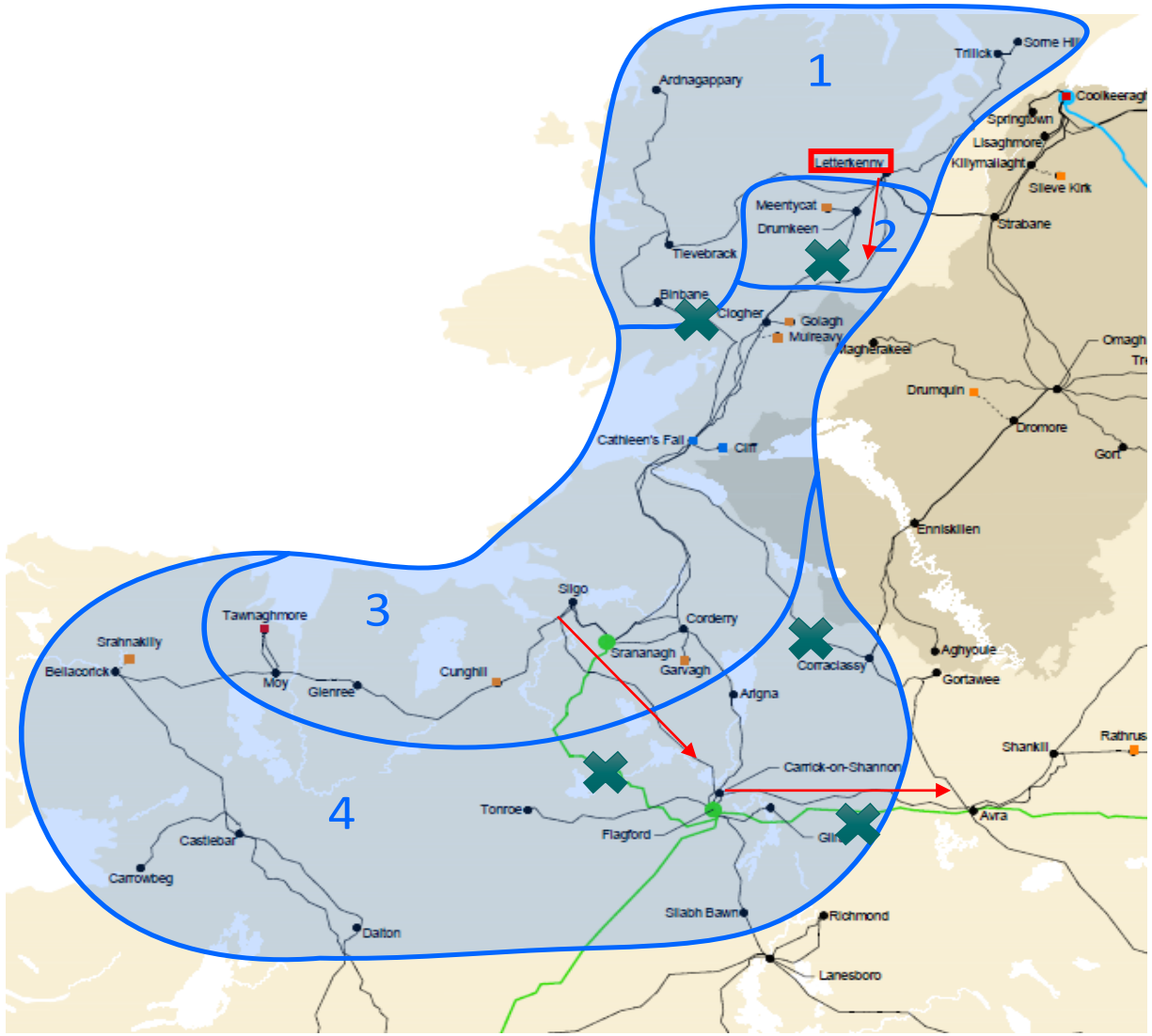
North-West Constraint Groups



EirGrid

North West Constraint Group Prevalence

NW CG1: Letterkenny A1 Busbar	New	Moderate
NW CG2: Letterkenny A2 Busbar	New	Moderate
NW CG3: Sligo to Flagford		High
NW CG4: Carrick-On-Shannon to Arva		High
NW CG7: Corderry to Srananagh	New	Zero

