

29/06/2023

Shaping Our Electricity Future

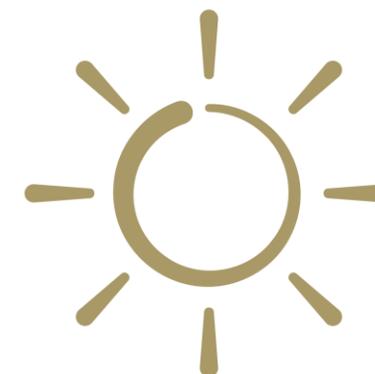
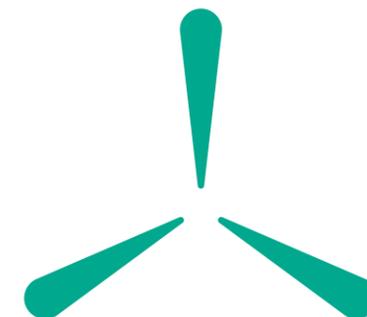
Advisory Council Meeting 5

~Virtual Meeting~



Meeting Chair: Liam Ryan

DURATION	START TIME	TOPIC	PRESENTER
5 min	13:00	Introduction from the Chair	Liam Ryan Alan Campbell
10 min	13:05	SOEF v1.1 – Operations Roadmap	Eoin Kennedy
10 min	13:15	SOEF v1.1 – Markets Roadmap	Dave Carroll
10 min	13:25	SOEF v1.1 – Engagement Roadmap	Sinead Dooley Gareth Brown
30 min	13:35	SOEF v1.1 – Networks update	Derek Carroll
30 min	14:05	Panel Discussion	All
15 min	14:35	SOEF v1.0 Programme Status Update	Margaret Hayden
10 min	14:50	Advisory Council: Sub-Committee Renewable Hubs	Elin Ahlund
	15:00	Meeting end	



Introduction From Chair



DURATION	START TIME	TOPIC	PRESENTER
5 min	13:00	Introduction from the Chair	Liam Ryan Alan Campbell



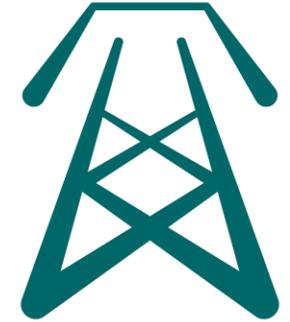
Shaping Our Electricity Future (SOEF) V1.1 - Why?



- 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

Actions & Follow-Ups

#	Action	Owner	Status	Notes
1	Establish Pilot sub-committee	TSO	Complete	EirGrid/SONI See today's presentation. (28.03.23 xref action 01)
2	SOEF Programme to consider Member request on how best to incorporate the appropriate level of programme reporting so a transparent view of progress against objectives/milestones is available.	TSO	In Progress	Objectives added to MYP. Portfolio reporting view in progress. (28.03.23 xref action 02)
3	Multiple Members requested additional insights from and discussions with the TSOs on the progress of Hybrids. EirGrid/SONI SOEF Programme to consider Member request and revert to the ACM.	TSO	In Progress	TSOs propose discussing this topic in detail at the next ACM (Sep). (28.03.23 xref action 03)
4	Member raised a point that LCIS being used at offshore wind connections points in GB is seen as a challenge. EirGrid/SONI asked to consider and follow-up as part of the Operations workstream: Question to the TSOs: How will LCIS be incentivised to these local connection points.?	TSO	In Progress	We will take offshore development into account when doing the analysis for locational aspects of the LCIS Phase 2 procurement. This will be done during 2024. (28.03.23 xref action 04)



SOEF v1.1 - Operations Roadmap

Presenter: Eoin Kennedy



Operations - Multi Year Plan



Operational Policy

Includes:
Initiatives outlined in Operational Policy Roadmap to 2030:

- Dynamic Stability
- Reserves and Ramping
- Operational Security

Developing operational policy and the evolution of key operational metrics.

