18/01/2023

Shaping Our Electricity Future

Advisory Council Meeting 3

Herbert Park Hotel, Ballsbridge,

Dublin 4

09h30-16h00

EirGrid GROUP

Welcome

EirGrid GROUP

Meeting Chair: Liam Ryan

Time	Topic
9:30	Tea/Coffee
10:00	Introduction, review actions, Chair update (Liam Ryan)
10:20	NI Energy Policy update (Alan Campbell)
10:30	DECC – Climate Action Plan 2023 (Phillip Newsome)
11:00	SOEF 1.1 status (Robbie Aherne)
11:30	Tea/Coffee
11:45	EirGrid Group Capability (Siobhan Toale)
12:00	Operations update (Eoin Kennedy) Operational Policy Roadmap (Simon Tweed)
13:00	Lunch
13:45	Engagement (Sinead Dooley)
14:00	Networks update (Yvonne Coughlan)
14:30	Markets update - FASS, S&D (David Carroll)
15:15	Closing statements (Liam Ryan)
16:00	Close

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Actions

1. Establish Problem statement for SOEF and share with council members in advance of next meeting (Slide 7)
2. Consider expansion of SOEF Advisory council membership to allow representation from the heat and transport sector

   We have reviewed and consider that the current membership is sufficient; we have asked Thomas O'Sullivan to maintain a link with that sector and keep the Advisory Council updated
3. North-South Delivery timelines to be communicated with Advisory Council members

   The detailed construction programme for this project is still being considered. Current completion date is 2026.
4. Engagement with Advisory Council members will be required in advance of the publication of SOEF V1.1 (slide 23-28)

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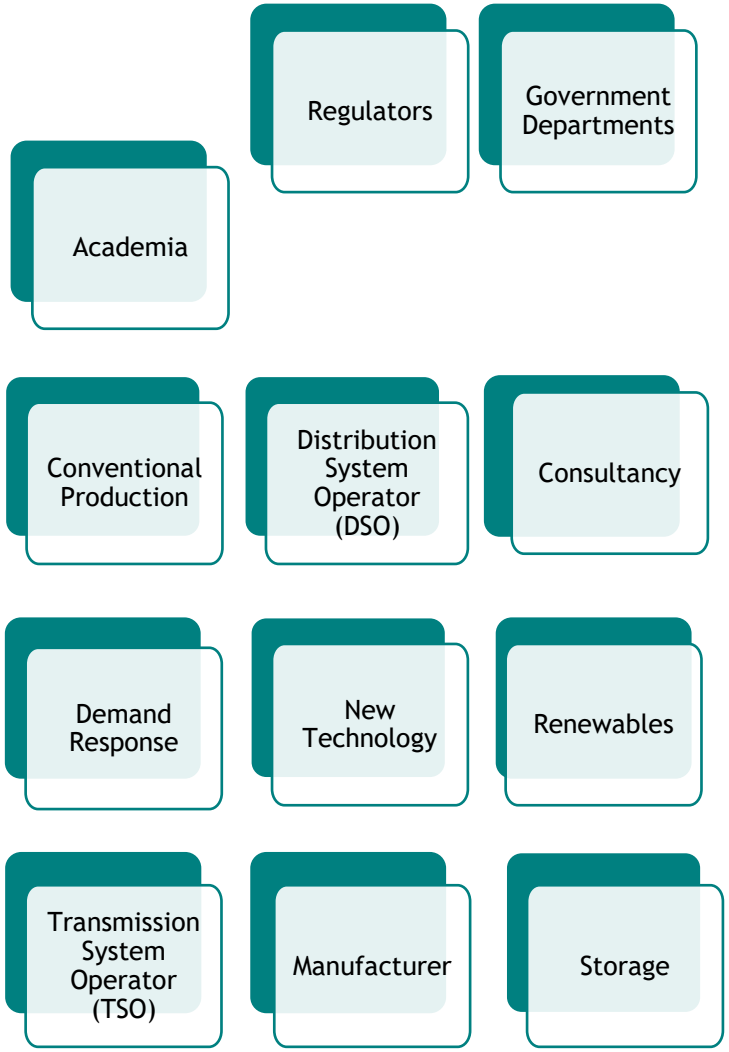
SOEF Advisory Council
Industry Representation on SOEF

Thank you for your participation in the SOEF Advisory Council.

The SOEF Advisory Council plays a critical role in helping achieve governmental ambitions in Ireland and Northern Ireland. It is an opportunity for an open exchange of ideas, for the TSOs to hear and discuss stakeholder views, and to help facilitate the delivery of the SOEF Progamme.

Throughout this meeting, and through the delivery of SOEF, we appreciate and rely upon on your feedback, insight, and candour.



SOEF Advisory Council
SOEF Purpose

The remit and purpose of the Advisory Council is to:

- Discuss, review and ultimately help facilitate the progress of the Shaping Our Energy Future (SOEF) Programme,
- Share relevant information related to the implementation of the Programme,
- Communicate with stakeholders,
- Provide a forum to discuss stakeholder views and concerns on those issues which impact on the implementation of the Programme and;
- Provide input, advice and assistance on matters related to the Programme and its implementation.

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SOEF Advisory Council
SOEF Problem Statement

Following up from our last meeting, we offer a view of the SOEF problem statement for your consideration.

To transform the electricity ecosystem aligned with targets from both Governments, to be secure sustainable which underpins economic growth while protecting the end consumer.

This ambitious goal is aligned with the broader global climate action targets; however it will be challenging to deliver.

A transformation of this size requires change in all elements of the ecosystem. A significant amount of new onshore and offshore generation assets and network infrastructure is required and innovative technologies and practices, stakeholder support, and changes to the regulatory frameworks are essential enablers to delivering these technologies.

Furthermore, Regulatory frameworks and electricity market design must keep pace with the evolving European structures and evening proactively influencing its evolution. This includes the ongoing shift from administrative markets to competitive, market-based design, and greater integration with European electricity market platforms.

Delivery capability is a fundamental enabler of success for SOEF. Delivery will take place across all aspects of the ecosystem – regulation, TSO programmes, government policy, new asset build, and active market participation. The people that support and deliver these programmes must work in close cooperation, practice good governance, make timely decisions, and deliver at pace to meet the 2030 targets.

Please refer to attached document for review & comment

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Progress

Network Infrastructure	Electricity Markets	System Operations	Stakeholder Engagement
Overall status is GREEN & holding steady	Overall status is RED & worsening	Overall status is RED & improving	Overall status is GREEN & holding steady
Total Enablers 7	**Total Projects 8**	**Total Projects 25**	**Total Projects 9**
Red 1	Red 1	Red 7	Red 0
Amber 2	Amber 2	Amber 1	Amber 0
Green 2	Green 2	Green 6	Green 9*
Not Started 0	*Not Started 3*	*Not Started 1*	*Not Started 0*
Complete 2	Complete 0	Complete 10	Complete 0

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Additional details will be provided by workstream leads
This list represents projects that have started, and not the full, multi-year plans

**Stakeholder Engagement establishment complete.*
Activities will continue through the SOEF Programmes

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Evolving policy & regulatory landscape

The regulatory landscape continues to necessarily evolve in response to existing EU and national climate goals.

The regulatory frameworks and electricity markets design must keep pace with the evolving European structures.

This includes the ongoing shift from administrative markets to competitive, market-based design, and greater integration with European electricity market platforms.

A critical point is that we must be mindful of this evolution as we set and deliver on shared targets.

Climate Change Act (2022)

CAP23
80% RES-E

SEM committee

SEM Consultations and Decisions

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SOEF Advisory Council

Our “Ask” for SOEF Advisory Council Members

The “Ask”

Today we are asking for your advice and counsel on how we are going to deliver these programmes at speed.

How we can achieve a delivery pace at which we can meet our shared vision and energy transition targets.

Please offer us your ideas, advice, and counsel.

We will continue to operate in a transparent manner and work diligently to deliver upon the SOEF vision.

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18/01/2023

Northern Ireland Energy Policy Update

Alan Campbell

MD SONI

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SOEF Advisory Council

Northern Ireland Policy Update

Updated Targets

- Updated RES-E requirement in Northern Ireland
  - Climate Change Act (NI) set a target of 80% RES-E by 2030.
  - Increase from 70% target in Energy Strategy

More Renewables

- New locations and quantities of renewable generation.
- Consideration of offshore before 2030 in NI.
- Likely need for substantial increase in flexibility technologies.

New and Upgraded Technology

- Updated quantities of low carbon technologies such as EV and HP
- Network Reinforcements – close working with NIE Networks

Climate Change Act (2022)

GREEN GROWTH

Today we act. Tomorrow we thrive.

Northern Ireland Executive

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An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

Climate Action Plan 2023

Shaping Our Electricity Future Advisory Council

Philip Newsome
Renewable Electricity Division, DECC

Climate Action Overview

- **National Climate Policy Position**
  National objective of achieving a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050.

- **Climate Action and Low Carbon Development (Amendment) Act** sets the national target to reduce emissions by 51% by 2030.

- **Sectoral Emissions Ceilings and Carbon Budgets**
  Sets legally binding sectoral ceilings and carbon budgets per sector.

- **Climate Action Plans**
  Annually updated Plan to align with carbon budgets.

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Ireland's Carbon Budgets and Sectoral Emissions Ceilings

➢ **Overall Carbon Budgets**

- 2021-2025: 295 Mt CO2 eq.
- 2026-2030: 200 Mt CO2 eq.
- 2031-2035: 151 Mt CO2 eq.

- **Electricity Carbon Budgets and Ceilings**

- Carbon Budget 1: **40 MtCO2eq.**
- Carbon Budget 2: **20 MtCO2eq.**
- Emissions Abatement (on 2018): **-75%**

Sector	Reduction	2018 *	2030 ceiling *
Electricity	75%	10.5 MtCO2eq	3 MtCO2eq
Transport	50%	12 MtCO2eq	6 MtCO2eq
Buildings (Commercial and Public)	45%	2 MtCO2eq	1 MtCO2eq
Buildings (Residential)	40%	7 MtCO2eq	4 MtCO2eq
Industry	35%	7 MtCO2eq	4 MtCO2eq
Agriculture	25%	23 MtCO2eq	17.25 MtCO2eq
Other**	50%	2 MtCO2eq	1 MtCO2eq

Key Targets for Electricity – Renewables, Flexibility and Demand

Key Metric	2025 KPI	2025 Abatement (vs 2018) $MtCO_2$ eq.	2030 KPI	2030 Abatement (vs 2018) $MtCO_2$ eq.
Share of Renewable Electricity	50%	1.3	80%	8.7
Onshore Wind Capacity	6GW		9GW	
Offshore Wind Capacity	-		At least 5GW	
Solar PV Capacity	Up to 5GW		8GW	
System Flexibility	SNSP 85% Dispatch down below 7% Storage (4 hour+ in place)		SNSP 95-100% Dispatch down below 7% Required storage (4 hour+ in place)	
New Flexible Gas Plant	-		At least 2 GW	
Demand Side Flexibility	15 – 20%		20 – 30%	

*The scale of the challenge to meet the carbon budget programme is immense and requires policies to be moved from an '**end of decade' target trajectory** to a '**remaining carbon budget' target.***

Measures and Action to meet Targets – Accelerate Renewables

- Accelerate the delivery of onshore wind, offshore wind, and solar through a competitive framework to reach 80% of electricity demand from renewable energy by 2030.

- Target 6 GW of onshore wind and up to 5GW of solar by 2025.

- Target 9 GW onshore wind, 8 GW solar, and at least 5 GW of offshore wind by 2030 (and an additional 2 GW offshore wind for green hydrogen production).

- Complete a revised version of Shaping our Electricity Future.

- Deliver a streamlined electricity generation grid connection policy and process and remove barriers for installation of renewables and flexible technologies without the need to build new grid, including hybrid (wind/solar/storage) connections and private wires.

Measures and Action to meet Targets – Accelerate Renewables

- Align the relevant constituent elements of the planning and permitting system to support accelerated renewable energy development.

- In line with the emerging EU frameworks, ensure that renewable energy generation projects, and associated infrastructure, will be considered to be in the overriding public interest.

- All relevant public bodies to carry out their functions to support the achievement of the 80% renewable electricity target.

- Support at least 500 MW of local community-based renewable energy projects and increased levels of new micro-generation and small-scale generation.

Measures and Action to meet Targets – Deliver and Accelerate a Flexible System to Support Renewables

- Deliver in the order of 2 GW of new flexible gas-fired power generation.
- Phase out and end the use of coal and peat in electricity generation.
- System operators to transform the flexibility of the electricity system through changes to policies, standards, services, and tools, funded and incentivised through regulatory price controls.
- As an urgent priority, establish the investment framework and competitive market arrangements needed to deliver zero carbon system services.
- Delivery of at least three new transmission grid connections or interconnectors.
- Explore further interconnection potential, including hybrid interconnectors.

Measures and Action to meet Targets – Manage Electricity Demand Growth

- Ensure that 15-20% of electricity system demand is flexible by 2025, increasing to 20-30% by 2030, to reduce peak demand and move to times of high renewable output.

- Deliver a demand side strategy that facilitates zero carbon demand, incentivises low carbon electricity consumption and aligns with the EU energy efficiency requirements, while facilitating electrification targets.

Key Actions in 2023 to deliver on Carbon Budgets

- Establish an Accelerating Renewable Electricity Taskforce
- Publish the Renewable Electricity Spatial Policy Framework
- Update to Shaping our Electricity Future
- Grid Connection Policy; hybrid connections, private wires
- Onshore and offshore RESS auctions
- System-wide plan for the delivery of ORE in Ireland
- Small Scale Generation Scheme
- System Services Future Arrangements
- Policy framework for electricity storage
- Net Zero Roadmap

An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

Thank You

Any Further Questions?