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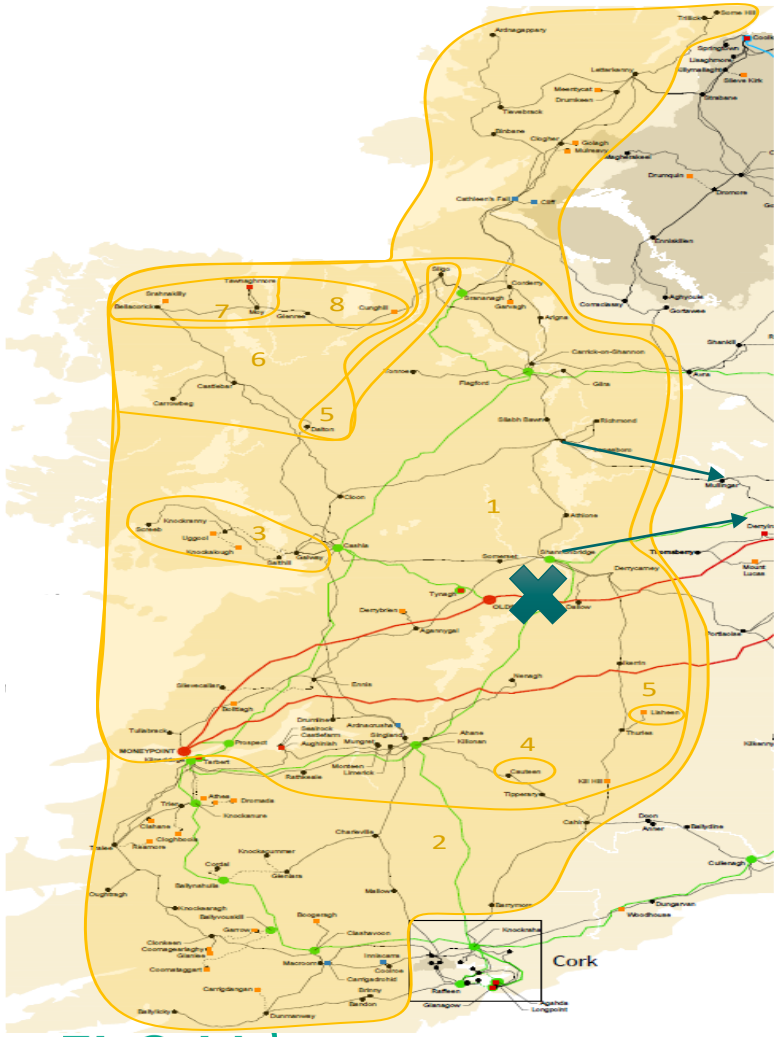
West Constraint Groups (1)



W CG1: Lanesboro to Mullingar
W CG2: Shannonbridge to Maynooth

Low

Moderate

EirGrid

West Constraint Groups (2)

W CG3: West Galway — New — Low

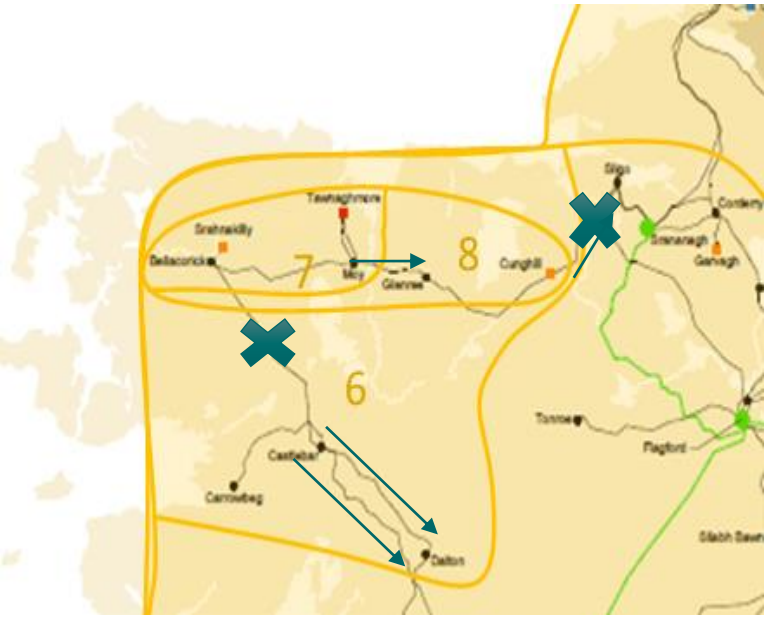
W CG4: Cauteen Voltage Stability — Low

W CG5: Lisheen to Thurles — Low

W CG9: Thurles Voltage Stability — New — Low

EirGrid

West Constraint Groups (3)