Standards & Services

Includes:

- Procurement of Low Carbon Inertia Services
- Future Arrangements for system services
- Grid Code evolution

Operational Tools

Includes:

- Control Centre of the Future
- Enhanced modelling capability
- Integration of new grid technologies
- Interconnector integration

Technology Enablement

Includes:

- Demand side strategy
- Protection Settings for our largest customers
- Grid Forming Technologies
- Arrangements for:
 - Low carbon inertia services
 - Energy Storage Power Stations
- Qualification Trial Process



Note: We are also actively working on facilitating the integration of hybrid technologies on the power system in Ireland and Northern Ireland, engaging with the Regulatory Authorities as appropriate. Once clarity on next steps emerges, we intend to include relevant actions on future versions of this roadmap.

SOEF v1.1 - Markets Roadmap

Presenter: David Carroll



Future Markets

Future Arrangements for System Services

- SEMC has published their consultation paper on phased implementation.
- TSOs have developed an implementation plan based on same for both Phase 1 – Layered Procurement Framework and Phase 2 – Day Ahead System Service Auction (DASSA).
- In July TSOs will publish a recommendations paper from our market design advisors on the design for Phase 2 – DASSA. We will also publish the implementation plan and will engage with Industry on the recommendations paper.

Scheduling & Dispatch

- Detailed design work progressing at pace on 3 highest priority initiatives (Energy Storage Power Station Integration, Operation of Non-Priority Dispatch Renewables, Wind/Solar Dispatchability Improvements).
- Current target is to deliver this after existing committed releases over 2023 and 2024, with provisional earliest target set at late 2024 and remainder in 2025.
- Release Plan to be refined and communicated to stakeholders as current uncertainties around design complexity, vendor capabilities and interactions with parallel work programmes become clearer as part of Phase 2 work.

EU & GB Reintegration (SEM4.0)