18/01/2023

Shaping Our Electricity Future Version 1.1

Robbie Aherne

Head of Future Networks

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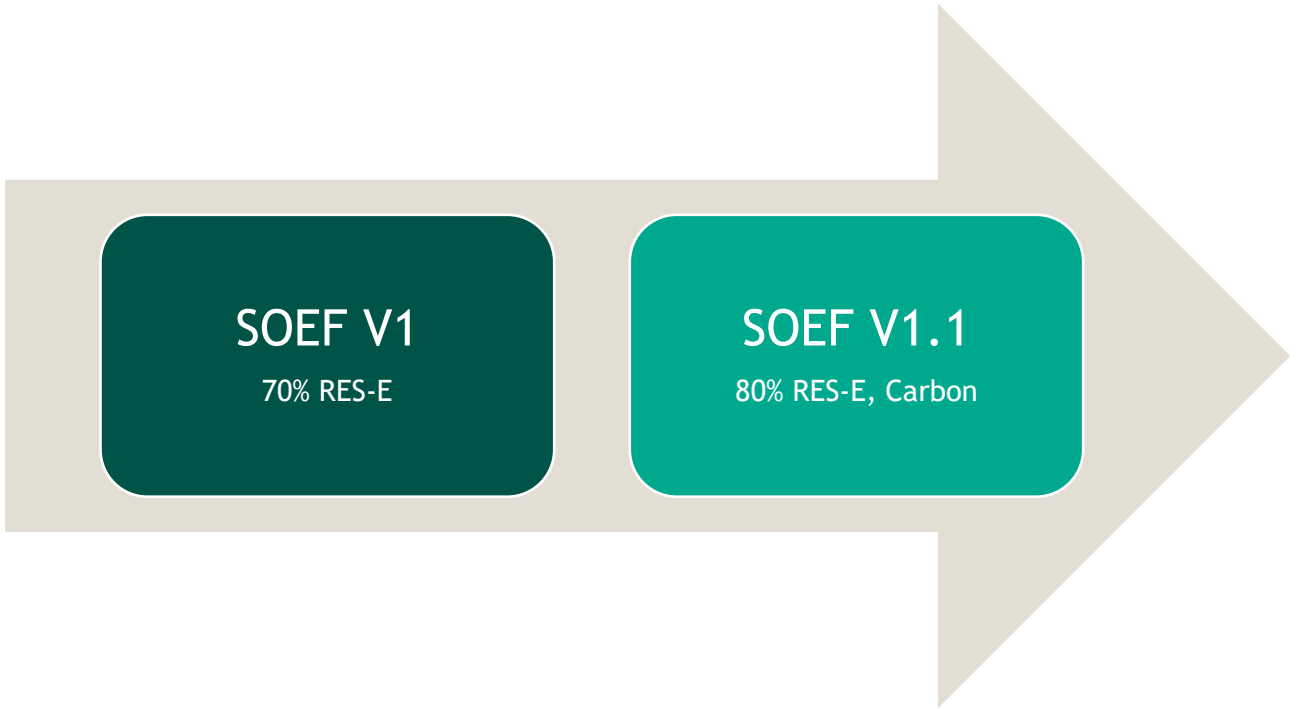
Shaping Our Electricity Future V1.1 – Why?



- Taking account of latest policy position in Ireland and Northern Ireland (RES-E, emissions etc.)
- Not a root and branch review – V1.1 building on V1.0

Evolving Policy Landscape

European Policy Developments:

- 2030 Climate & Energy Framework
- Fit for 55 package
- State of the Energy Union Reports, 2021

United Kingdom Developments:

- Climate Change Act, 2019 – net zero emissions by 2050
- Brexit, 2021

Ireland Policy Developments:

- Climate Action & Low Carbon Development (Amendment) Act, 2021
- Climate Action Plan, 2021
- Security of Electricity Supply Policy Statement, 2021
- Sectoral Emissions Ceilings, July 2022
- Climate Action Plan 2023, December 2022

Northern Ireland Policy Developments:

- Path to Net Zero Energy, 2021
- Action Plan, 2022
- Climate Change Act, 2022

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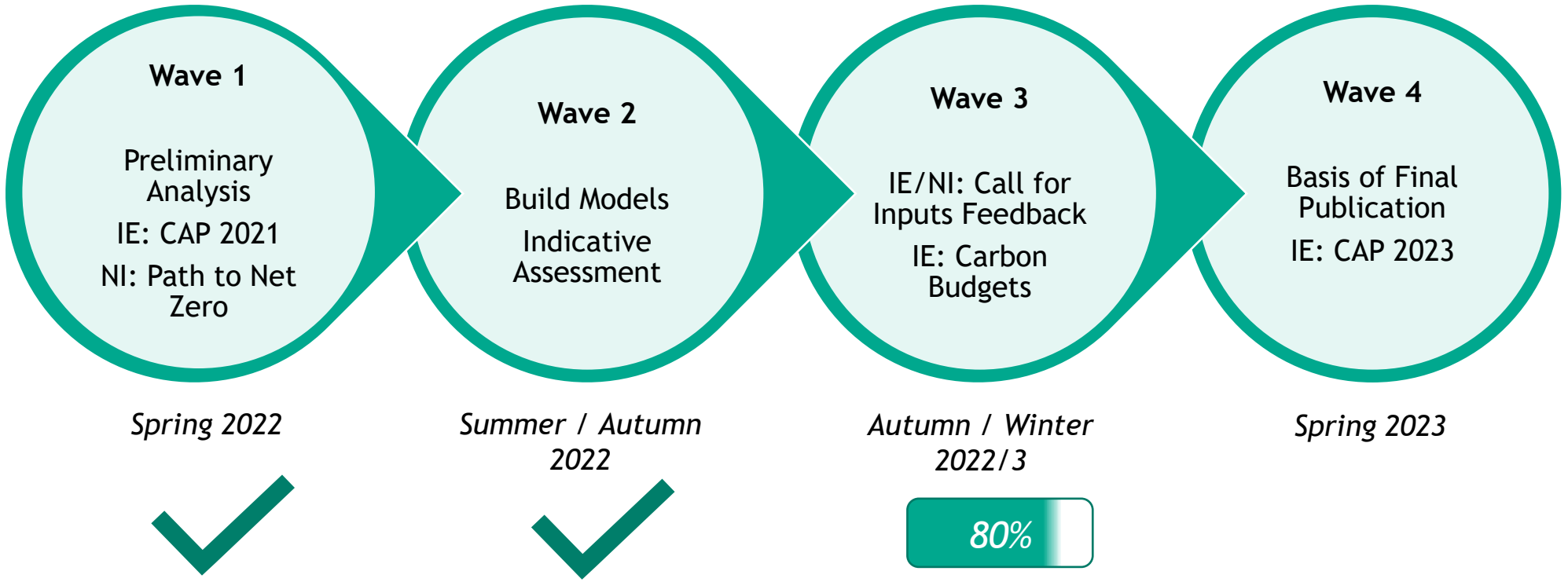
Networks Analysis – Iterative Approach

Vision of 2030 power system, deep transmission network reinforcements



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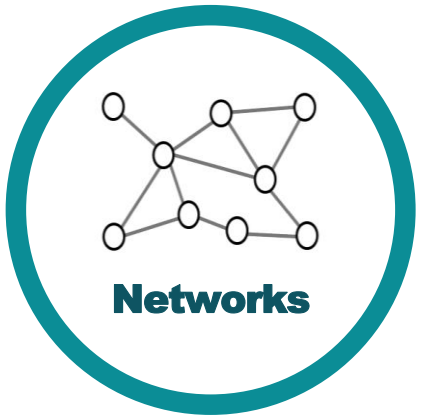
SOEF V1.1 – What?

Integrated Roadmap



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SOEF V1.1 – What?

SOEF V1 (Vision of our 2030 power system)
+
Discrete set of sensitivity studies
+
Multi Year Plans / Recommendations

Targeting launch by end Q2 2023

Considering publishing discrete elements in advance

Coffee Break

18/01/2023

Operations Update

Eoin Kennedy

Head of Future Operations

Simon Tweed

Future Operations

EirGrid GROUP

System Operations - Multi-Year Plans

Operational Policy

Includes:
- Operational policy roadmap to 2030
- Studies & analysis
- Reduction in min gen
- SNSP 75%→85%→95%
- Probabilistic operations
- New interconnector operational protocols

Standards & Services

Includes:
- Procurement of low carbon inertia services
- Future Arrangements for System Services
- Grid Code evolution
- Enhanced performance monitoring

Operational Tools

Includes:
- Control Centre of the Future planning
- Enhanced scheduling & dispatch
- Integration of new grid technologies
- Interconnector integration
- European integration

Technology Enablement

Includes:
- Demand Side strategy
- Residential demand response trial
- Treatment of hybrid connections
- Code modifications
- Qualification Trial Process (QTP)
- I&R strategy

TSO-DSO Partnership

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DS3 Close-out

RoCoF

- RoCoF +/- 1 Hz/s trial is expected to continue until the end of March.
- Trial analysis is ongoing ahead of expected close out of the trial and confirmation of operational policy of +/- 1 Hz/s.

Nodal Controller

- Ireland – Pilot is now complete and SOs considering next steps.
- Northern Ireland – Current solution will no longer be progressed due to ongoing technical issues. Next steps are under consideration by SONI and NIE Networks.

Control Centre Tools

- Look-ahead Security Assessment tool operational.
- Ramping Margin tool operational.
- Voltage Trajectory tool deployed to production environment in Q4 2022. Operational go-live expected in Q2 2023.

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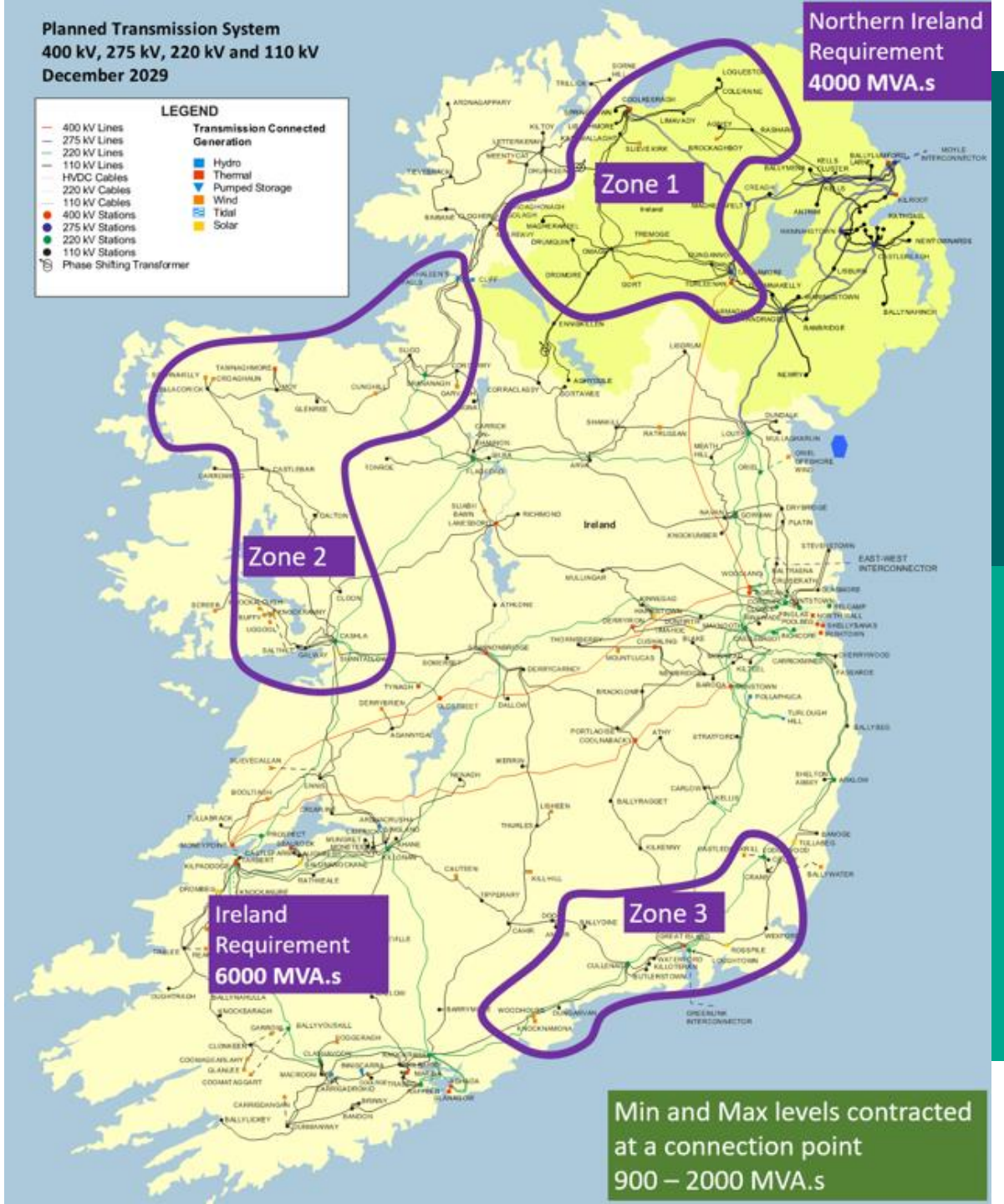
Low Carbon Inertia Services (LCIS)

The SEMC decision paper (here) was published on 11 January 2023.

The SEMC decision broadly accepted the TSOs' recommendations (here) with some additional requests for the next consultation, (e.g. a bid cap needs to be defined).