W CG6: Castlebar to Cloon — Moderate

W CG7: Moy to Glenree — New — High → Low

W CG8: Cunghill to Sligo — New — High → Low

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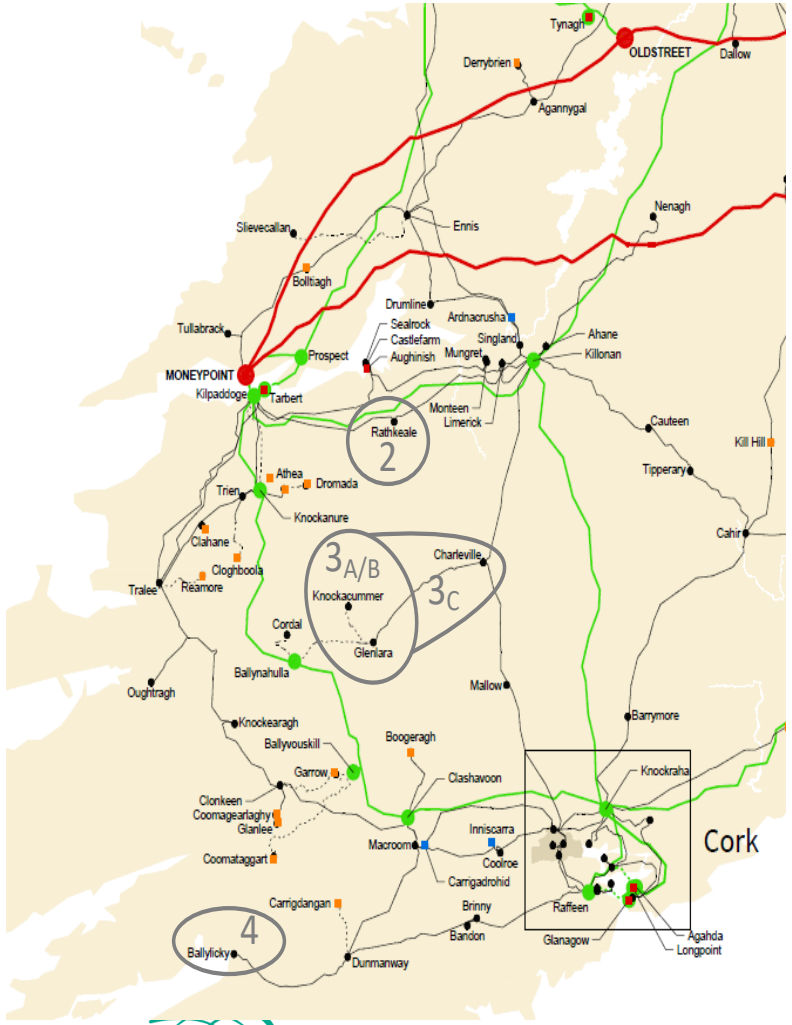
South West Constraint Groups



New

SW CG1: Moneypoint T4202

SW CG2: Limerick to Rathkeale

SW CG3a: Glenlara to Ballynahulla
SW CG3b: Glenlara to Charleville
SW CG3c: Charleville to Mallow/Killonan