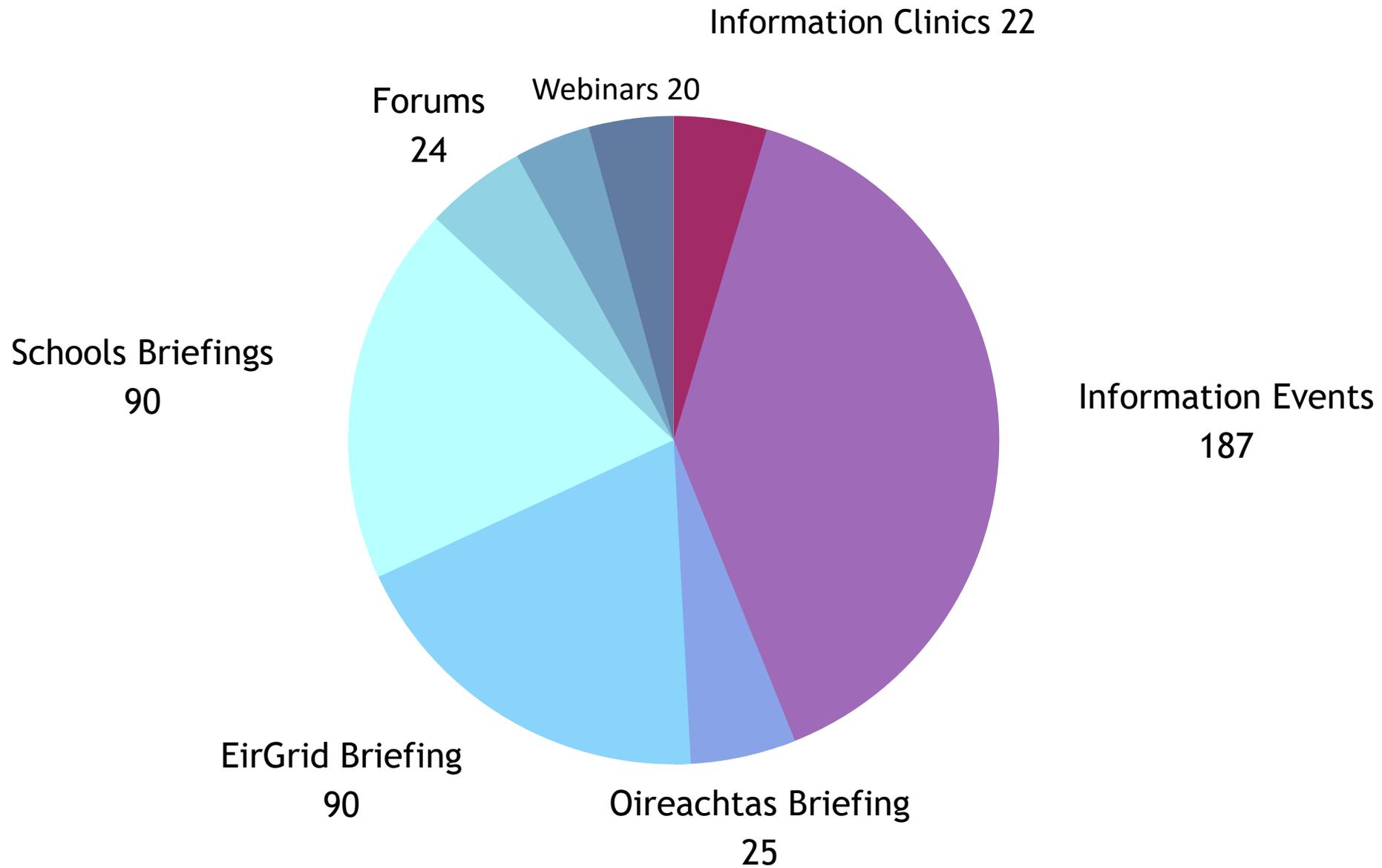
- SEM will once again be coupled with the EU market in late 2026. This brings with it, requirements we need to adhere to.
- GB is our biggest electricity trading partner (and will increase). Our trading arrangements need to be fit for purpose.
- There are other reforms required for the balancing market, some of which are driven by emerging policies and technologies.
- Programme initiated internally with TSO's and MO. External partners have been engaged to support the setup of the Programme Management Office (PMO) and we expect to engage with industry on the proposed scope and timelines in due course.

SOEF v1.1 - Engagement Roadmap - Ireland

Presenter: Sinead Dooley



POWERING UP DUBLIN CONSULTATION EVENTS



Offshore Phase 2 Public Information Campaign

Public Information Events (completed)

Venue	Date	Time
The Park Hotel, Dungarvan, Co. Waterford	6 June 2023	12pm to 8pm
Garryvoe Hotel, Garryvoe, Co. Cork	7 June 2023	12pm to 8pm
St. Mary's Community Hall, Fethard, Co. Wexford	12 June 2023	12pm to 8pm
Walter Raleigh Hotel, Youghal, Co. Cork	14 June 2023	12pm to 8pm
The Majestic Hotel, Tramore, Co. Waterford	15 June 2023	12pm to 8pm
Cobh Community Centre, Cobh, Co. Cork	20 June 2023	12pm to 8pm

Offshore Energy Citizen Roadshows (completed)

Venue	Date	Time
Carrigaline Court Hotel, Carrigaline, Co. Cork	21 June 2023	6.30pm to 8.30pm
The Tower Hotel, Waterford City	22 June 2023	6.30pm to 8.30pm

Other Engagement Activity to Date

- Cork City Council Planning & Economic SPC
- South East RIFF / BIM
- SeafoodORE Taskforce
- Wexford County Council July 10th
- Cobh & District Harbour Chamber of Commerce