Next steps:

- LCIS Contractual Arrangements consultation planned to start in February 2023.
- Targeting commencement of procurement process in July 2023 with award of contracts by December 2023

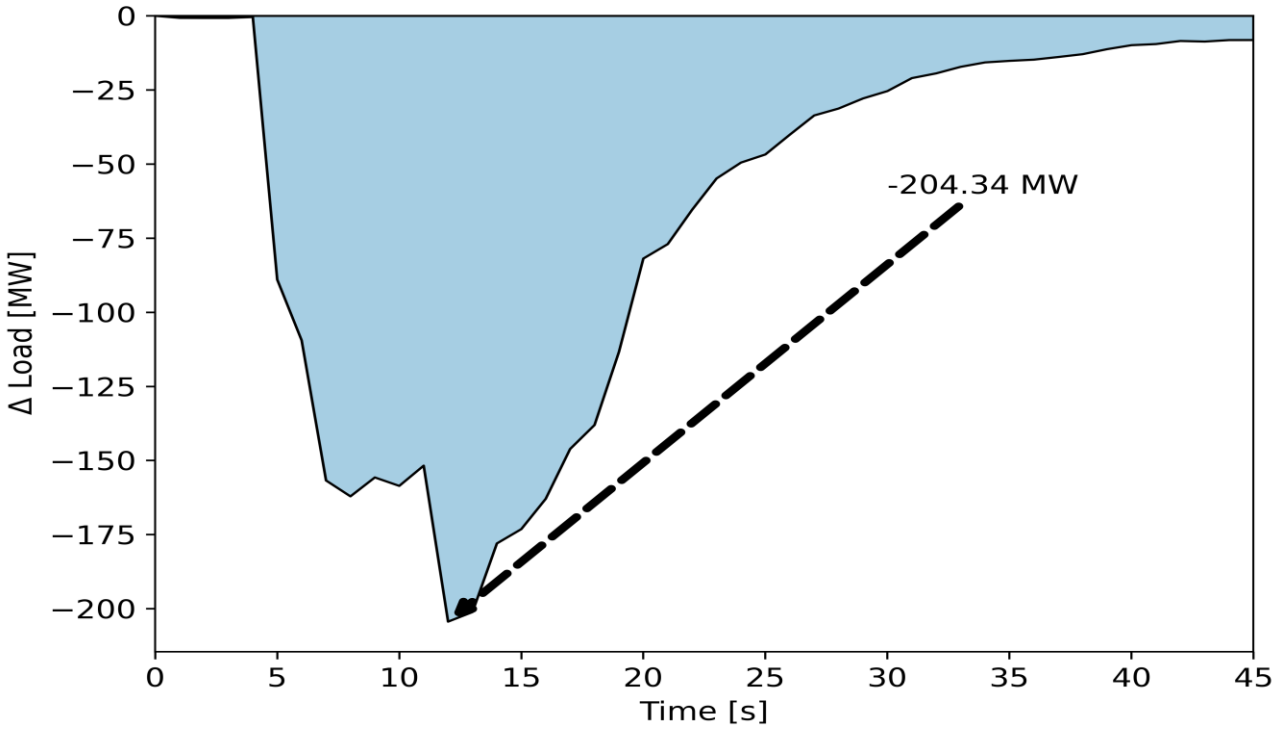


Protection Settings of Our Largest Demand Customers

- Relevant EirGrid and ESBN demand customers received letters requesting details of their protection settings in Q4 2022.
- Following a review of responses we will assess the necessity for potential protection setting updates in the short term to reduce the risk to power system security.
- In parallel we are also progressing consideration of the development of standard that should apply to the capability of demand customers to ‘ride through’ system faults.

On 13 December 2022, a 220 kV fault in Dublin triggered 204 MW of ‘large’ customer demand reduction.

This is not desirable from a system security perspective.



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Hybrids

EirGrid and ESBN submitted a proposed contractual approach to CRU for facilitating Multiple Legal Entities (MLE) in June 2022.

System Operators in Ireland and Northern Ireland have completed an All-Island review of the 120% Over-Install Policy.

- EirGrid-ESBN recommendations paper submitted to CRU in October 2022.
- SONI-NIE Networks recommendations paper currently being finalised.

EirGrid and ESBN completed a technical assessment for facilitating sharing of Maximum Export Capacity (MEC) behind a single connection point and submitted a joint paper to CRU in January 2023.

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Operational Policy Roadmap 2023-2030

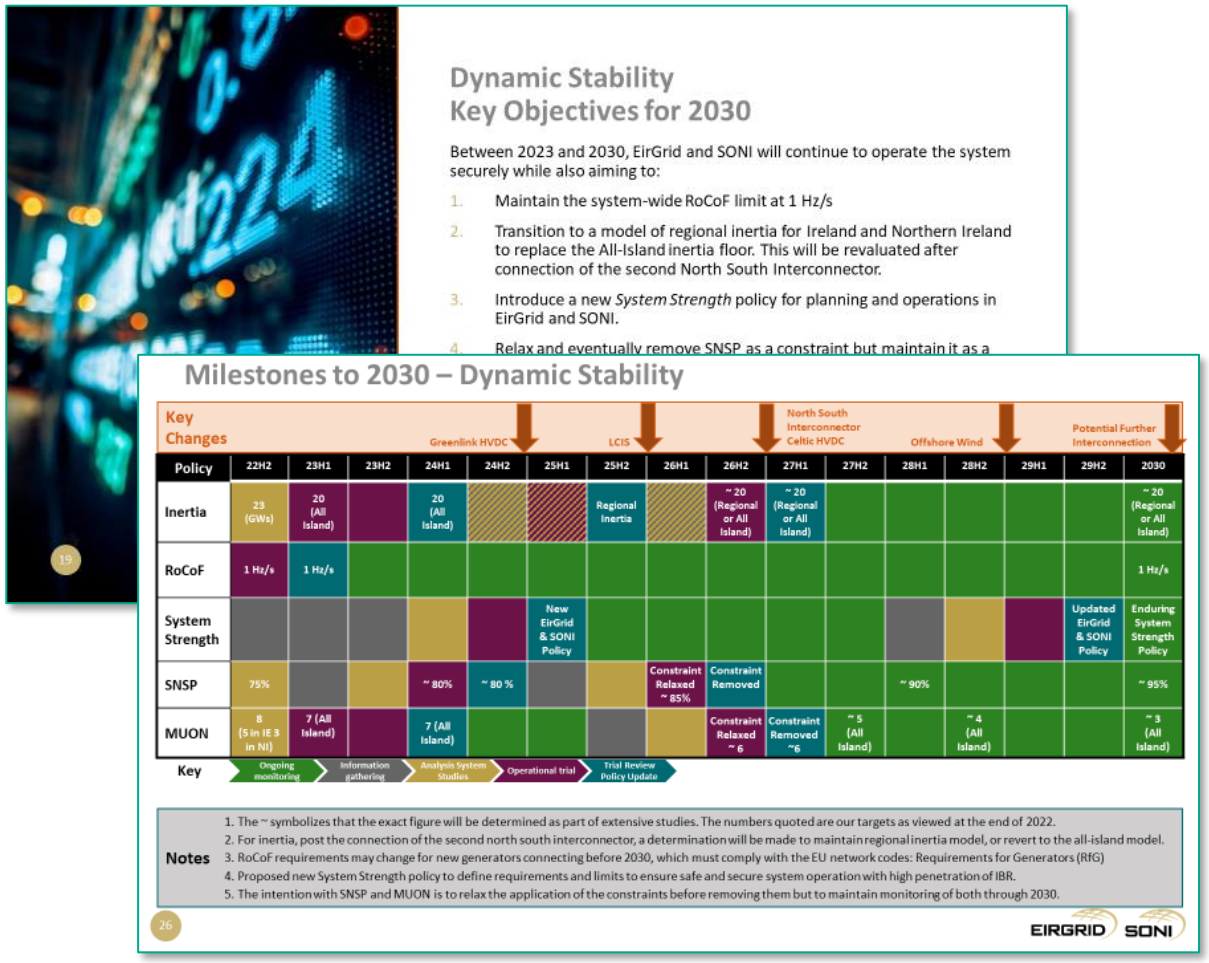
Operational Policy Roadmap to 2030 published in December 2022.

- EirGrid website (here)
- SONI website (here)

For each main operational policy area:

1. Dynamic Stability
2. Reserves and Ramping
3. Operational Security

We set out **key objectives** and a **milestone plan.**



Dynamic Stability
Key Objectives for 2030

Between 2023 and 2030, EirGrid and SONI will continue to operate the system securely while also aiming to:

1. Maintain the system-wide RoCoF limit at 1 Hz/s
2. Transition to a model of regional inertia for Ireland and Northern Ireland to replace the All-Island inertia floor. This will be revaluated after connection of the second North South Interconnector.
3. Introduce a new *System Strength* policy for planning and operations in EirGrid and SONI.
4. Relax and eventually remove SNSP as a constraint but maintain it as a

Milestones to 2030 – Dynamic Stability

Key Changes				Greenlink HVDC			LCIS			North South Interconnector Celtic HVDC			Offshore Wind			Potential Further Interconnection	
Policy	22H2	23H1	23H2	24H1	24H2	25H1	25H2	26H1	26H2	27H1	27H2	28H1	28H2	29H1	29H2	2030
Inertia	23 (GWs)	20 (All Island)		20 (All Island)			Regional Inertia		~ 20 (Regional or All Island)	~ 20 (Regional or All Island)						~ 20 (Regional or All Island)
RoCoF	1 Hz/s	1 Hz/s														1 Hz/s
System Strength						New EirGrid & SONI Policy									Updated EirGrid & SONI Policy	Enduring System Strength Policy
SNSP	75%			~ 80%	~ 80 %			Constraint Relaxed ~ 85%	Constraint Removed			~ 90%				~ 95%
MUON	8 (5 in IE 3 in NI)	7 (All Island)		7 (All Island)					Constraint Relaxed ~ 6	Constraint Removed ~6	~ 5 (All Island)		~ 4 (All Island)			~ 3 (All Island)

Key: Ongoing monitoring → Information gathering → Analysis System Studies → Operational trial → Trial Review Policy Update

Notes
1. The ~ symbolizes that the exact figure will be determined as part of extensive studies. The numbers quoted are our targets as viewed at the end of 2022.
2. For inertia, post the connection of the second north south interconnector, a determination will be made to maintain regional inertia model, or revert to the all-island model.
3. RoCoF requirements may change for new generators connecting before 2030, which must comply with the EU network codes: Requirements for Generators (RfG)
4. Proposed new System Strength policy to define requirements and limits to ensure safe and secure system operation with high penetration of IBR.
5. The intention with SNSP and MUON is to relax the application of the constraints before removing them but to maintain monitoring of both through 2030.

EIRGRID SONI

Other Items (1)

- Control Centre of the Future delivery plan
  - Currently being finalised with a focus on the priority capabilities - delivery Q1 2023.

- TSO Demand Side Strategy
  - Briefings provided to ESBN / NIE Networks / DRAI / FERA and aiming to finalise in Q1 2023.

- Qualification Trial Process
  - New process approved by CRU / UR in December 2022.

- System Services technical requirements and volumes
  - Plan under development as part of wider Future Arrangements for System Services project.

- Interconnector integration
  - Greenlink: Ongoing planning and discussion on operating protocol and arrangements.
  - Celtic: Joint Operating Agreement (JOA) is complete with programme initiation underway between stakeholders.

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Other Items (2)

- Reduction of operational constraints – Min sets & Inertia Floor
  - Studies expected to complete in Q1 2023. Targeting commencement of 7 Sets trial in Q2 2023.

- Grid Code
  - RoCoF-related changes to Grid Code – Mods will be sent to RAs in Q1 2023 following relevant engagement with GCRP members.
  - Battery Implementation Note mods presented to both (SONI/EirGrid) GCRPs in November 2022. Currently engaging with GCRP members.
  - Synchronous Condenser Grid Code Implementation Note version 1 published in October 2022. Version 2 will follow in 2023, taking account of stakeholder feedback.

- TSO-DSO Programmes
  - Significant engagement on future TSO-DSO operating model ongoing in both jurisdictions.
  - Following CRU feedback, ESBN-EirGrid consultation on 2023-27 Multi-Year Plan will be published shortly.

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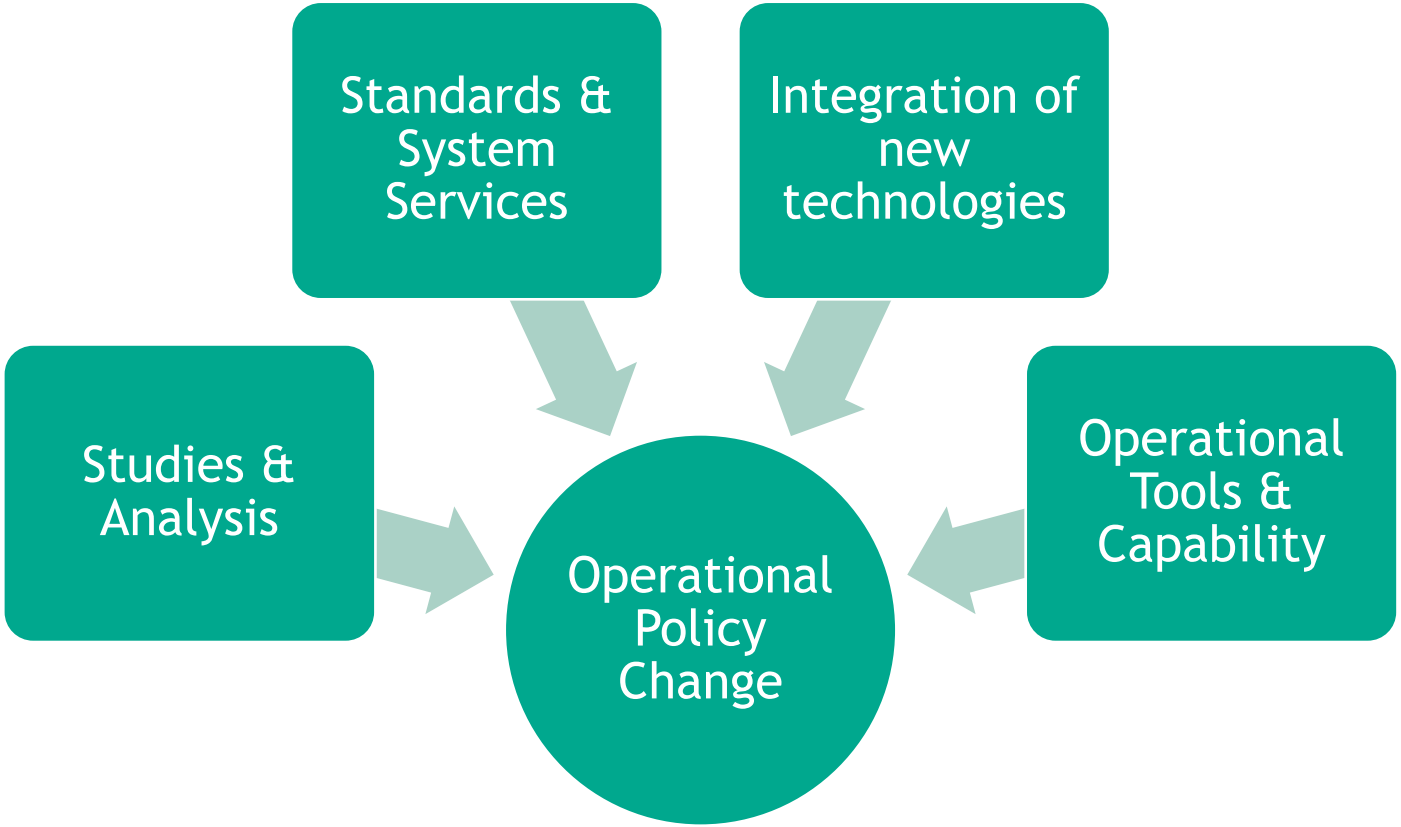
Evolving Operational Policy



Ultimate aim of the System Operations work programme is to evolve operational policy while maintaining security of supply → holistic approach required.