SW CG4: Ballylickey Voltage Stability

Zero

Low

Low

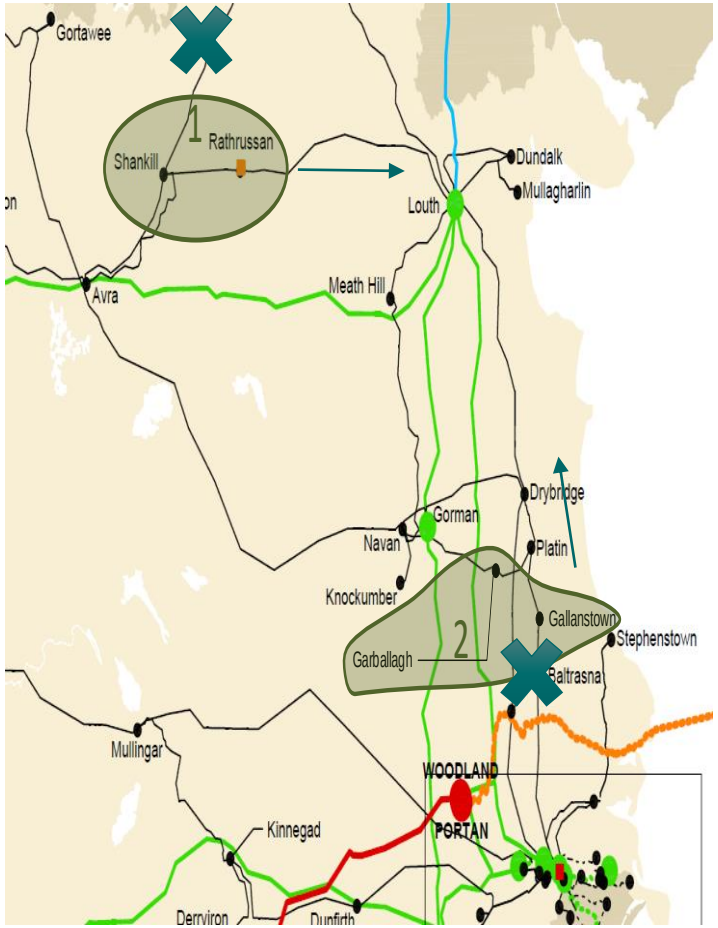
Moderate

Low

Low

EirGrid

North East Constraint Groups



New

NE CG1: Ratrussan to Louth

Low

New

NE CG2: Platin to Drybridge

Moderate

Questions?

Questions (1 of 3)

Q: Is there a timeframe for the Low Carbon Inertia Services (LCIS) project?

A: The LCIS procurement process is currently underway. We will have a clearer view on delivery dates once the process concludes.

Q: Can the before and after circuit ratings of those circuits being uprated be provided?

A:

	Existing (Summer / Winter)	New (Summer / Winter)
Flagford Sliabh Bawn 110 kV	99 / 121 MVA	178 / 209 MVA
Binbane Cathaleen's Fall 110 kV	99 / 121 MVA	134 /165 MVA
Louth Ratrussan 110 kV	95 / 112 MVA	178 / 209 MVA
Glenree Moy 110 kV	104 / 122 MVA	178 / 209 MVA
Kellystown Woodland 220 kV	434 / 513 MVA	792 / 823 MVA
Crane Wexford 110 kV	135 / 159 MVA	178 / 209 MVA

Questions (2 of 3)

Q: Can an idea of the renewable constraints associated with the Moneypoint-Dunstown 400 kV outage be provided ?

Two sample cases were investigated. Please note that these cases are a very small sample of possible system conditions. Initially in the cases wind output is distributed evenly across the country. The actual constraints are dependent on a number of variables including but not limited to other outages (known outages on the specific day investigated are included), load, distribution of wind across the country, EWIC flows, North-South flows, interaction with curtailment.

Peak Case
Load: 4,950 MW; EWIC: 500 MW export; North – South: 0 MW
Approximately 60% (of total MEC) wind output in West & North-West was capable of being exported onto the system
Approximately 80% (of total MEC) wind output in South-West was capable of being exported onto the system

Valley Case
Load: 3,350 MW; EWIC: 500 MW export; North – South: 0 MW
Approximately 50% (of total MEC) wind output across all regions was capable of being exported onto the system

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Questions (3 of 3)

Q: What is the reason behind the one and a half year delay to the North South 400 kV Interconnector (NSIC) project energisation in the recently published NDP?

A: The energisation dates in the NDP have been consistent across the last three publications on 1 February 2024, 31 October 2023 and 31 July 2023. The Government's independent expert review on the NSIC was published in 2023. This confirmed that the project would proceed as planned and EirGrid started landowner engagement. The date for voluntary signup has now passed. For those landowners who do not sign up voluntarily an application may be made by ESB Networks to the Commission for Regulation of Utilities (CRU) for a compulsory purchase order. Access is required to a certain percentage of the route before construction can start.

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