Current Position on NSIC

March 2023

April to August 2023

September 2023

Government Independent Review Published
21st March 2023

Local Authority & Oireachtas Member Briefings

ESB Procurement Commenced April 2022

Landowner Compensation Package

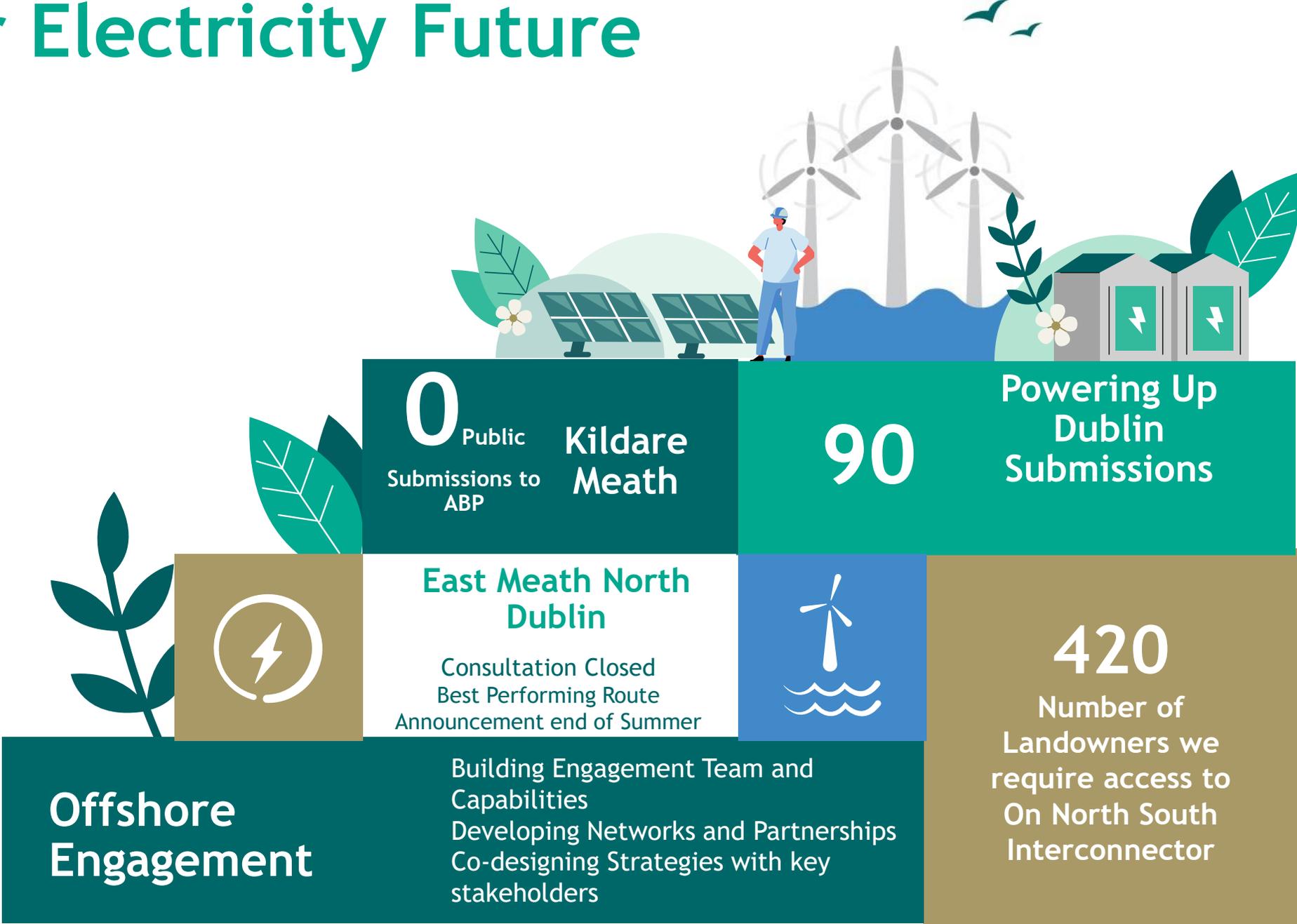
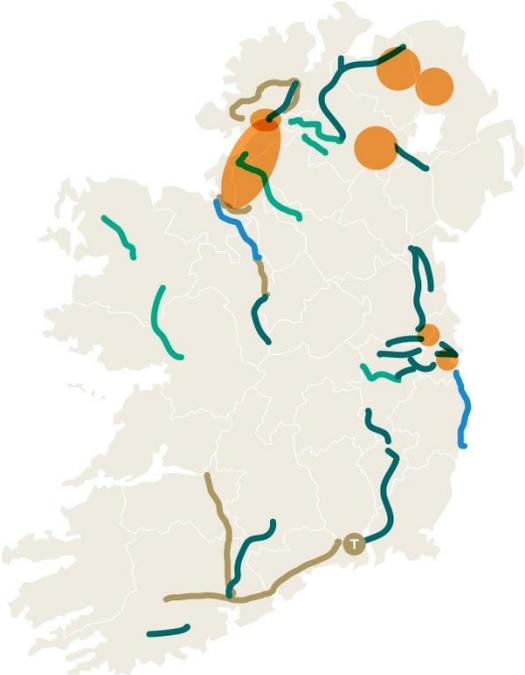
Commence Substantive Public and Landowner Engagement