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Checkpoint - Where are we at?

- During a period with challenging system conditions, through the Shaping Our Electricity Future programme, we have transitioned to operating at:

  ✓ 75% SNSP

  ✓ 1 Hz/s RoCoF

- We have also laid the foundations for further significant operational policy changes.

  → However, not everything has gone as planned.

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Looking forward

- Operational Policy Roadmap sets out a clear path forward.
- We are working closely with counterparts in other leading TSOs (e.g. AEMO, National Grid) as part of the Global Power System Transformation initiative to share knowledge and learnings.
- We recognise an uplift in capability will be required (e.g. modelling capability, Control Centre of the Future).
- There are overarching dependencies and risks.
- However, we are pushing boundaries and will continue to do so.

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Operational Policy Roadmap

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Key Messages

- The focus of the Operational Policy Roadmap 2023-2030 is the operational policy development required to securely operate the power system with high levels of non-synchronous renewable generation.

Published on SONI Website: here
Published on EirGrid Website: here

- We plan to introduce new operational constraints, such as 'System Strength' and 'Regional Inertia', to better capture the changing operational paradigm of the power system. This will allow us to relax, and eventually remove other operational constraints, such as SNSP and MUON*, while maintaining them as reportable operational metrics.

- The targeted policy changes are ambitious. We will require enhanced power system and operational capability to deliver these changes.

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* MUON: Minimum number of conventional Units constrained ON

Operational Policy Framework – Definitions and Requirements

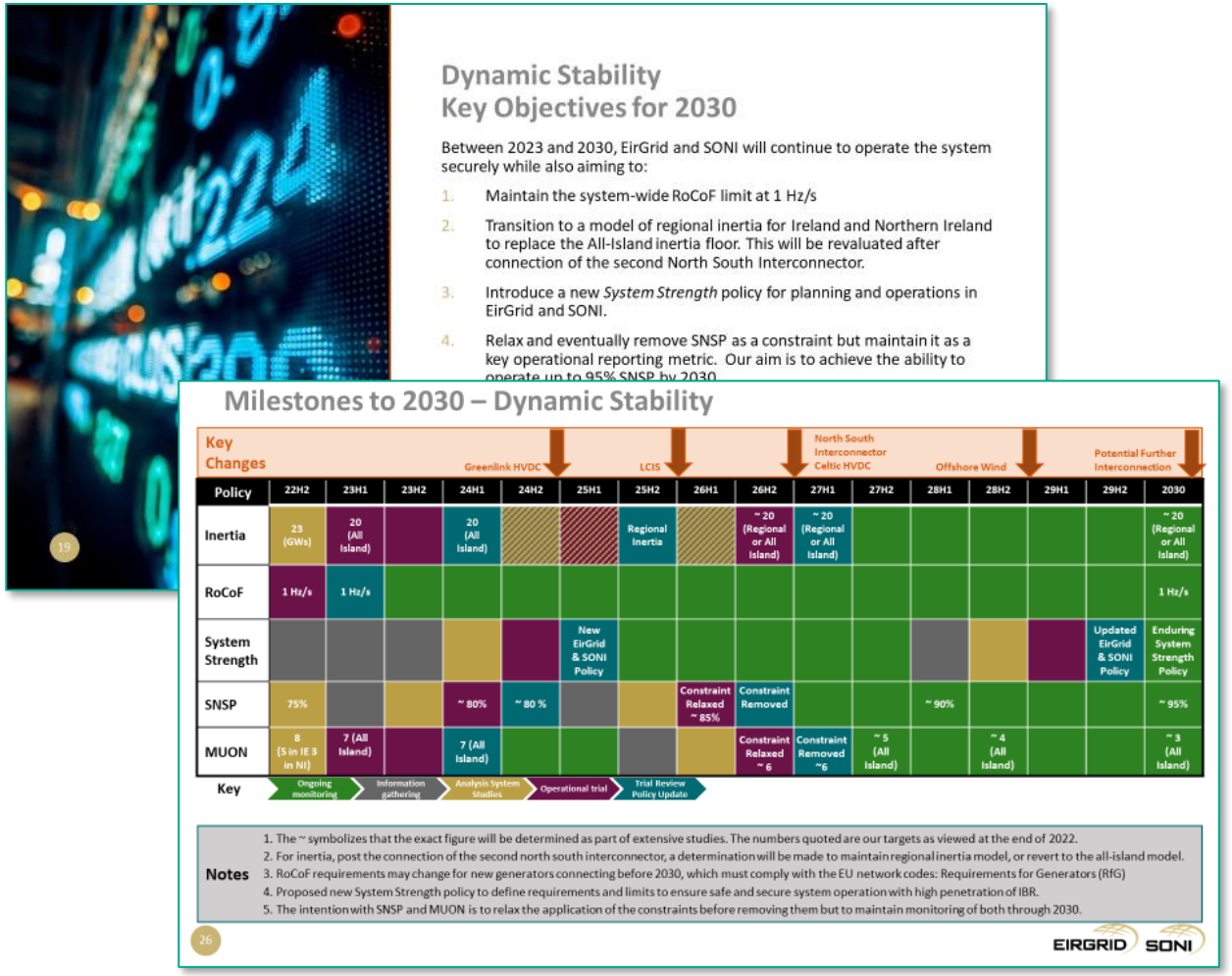
Policy Area	Operational Policy & Constraints	Definition	2022 Status
Dynamic Stability	Inertia	The minimum level of kinetic energy stored in rotating plant operating on the system. Inertia comes from synchronous generation, motor load and synchronous condensers.	23 GWs
	Rate of Change of Frequency	How fast the frequency moves when subjected to an event that results in a mismatch between generation and demand.	1 Hz/s (under operational trial)
	System Strength	Definition of the relative strength of the system in terms of short circuit strength, stability, retained voltage and others.	N/A
	Minimum Number of Conventional Units	Constraint on the system that specifies a minimum number of conventional thermal units required to be synchronised in Ireland and Northern Ireland.	8 (3 NI /5 IE)
	System Non-Synchronous Penetration	A measure of the non-synchronous generation on the system at an instant in time. It is the ratio of the real-time MW contribution from non-synchronous generation and net HVDC imports to demand and net HVDC exports.	75 %
Reserves and Ramping	Fast Frequency Response	Response by resources and service providers in the 2 to 10 second range.	TBD
	Regulating Reserve	Response by dynamic or spinning resources, usually conventional generation.	Minimum 75 IE / 50 NI MW
	Primary Operating Reserve	Response by resources and service providers in the 5 to 15 second range.	75% LSI
	Secondary Operating Reserve	Response by resources and service providers in the 15 to 90 second range.	75% LSI
	Tertiary Operating Reserve 1&2	Response by resources and service providers in the 90 second to 20-minute range in two tranches.	100% LSI
	Replacement Reserve	Response by resource and service providers in the 20 minute to 4-hour range.	100% LSI
	Ramping Margin	The level of dispatchable generation/demand available to mitigate very fast ramps and demand and RES forecast errors. There are 1, 3 & 8 hour ramping services.	Explicitly Scheduled
	Interconnector Ramping Rate	The rate of change of HVDC interconnector active power flow. This is an All-Island measure which includes the ramp rates for Moyle in NI and EWIC in IE.	10 MW/min across All-Island
Operational Security	Voltage Management	The ability to securely operate the system by controlling the voltage, within a specified range, pre and post contingency.	Operating Security Standards
	Thermal Security Management	The ability to securely operate the system by controlling the pre and post contingency thermal loading within the ratings of the transmission system plant.	Operating Security Standards
	Short Circuit Management	Assessment of equipment duty performed to ensure all plant is within its making, breaking and withstand ratings for the prospective short circuit current calculated.	Operating Security Standards

Structure

For each main operational policy area:

1. Dynamic Stability
2. Reserves and Ramping and
3. Operational Security

We set out **key objectives** and a **milestone plan.**



Dynamic Stability
Key Objectives for 2030

Between 2023 and 2030, EirGrid and SONI will continue to operate the system securely while also aiming to:

1. Maintain the system-wide RoCoF limit at 1 Hz/s
2. Transition to a model of regional inertia for Ireland and Northern Ireland to replace the All-Island inertia floor. This will be revaluated after connection of the second North South Interconnector.
3. Introduce a new *System Strength* policy for planning and operations in EirGrid and SONI.
4. Relax and eventually remove SNSP as a constraint but maintain it as a key operational reporting metric. Our aim is to achieve the ability to operate up to 95% SNSP by 2030.

Milestones to 2030 – Dynamic Stability

Key Changes					Greenlink HVDC		LCIS		North South Interconnector Celtic HVDC			Offshore Wind			Potential Further Interconnection	
Policy	22H2	23H1	23H2	24H1	24H2	25H1	25H2	26H1	26H2	27H1	27H2	28H1	28H2	29H1	29H2	2030
Inertia	23 (GWs)	20 (All Island)		20 (All Island)			Regional Inertia		~ 20 (Regional or All Island)	~ 20 (Regional or All Island)						~ 20 (Regional or All Island)
RoCoF	1 Hz/s	1 Hz/s														1 Hz/s
System Strength						New EirGrid & SONI Policy									Updated EirGrid & SONI Policy	Enduring System Strength Policy
SNSP	75%			~ 80%	~ 80 %			Constraint Relaxed ~ 85%	Constraint Removed			~ 90%				~ 95%
MUON	8 (5 in IE 3 in NI)	7 (All Island)		7 (All Island)					Constraint Relaxed ~ 6	Constraint Removed ~6	~ 5 (All Island)		~ 4 (All Island)			~ 3 (All Island)
Key	Ongoing monitoring	Information gathering	Analysis System Studies	Operational trial	Trial Review Policy Update											

Notes
1. The ~ symbolizes that the exact figure will be determined as part of extensive studies. The numbers quoted are our targets as viewed at the end of 2022.
2. For inertia, post the connection of the second north south interconnector, a determination will be made to maintain regional inertia model, or revert to the all-island model.
3. RoCoF requirements may change for new generators connecting before 2030, which must comply with the EU network codes: Requirements for Generators (RfG)
4. Proposed new System Strength policy to define requirements and limits to ensure safe and secure system operation with high penetration of IBR.
5. The intention with SNSP and MUON is to relax the application of the constraints before removing them but to maintain monitoring of both through 2030.

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EIRGRID SONI

Operational Policy Roadmap

Dynamic Stability

Dynamic Stability
Key Objectives for 2030

Between 2023 and 2030, EirGrid and SONI will continue to operate the system securely while also aiming to:

1. Maintain the system-wide RoCoF limit at 1 Hz/s.
2. Transition to a model of regional inertia for Ireland and Northern Ireland to replace the All-Island inertia floor. This will be revaluated after connection of the second North South Interconnector.
3. Introduce a new System Strength policy for planning and operations in EirGrid and SONI.
4. Relax and eventually remove SNSP as a constraint but maintain it as a key operational reporting metric. Our aim is to achieve the ability to operate up to 95% SNSP by 2030.
5. Relax and eventually remove the minimum conventional unit constraint while ensuring any local constraints are satisfied and linked to specific system scarcities. The aim is to achieve secure system operation with three or less conventional units by 2030

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Milestones to 2030 – Dynamic Stability

Key Changes

- Greenlink HVDC
- LCIS
- North South Interconnector
- Celtic HVDC
- Offshore Wind
- Potential Further Interconnection

Policy	22H2	23H1	23H2	24H1	24H2	25H1	25H2	26H1	26H2	27H1	27H2	28H1	28H2	29H1	29H2	2030
Inertia	23 GWs	20 GWs (All Island)		20 GWs (All Island)			Regional Inertia		~ 20 GWs (Regional or All Island)	~ 20 GWs (Regional or All Island)						~ 20 GWs (Regional or All Island)
RoCoF	1 Hz/s	1 Hz/s														1 Hz/s
System Strength						New EirGrid & SONI Policy									Updated EirGrid & SONI Policy	Enduring System Strength Policy
SNSP	75%			~ 80%	~ 80 %			Constraint Relaxed ~ 85%	Constraint Removed			~ 90%				~ 95%
MUON	8 (5 in IE, 3 in NI)	7 (All Island)		7 (All Island)					Constraint Relaxed ~ 6	Constraint Removed ~6	~ 5 (All Island)		~ 4 (All Island)			~ 3 (All Island)

Key

Information gathering → Analysis System Studies → Operational trial → Trial Review Policy Update → Ongoing monitoring

Notes

1. The ~ symbolises that the exact figure will be determined as part of extensive studies. The numbers quoted are our targets as viewed at the end of 2022.
2. For inertia, post the connection of the second North-South Interconnector, a determination will be made to maintain a regional inertia model, or revert to the all-island model.
3. RoCoF requirements may change for new generators connecting before 2030, which must comply with the EU network codes: Requirements for Generators (RfG)
4. Proposed new System Strength policy to define requirements and limits to ensure safe and secure system operation with high penetration of IBR.
5. The intention with SNSP and MUON is to relax the application of the constraints before removing them but to maintain monitoring of both through 2030.

Operational Policy Roadmap

Reserves and Ramping

EirGrid GROUP

Reserves and Ramping
Key Policy Objectives for 2030

Between 2023 and 2030, EirGrid and SONI will continue to operate the system securely while also aiming to:

1. Consolidate on all reserve definitions and volumes, including upward and downward reserve, fast frequency response and regulating reserves.
2. Align with European network code requirements for reserves with 100% containment coverage for reference incidents.
3. Schedule and dispatch non-conventional resources such as IBR and BESS for reserve provision across all tranches.
4. Deploy new reserve auction framework and couple to European markets for reserve, post connection of the Celtic Interconnector.
5. Develop a ramping margin policy and publish ramping requirements.
6. Increase the All-Island interconnector ramping rates in stages in line with new HVDC interconnections and offshore wind.

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Milestones to 2030 - Reserves and Ramping

Key Changes

- Scheduling dispatch process outcome
- Greenlink HVDC
- Reserve Auction Platform
- North South Interconnector
- Celtic HVDC
- ACER Probabilistic Ops Methodology
- Offshore Wind
- Potential Further Interconnection

Policy	EU NC	IE/NI		22H2	23H1	23H2	24H1	24H2	25H1	25H2	26H1	26H2	27H1	27H2	28H1	28H2	29H1	29H2	2030
Reserves	FCR	FFR		TBD	Update Reserve Policy including Upward & Downward Reserve Undertake System Services Product Review and Develop System Services Volume Forecast Methodology		Study enhanced use of non-conventional generation and demand resources for reserve provision	Trial enhanced use of non-conventional generation and demand resources for reserve provision	TBD	TBD			Post Celtic European Market Coupling	New All-Island Reserve Policy					TBD
		POR SOR	Reg.	Min NI: 50 MW, IE:75 MW					Reserve Policy Update										TBD
			Op.	75% LSI					~100%	~100%									~100%
				75% LSI					~100%	~100%									~100%
	FRR	TOR1		100% LSI															~100%
		TOR2		100% LSI															~100%
	RR	RR		100% LSI															~100%
Ramping Margin				Monitoring at 80% Forecast Confidence		Ramping Margin Policy & Requirements Update							Updated Policy with Celtic Ramping Requirements						Based on Operational Scenarios
Interconnector Ramping Rate				10 MW / Min All-Island				Greenlink Revision ~ 15 MW / min				Celtic Revision				Large OSWFs & new HVDC			~ 40 MW per min All Island

Key

- Information gathering
- Analysis System Studies
- Operational trial
- Trial Review Policy Update
- Ongoing monitoring

Notes

1. The ~ symbolizes that the exact figure will be determined as part of extensive studies. The numbers quoted are based on best available information in 2022.
2. POR and SOR are split between operating and regulating reserves. In 2022 POR and SOR reserves are managed as single tranches, with a minimum regulating reserve from dynamic resources.
3. The volume of FFR to be carried into the future is under consideration and being studied in 2022/2023. Future volumes will be determined through studies.
4. The intention is to align upward and downward reserve policy by end of 2023 and through the decade the percentage of LSI/LSO can be updated according to studies and experience.
5. The ramping margin is determined by 80% confidence in the wind forecast. This will be reviewed as part of ongoing studies and may be updated post-connection of the Celtic Interconnector.
6. The intention is to increase the interconnector ramping rates on the island as new interconnectors are commissioned, but this will be dependent on the generation fleet and exact requirements will be determined through studies and trials.
7. The scheduling and dispatch process outcome and reserve auction platform dates are indicative, as of 2022.

Operational Policy Roadmap

Operational Security

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Operational Security
Key Policy Objectives for 2030

Between 2023 and 2030, EirGrid and SONI will continue to operate the system securely while also aiming to:

1. Assess the thermal and voltage transmission constraint groups (TCGs) that are active in 2022.
2. Develop a framework for more regular assessment and updating of thermal and voltage transmission constraints on the network.
3. Develop new policies for the management of network flexibility technologies such as power flow controllers, dynamic line rating and other FACTS devices in operations.
4. Develop offshore network operating security standards and update the onshore network operating security standards for EirGrid and SONI.
5. Develop a framework for managing operational security using risk-based approaches (probability and impact).

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Milestones to 2030 - Operational Security

Key Changes

- Network Flexibility Technologies
- Greenlink HVDC
- LCIS
- North South Interconnector
- Celtic HVDC
- ACER Risk. Ops Methodology
- Large Offshore Wind

Policy	22H2	23H1	23H2	24H1	24H2	25H1	25H2	26H1	26H2	27H1	27H2	28H1	28H2	29H1	29H2	2030
Thermal		Assess and Study TCGs	TSO / DSO Op Model Agreed	New Network Flexibility Technology Policy Annual Review Process & Update of TCGs		Weekly TCG Study Process & Updates	New TSO/DSO Operating Model in Operation	Day Ahead TCG Study Process and Update of Constraints	Risk Based Ops Policy	Risk Ops Policy GFM in GC New Offshore OSS Updated Onshore OSS						Stream-lined Constraints Process Enduring TSO/DSO Operating Model Enduring OSS
Voltage																
Short Circuit					New System Strength Trial	New System Strength Policy										

Key

- Information gathering
- Analysis System Studies
- Operational trial
- Trial Review Policy Update
- Ongoing monitoring

Notes

1. TCG: Transmission Constraint group: There are thermal, voltage and transient stability (system strength) TCGs which should be reviewed every year for applicability as part of a formal process.
2. OSS: Operating Security Standards. There is one OSS for EirGrid and one for SONI. By 2027 an offshore network OSS will be required to complement the onshore network OSS.
3. A new system strength policy will replace the existing short circuit screening methods by 2025. While a new system strength policy is developed the upper security limits on short circuit levels will still be captured as part of the OSS.
4. ACER is the association of Agency for the Cooperation of Energy Regulators in Europe who regulate the implementation of the EU network codes.
5. Modifications to the Grid Code for inverter-based resources with grid forming capability will likely be required during the second half of the decade.

System Level Overarching Dependencies and Risks

The Operational Policy Roadmap is an ambitious vision for how policy should evolve through the decade to support the decarbonisation targets. The system is currently challenged by resource adequacy issues causing security of supply concerns on the island. The medium- and long-term milestones and targets are tentative and will be dependent on an extensive series of studies, a review and monitoring process, and funding, development and timely deployment of alternative innovative solutions which will determine the future operational policy and constraints.

Security of Supply

Operational trials will be dependent on system and operational conditions.

Operational Capability

Operational capability must be uplifted to align with the new challenges and requirements introduced by the increased complexity of system operations. For example, enhanced operational forecasting, observability, monitoring and control capabilities will be required.

Operational Studies

Analysis will be the key factor to determining the precise constraint values and policy direction. The capability to perform advanced analysis (e.g. EMT simulations for IBR dominated networks) must be further developed and increased automation will be necessary to carry out relevant analyses more frequently to inform the system constraints.

To ensure high accuracy of the simulation studies, an important aspect is the capability to adequately model the performance of new and emergent technologies. Codes and standards must be updated to reflect the requirement for provision of representative models.

Network and System Services Development

Timely delivery and commissioning of system services providers, new flexible generation, the 2nd North-South Interconnector and other transmission reinforcements are required to assist with future challenges and meet the decarbonisation targets.

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Questions?

EirGrid GROUP

Lunch

EirGrid GROUP

18/01/2023

Markets

David Carroll

Head of Future Power Markets

Niamh Delaney

Manager, Future Arrangements for System Services, Future Power Markets

Dairine Frawley

Manager, Scheduling & Dispatch Programme, Future Power Markets

EirGrid GROUP

18/01/2023

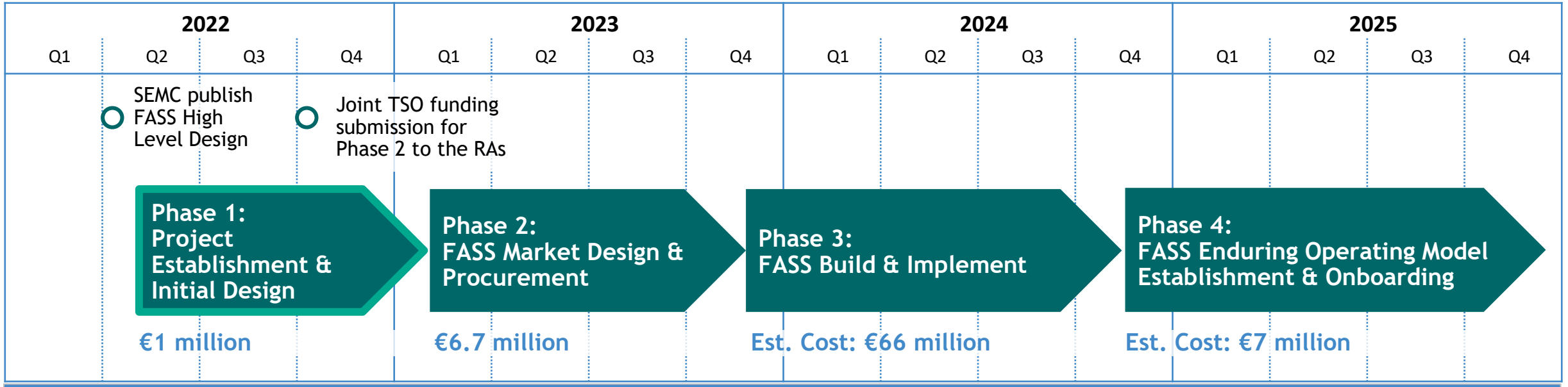
Future Arrangements of System Services (FASS)

David Carroll

EirGrid GROUP

FASS Programme - Overview

- SEM Committee published their High Level Design (SEM-22-012) in April 2022.
- The TSOs mobilised a dedicated team to progress this programme including a dedicated manager; internal TSO subject matter experts, programme management office (Accenture); market design consultants (DotEcon / AFRY).
- EirGrid and SONI developed a detailed programme plan for implementation of the HLD for the RAs, which indicated a best case scenario go-live of October 2025.
- EirGrid and SONI are following a phased approach to the programme as shown below



* Please note, estimated costs for phase 3 and 4 are based on a rough order of magnitude and will be updated in phase 2

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FASS Programme - Update

What is planned for this quarter?

- Industry bilateral meetings scheduled throughout January
- Drafting recommendations paper for design of daily auction consolidating work done to date/industry feedback

Any electricity industry stakeholders interested in engaging with EirGrid in a bilateral meeting on the FASS Detailed Design, please reach out to Niamh Delaney (niamh.delaney@eirgrid.com).

What are the blockers?

- Detailed design has been an RA led initiative, and has not progressed to the degree that enables further phases of the programme to commence.
- Lack of clarity over what the transition from the current to the future arrangements will be.
- Governance not yet established by RAs. TSOs proposed ToR in July 2022.
- Funding for continuation of work on FASS has not yet been approved and there is a lack of future direction for the programme.

In the absence of the above decisions, the FASS Programme will be stopped at end of January 2023.

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Next Steps

- FASS is a crucial programme to provide investment signals to ensure that we have adequate services to operate the future power system with high levels of non-synchronous generation. It is also vital to ensure that we meet government targets around decarbonisation

- As it stands, the TSOs have insufficient clarity on the future requirements for this programme and adequate funding is not in place to progress it

- Step 1: The TSOs will continue to work on the detailed design/industry bilaterals until the end of January
- Step 2: We are regrettably standing down our team at the end of January until clarity is provided on the governance and funding

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18/01/2023

Scheduling & Dispatch

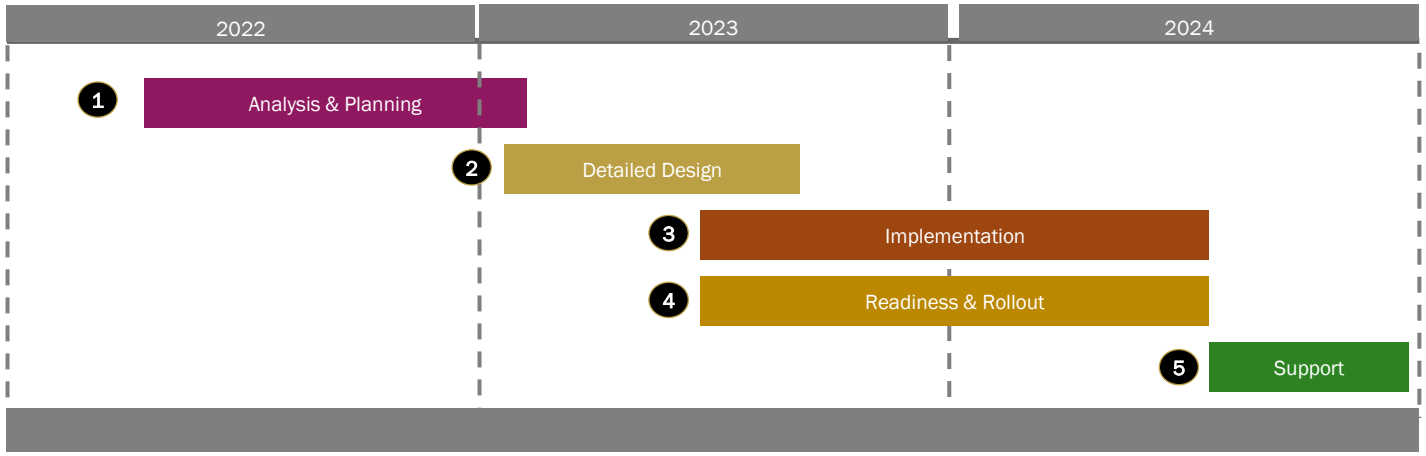
Dairine Frawley

EirGrid GROUP

Scheduling and Dispatch Programme

Scope of SDP

1. Operation of non-priority dispatch of renewables
2. Energy Storage Power Station (ESPS) integration
3. Fast Frequency Response (FFR)
4. Wind dispatchability improvements
5. Reserve services scheduling and dispatch
6. Synchronous condenser scheduling and dispatch



- Phase 1 (Analysis & Planning) expected to complete early Feb ‘23
- Preparation of Joint RA funding submission for Phase 2 (Detailed Design) underway
  - Target date for submission to RAs: early Feb
- Re-assessment of programme delivery approach on-going
  - Staged release of initiatives under consideration
  - Aim is to adopt most efficient approach considering needs of TSOs, market participants & consumer
- Extensive Industry Engagement was carried out during Phase 1
  - Included bilateral meetings & Industry Workshop on 16th Nov ‘22
- Industry Engagement to continue throughout programme – aim is to communicate early and often
  - E.g. via bilateral outreach; industry workshops; ongoing user groups as part of broader SOEF (TBC)

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Public Engagement Update

Sinead Dooley

Head of Public Engagement

Energy Citizens Roadshows

EirGrid GROUP

Energy Citizens Roadshow 2023

Numbers

- 13 roadshows in 2022
- 7 event partners
- 25 exhibition partners
- 1,000+ Participants

Feedback

- Huge interest in microgeneration and community ownership.
- Call for more Government incentives.
- New infrastructure = Regional opportunities = Offshore, Economic, Social
- No obvious opposition to infrastructure.
- Participants appreciated a ‘One-stop-shop’ on Energy

Next steps

- 10 Roadshows planned in 2023
- Continue enhancing partnership with ESB and SEAI.
- Leverage insights for continuous improvement.

EirGrid GROUP ESB NETWORKS seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

EirGrid

Partnered with:

County Kildare Chamber

ESB NETWORKS

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Energy Citizens Roadshow, Kildare

Wednesday, 01 February, 2023
Osprey Hotel, Naas, 6:30pm - 8:30pm

Thursday, 02 February, 2023
Glenroyal Hotel, Maynooth, 6:30pm - 8:30pm

EirGrid.ie/roadshows

Home Energy Grants and Upgrades

Microgeneration and Community Ownership

Regional and Social Development

Community Forum and Benefit

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Update

Rollout of Community Forums

Project	Step
Laois Kilkenny	6
Clashavoon Dunmanway	6
Celtic Interconnector	6
Kildare Meath	5
North Connacht	5
North Dublin East Meath	4
Powering Up Dublin	4

Rollout of Community Benefit

Project	Update
Laois Kilkenny	Phase 1 rolled out.
Clashavoon Dunmanway	Drawdown near completion.
Celtic Interconnector	Community Benefit strategy under development.
Kilpadogue Knockanure	Closed out.
North Connacht	Community fund administrator appointed.

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Powering Up Dublin Engagement Activity

EirGrid GROUP

Progress

- Approximately 4km of advance ducting approved for installation along Royal Canal as part of Greenway project
- 2.5 km of advance ducting approved for installation at Carrickmines works undertaken by DLRCC
- Receipt of all GIS data which has been fed into initial route analysis.
- Working groups established for Technical, Planning and Environment and Stakeholder Engagement workstreams.
- Positive and proactive engagement with multiple utilities on a 1:1 basis.
- Positive and proactive engagement with communities, business and elected representatives.

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Powering Up Dublin Community Forum

Attendees

- Residents Associations, Community Development Groups, Local Environmental Groups, Commuter Groups, Dublin City Councillors

Key themes

- Identification of commuter routes and impacts
- Proposed cycleways and collaboration
- Environmental impacts
- Engagement with local authorities
- Identification potential routes, such as the Dublin Eastern Bypass.

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Powering Up Dublin Business Forum

Attendees

- IBEC, Dublin Chamber, An Post, Lord Mayor
  Caroline Conroy, Dublin Town, Carrickmines Retail Park

Key themes

- The City Edge Development (major regeneration project)
- Need for collaboration with Finglas Luas and MetroLink
- Congested areas in engagement zones: Griffith Avenue, Sandymount Strand.
- Potential to enhance active travel routes and mitigate impacts.
- Engagement with local representatives.

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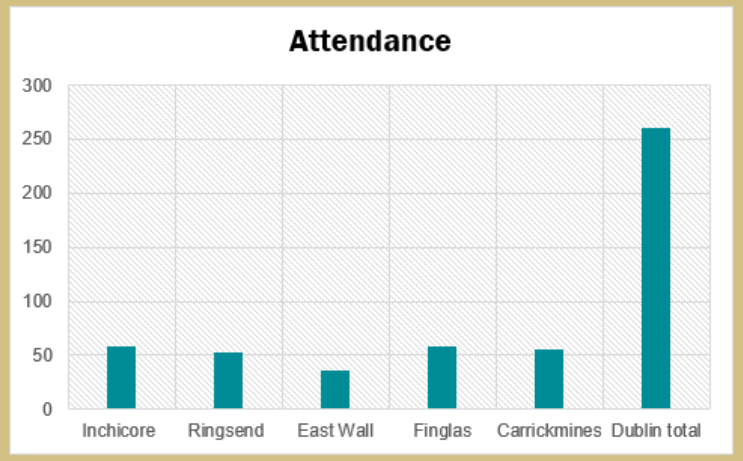
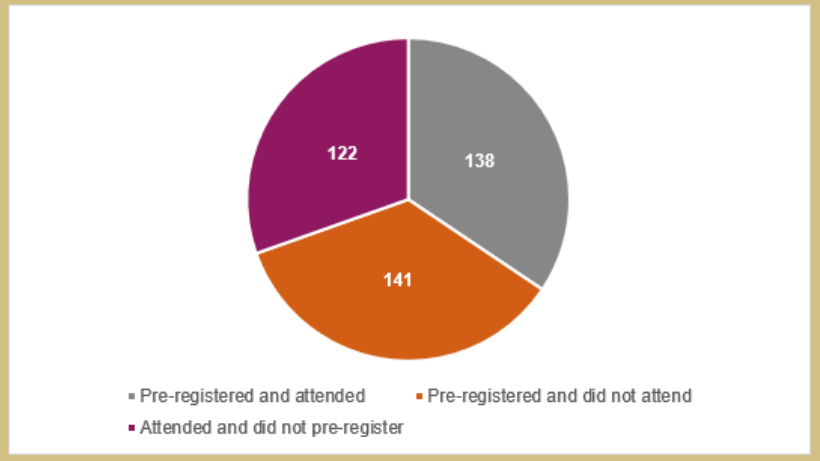
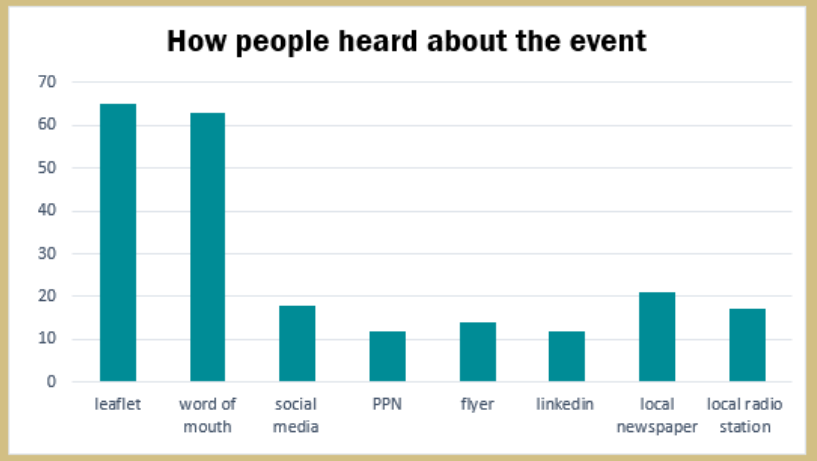
Dublin Energy Citizens Roadshows

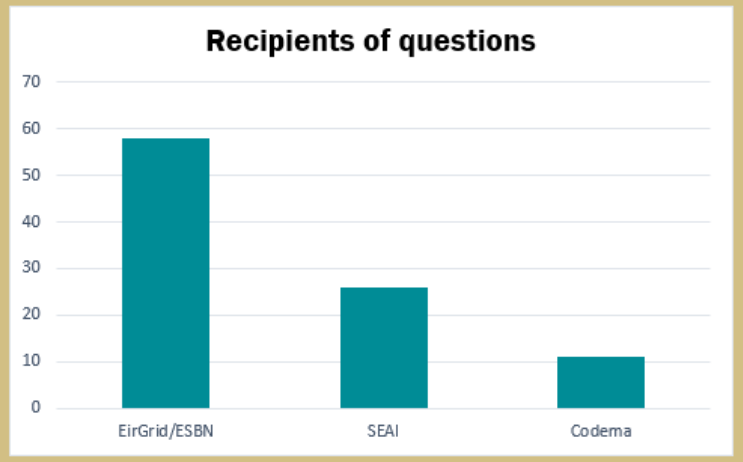
Attendance

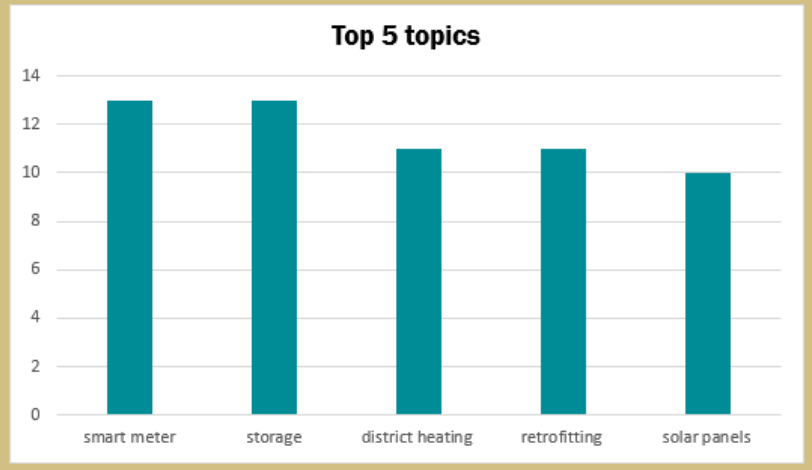






Questions





Offshore

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Offshore

- Building capacity within the team.
    - Including Fishery Liaison Officers.

- Developing engagement strategy and toolkit with coastal communities.

- Convene informal Community Liaison Officer networks.

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Thank you

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Network Infrastructure Update

Yvonne Coughlan

Head of Network Projects

Elin Ahlund

Head of Transmission Power System Planning

EirGrid Track Record of Delivery and Forecast Summary

PR4

155 Projects Completed

€748m Capex

PR5

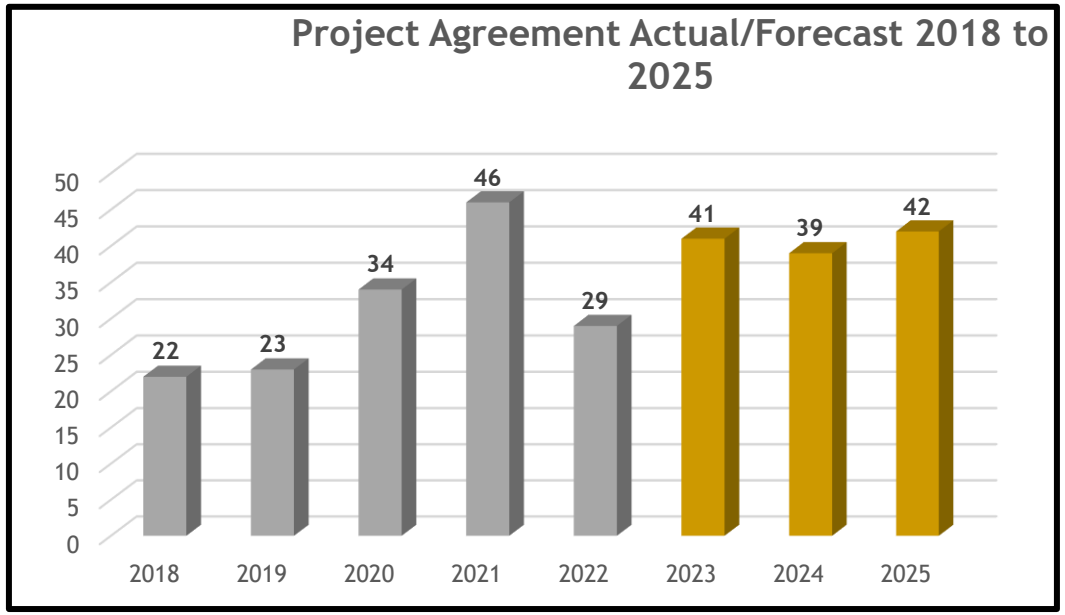
216 Projects

€977m Capex

2026-2030

338 Projects (WIP)

PR6 not yet defined*



**PR6 to be agreed with CRU*

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Change in Approach

- Moved to portfolio approach for projects
- Significantly enhanced capability and capacity… partnership approach
  - Leveraging global infrastructure delivery expertise
- Early engagement process in place with ESBN to ensure early construction input and ensure “constructability”
- Early site investigations to accelerate development & Enhanced engagement and consultation approach
- Accelerated “optioneering” of major projects

Progress on Grid Reinforcements

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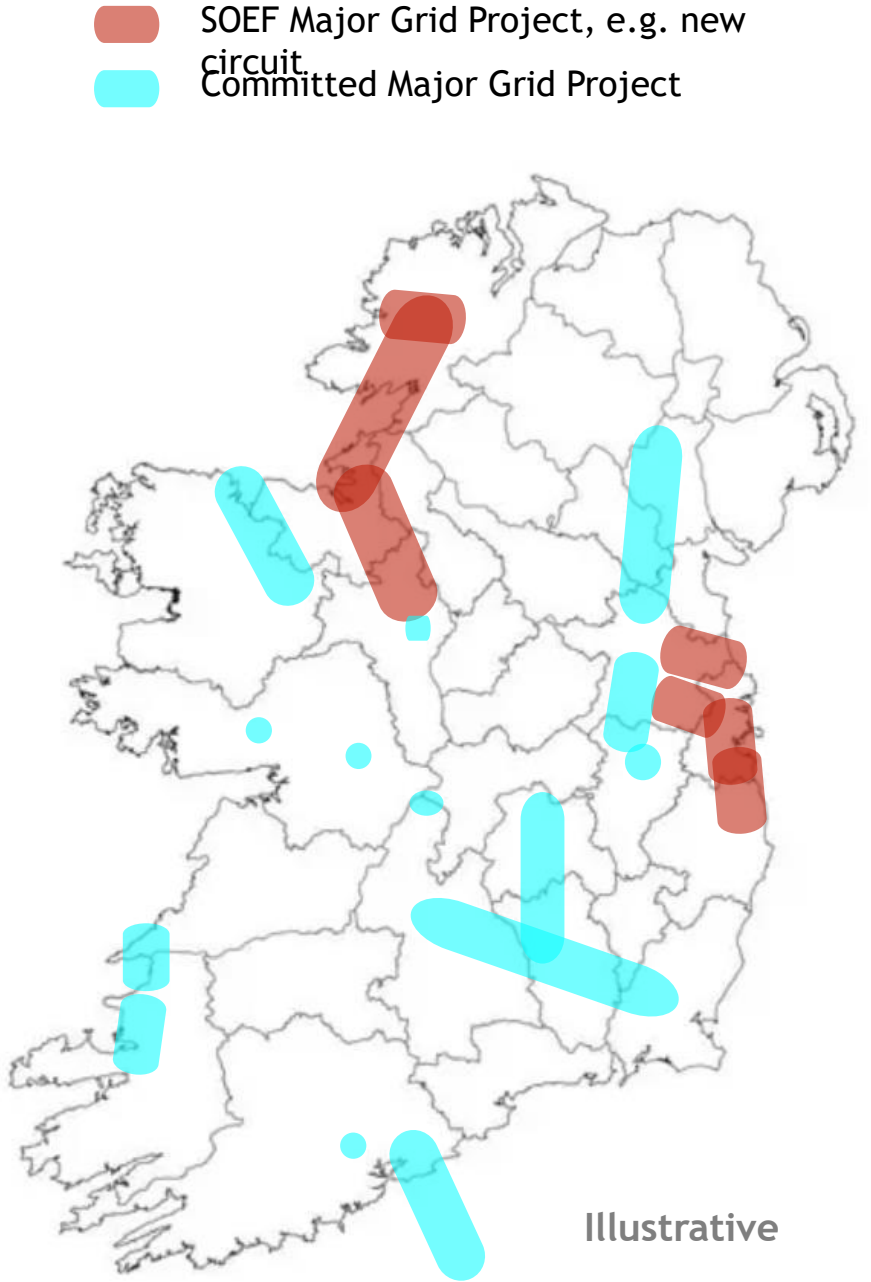
New Circuits – Major Reinforcements

Project	Step	Status
Kildare Meath	5	Planning application preparation.
North Connacht	5	Awaiting consent decision.
East Meath North Dublin	4	Step 4 engagement complete. Best performing option to be announced.
Powering Up Dublin	4	Consultation to commence in Q1.



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Major Upgrades

Pipeline Projects (Steps 1-3)

CP1191 Galway – Cashla x3
SOEF10 Athy -Carlow
SOEF11 Dunfirth – Rinawade
SOEF13 Maynooth – Timahoe
SOEF14 Maynooth – Rinawade
SOEF26 Killoteran - Waterford
SOEF27 Athlone – Lanesboro
SOEF29 Kilteel – Maynooth
SOEF30 Baroda – Monread
CN01 Kilbarry – Marina
SOEF12 Drybridge – Louth
SOEF31 Drumkeen – Clogher
SOEF51 Sligo – Srananagh #3

Post Project Agreement (Step 6)

CP0585 Ballyragget – Kilkenny
CP0668 Corduff- Ryebrook
CP0763 Clashavoon – Tarbert
CP0817 Flagford – Sliabh Bawn
CP0841 Arva – CarrickOS
CP0883 Ballyvousk- Knockanure
CP0905 Louth Rathrussen
CP0945 Great Island – Kilkenny
CP0869 Maynooth – Woodland

Active Projects (Steps 4-5)

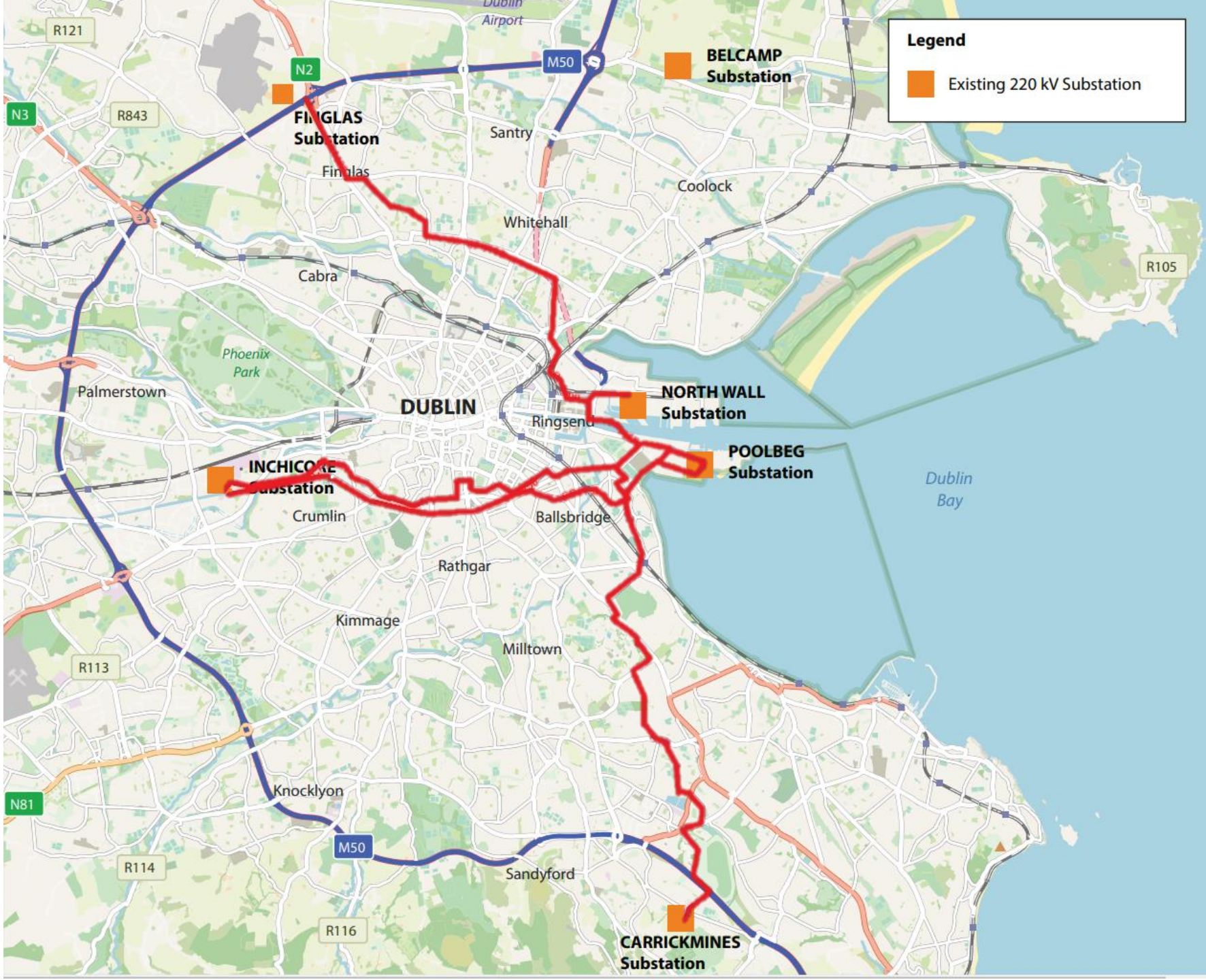
CP0816 Flagford - Tonroe
CP0835 Coolnabacky – Portlaoise
CP0848 Castlebar – Cloon
CP1000 Lanesboro – Mullingar
CP1078 Lanesboro – Sliabh Bawn
CP1079 Binbane – Cathleen's Fall
CP1155 Glenree – Moy
CP1166 Gorman – Platin
CP1167 Drybridge – Oldbridge – Platin
CP1168 Cashla – Salthill
CP1170 Bracklone – Portlaoise
CP1172 Crane – Wexford
CP1199 Derryiron – Thornsberry
CP1211 Bandon – Dunmanway
CP1212 Bandon – Raffeen
CP1235 Louth - Woodland
CP1320 Cahir – Knockraha

Focus on Dublin

Upgrade/expansion of substations.

Replacement of circa 55km of cables between these substations and add a new cable connection between Carrickmines and Inchicore.

Investment of circa €1bn required to deliver the works




STEEL PLATES
OVER CABLES HERE
TELECOM
4X16C
25.30M O D
0.55
8" CI 0.5
26.80M O D
SEE SD0492
3X1/185 XLP
3X1/185 XLP
3X1/185 XLP
DESIGNATED
WATERWAY
R2658
26.81M O D
GAS
GAS
GAS
GAS
GAS
GAS
GAS
GAS
GAS
GAS
TV 0.2
COMM JOINT
23.52M O D
TRANS JOINT
Haroldscross Bridge
JOINTS 125,19 & 2.5M
JOINT 0.5
SEE SD0830
SEE SD0837
SEE SD0836
SEE SD0838
12" CI
12" CI
1.2
4" CONCRETE
0.35
(HP)
37 PAIR PILOT
05 THREE CO
DKY
The challenge on the ground in Dublin

Future Capacity Dublin Region

- Significant work has been completed in 2022 to define the programme
- Optioneering underway to determine optimal transmission solutions for meeting load growth at distribution level.

Powering **Up** Dublin

Dublin Infrastructure Forum

- Interagency approach to infrastructure development in Dublin – initial focus on Powering Up Dublin.
- 3 Meetings to date. Independent Chair.
    - 4km of advance ducting approved for installation along Royal Canal as part of Greenway project
    - 2.5 km of advance ducting approved for installation at Carrickmines works undertaken by DLRCC
    - GIS constraints mapping across utilities
    - 3 working groups established for Technical, Planning and Environment and Stakeholder Engagement workstreams – significant operational collaboration

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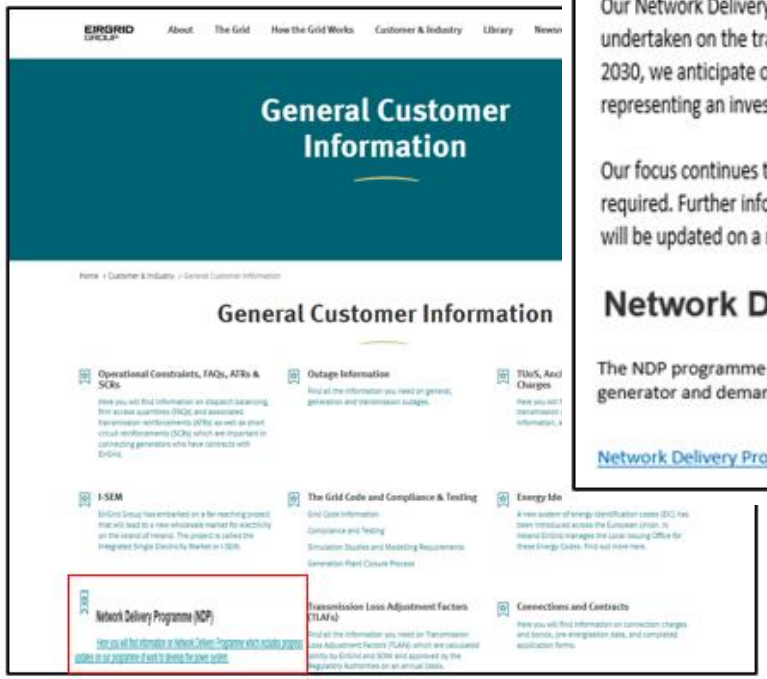
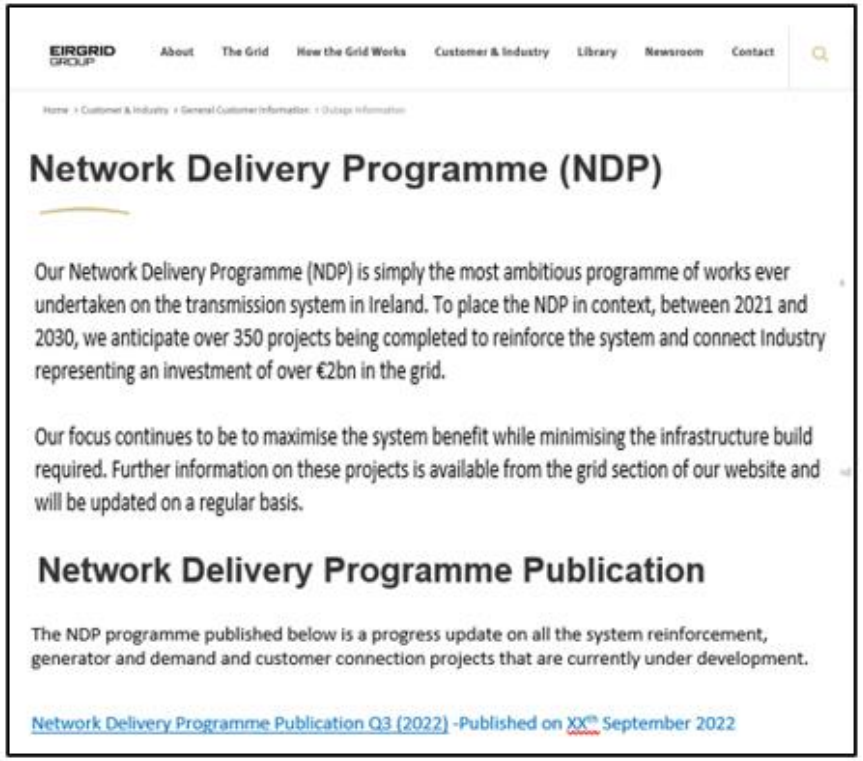
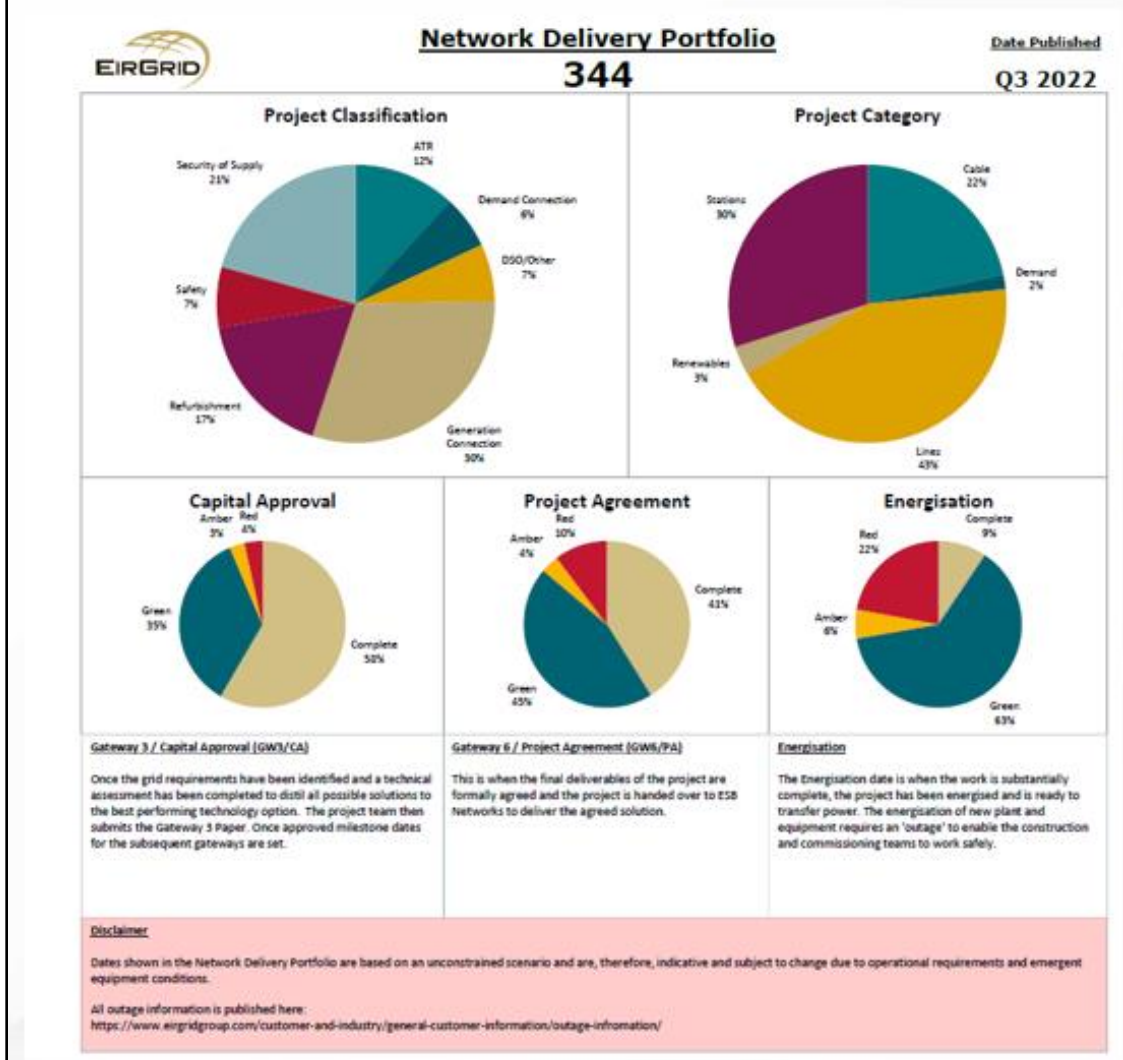
Optimal Joint Programme Delivery: Network Delivery Programme (NDP)







Project Code	Project Name	GW3 (CA)	GW6 (PA)	Energisation
CP1154	Belcamp Land Acquisition	16/12/2021	01/03/2024	
CP1155	Glenree - Moy 110 kV Line Uprate	15/04/2021	27/03/2023	30/06/2025
CP1156	Sligo 110 kV Station - Shrananagh 1 & 2 Bay uprates	18/06/2021	19/04/2022	01/12/2023
CP1157	Inchicore - Poolbeg 1 220 kV Cable Replacement	16/12/2021	31/12/2025	31/12/2029
CP1158	Clonfad Solar	19/01/2021	04/11/2021	30/06/2024
CP1159	Cullenagh and connected stations protection upgrade	04/12/2020	04/11/2021	20/08/2025
CP1160	Coolroe, Inniscarra & connected stations protection upgrade	04/12/2020	04/11/2021	20/08/2025
CP1161	Cathaleens Fall and connected stations 110 kV protection upgrade	04/12/2020	01/12/2021	20/08/2025
CP1162	Irishtown, Shelybanks and connected stations 220 kV protection upgrade	04/02/2021	04/11/2021	29/12/2023
CP1163	Butlerstown, Killoteran & Waterford 110 kV protection upgrade	04/02/2021	04/11/2021	29/12/2023
CP1164	West Cork 110 kV protection upgrade	04/02/2021	04/11/2021	29/12/2023
CP1166	Gorman - Platin 110 kV line uprate	18/01/2021	28/09/2023	26/09/2024
CP1167	Drybride - Oldbridge - Platin 110 kV line uprate	18/01/2021	31/07/2023	26/09/2024
CP1168	Cashla-Salthill 110 kV Thermal Uprate	18/01/2021	28/09/2023	26/09/2024
CP1169	Huntstown Battery Energy Storage	23/02/2021	08/08/2022	18/05/2022
CP1170	Newbridge - Portlaoise 110 kV Partial Thermal Uprate	05/08/2021	11/07/2023	31/10/2024
CP1172	Crane - Wexford 110 kV Circuit Thermal Capacity	17/06/2021	27/01/2023	31/10/2024
CP1173	Glencloosagh Phase 1 - Rotating Stabiliser	06/05/2021	05/06/2022	01/03/2023
CP1174	Aghaleague 110 kV Station	01/09/2022	01/07/2023	01/11/2025
CP1175	Kishoge 110 kV Station	30/04/2021	01/12/2022	29/03/2024
CP1176	Huntstown T2002 Customer Transformer connection	26/05/2021	31/03/2023	29/10/2023

Key Enablers – Grid Development

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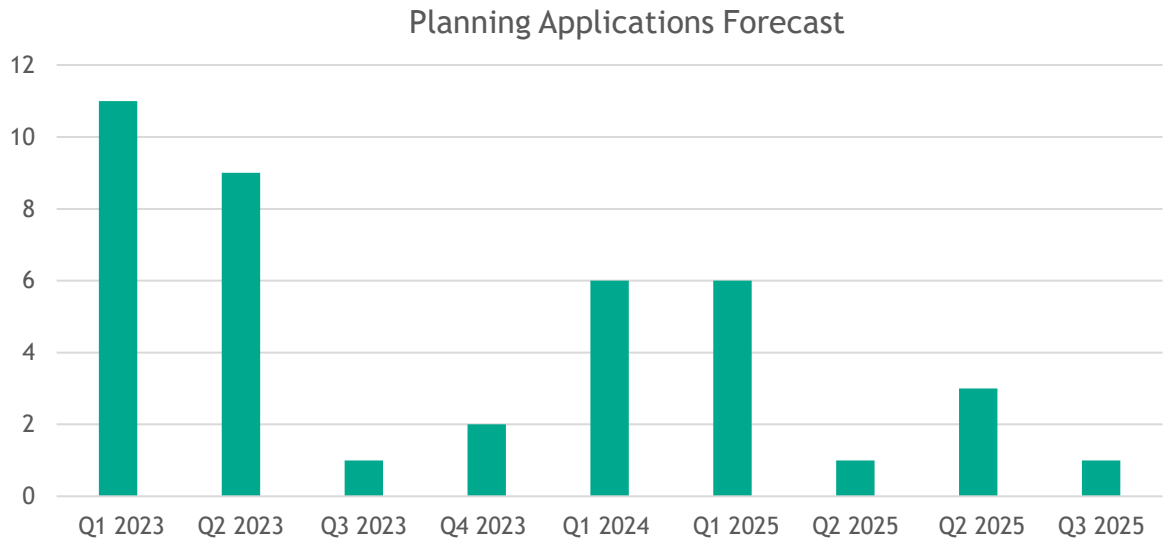
Enabler: Consents

No. Planning Applications submitted in 2022: 9

- 2 x Busbar Uprates
- 5 x Line Uprates
- 1 x New Cable Project (North Connacht)
- 1 x Station Redevelopment.



No. Planning Applications forecasted for 2023: 23

- 1 x New Cable Circuit
- 2 x Cable Replacements
- 1 x Control Building Protection Upgrade
- 2 x Line Refurbishments
- 8 x Line Uprates
- 6 x Station Projects
- 3 x Technology Projects

Significant Risk of delays to planning applications and associated consents

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Key Enabler: Roads

- Climate Action Plan 23: "Enable the use of the public road and potentially the rail networks for routing of new public and private electricity circuits."

- Further embeds the fundamental principle of routing of underground circuits on public roads.

- A High Voltage interface forum has been established in conjunction with TII, ESB, CRU, DoT, DECC and CCMA to work through the detailed implementation. Independent Chair appointed.

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Key Enabler: Outages

- A multi-year outage programme under development

- Transmission Outage Review on approach needed
- Availability of outages
- Utilisation of outages

- EirGrid has identified a need for 350 MW of a Transmission Outage Planning service – EirGrid and the CRU are engaging on how to deliver this.

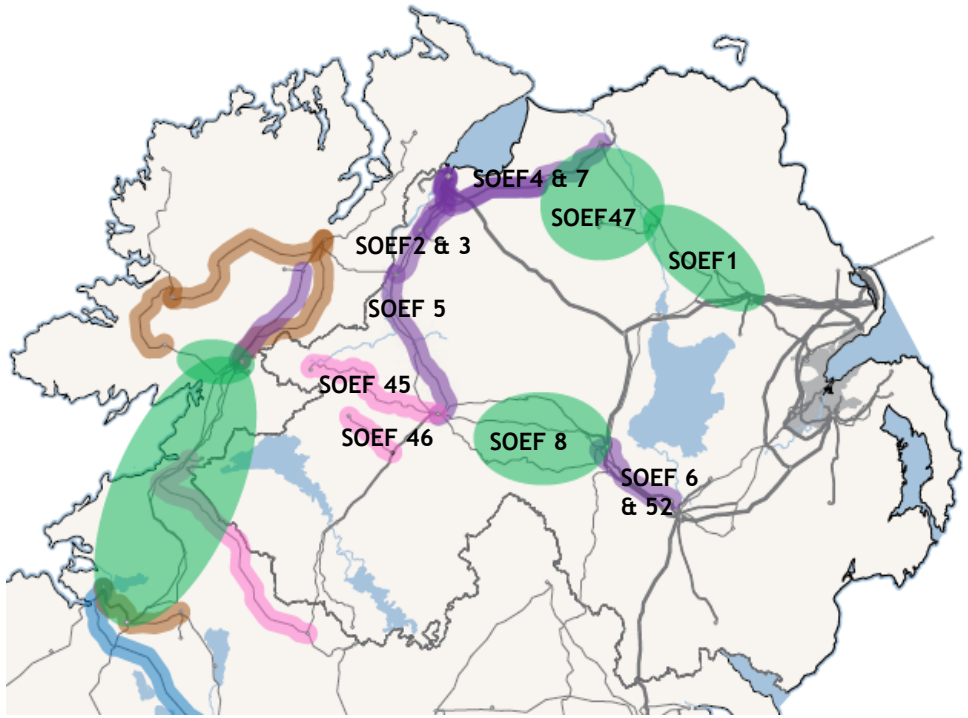
Summary

- Significant ramp in grid development - continued focus on improving approach

- Enablers include:
  - Timely consenting decisions
  - Continued collaboration with cross sector partners aligned to the Climate Action Plan targets – continued effective engagement on development
  - Ensuring the capacity and capability throughout the grid development lifecycle
  - Optimising outage approach to maximise development

Progress of Northern Ireland Candidate Reinforcements

Geographical Location of Candidate Reinforcements



SOEF No.	Candidate Reinforcement	Stage	Description	Next milestone
1	Mid Antrim Upgrade	Part 2	Handed over to Infrastructure	
2	Coolkeeragh - Strabane 110 kV circuit	Part 1	Optioneering stage	TNPP submission early 2024
3	Coolkeeragh - Killymallaght 110 kV circuit	Part 1	Optioneering stage, Uprate likely	TNPP submission early 2024
4	Coolkeeragh - Limavady 110 kV circuit	Part 1	Optioneering stage, Uprate likely	TNPP submission early 2024
5	Omagh - Strabane 110 kV circuit 1 & 2	Part 1	Optioneering stage, Uprate likely	TNPP submission 2023
6	Drumnakelly - Tamnamore 110 kV circuit 2	Part 1	Optioneering stage, Uprate likely	TNPP submission 2023
7	Coleraine - Coolkeeragh 110 kV circuit	Part 1	Optioneering stage, Uprate likely	TNPP submission early 2024
8	Mid-Tyrone Project	Part 1	Optioneering stage, environmental report	TNPP submission early 2024
45	Magherakeel - Omagh circuit 1	Part 1	Progressing feasibility study to investigating circuits suitability for DLR.	2023
46	Curraghmulkin - Dromore circuit 1	Part 1	Progressing feasibility study to investigating circuits suitability for DLR.	2023
47	North West of NI 110 kV reinforcement	Part 1	Optioneering stage, new circuit required	TNPP submission 2024
52	Drumnakelly - Tamnamore 110 kV circuit 1	Part 1	Optioneering stage, Uprate likely	TNPP submission 2023

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Thank you

Questions?

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Closing Message

Thank you

Next meeting:

Belfast: Tuesday May 9th