50+ Onsite Surveys Completed in 2022

Public Engagement Approach

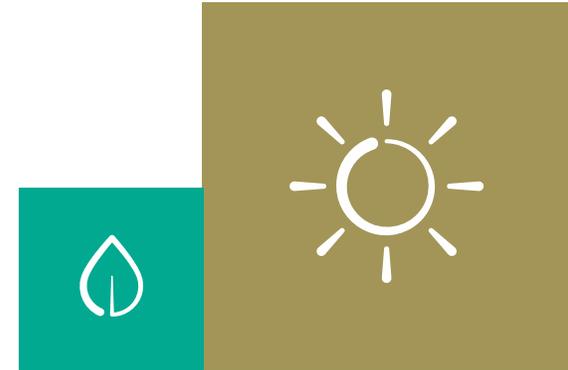


Shaping Our Electricity Future Roadmap



SOEF v1.1 - Engagement Roadmap - Northern Ireland

Presenter: Gareth Brown



Mid Antrim Upgrade

Citizen Sounding Board and Community Forum pilot (completed)

- Twin track model - Community Forum and Citizen
- December 2022 and June 2023
- Interim Report published - March 23
- Shortlisted for Business in the Community NI Responsible Business Awards
- Report to be published alongside public consultation
- Review of process - Q4



involve



MID-ANTRIM UPGRADE

Citizen Sounding Board

Interim Report

MARCH 2023



Mid Antrim Upgrade

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involve



MID-ANTRIM UPGRADE

Citizen Sounding Board

Interim Report

MARCH 2023



Stakeholder engagement



Network project updates

- Mid Tyrone - Part 1 - Completed - Q2 22/23
- Mid Antrim Upgrade 2b - Q4 22/23
- Energising Belfast 2c - Q1 23/24
- Eden-Carmoney 2a - Q1 23/24
- North South Interconnector - DfE necessary wayleave process underway

Mid Antrim Public Information Sessions

Venue	Date	Time
Ross Park Hotel, Kells	1 August 2023	2pm to 9pm
The Bank, Portglenone	17 August 2023	2pm to 9pm
Rasharkin Community Centre, Rasharkin	30 August 2023	2pm to 9pm
Mid Antrim Upgrade Virtual Consultation Exhibition	Throughout	NA



Other engagement updates

- Enhanced three-part process review and revision
- Community engagement in the energy transition initiative
- Stakeholder Needs Assessment
- Shaping 1.1 roundtable series
- Landowner charter



SOEF v1.1 - Networks Roadmap

Networks

Presenter: Derek Carroll

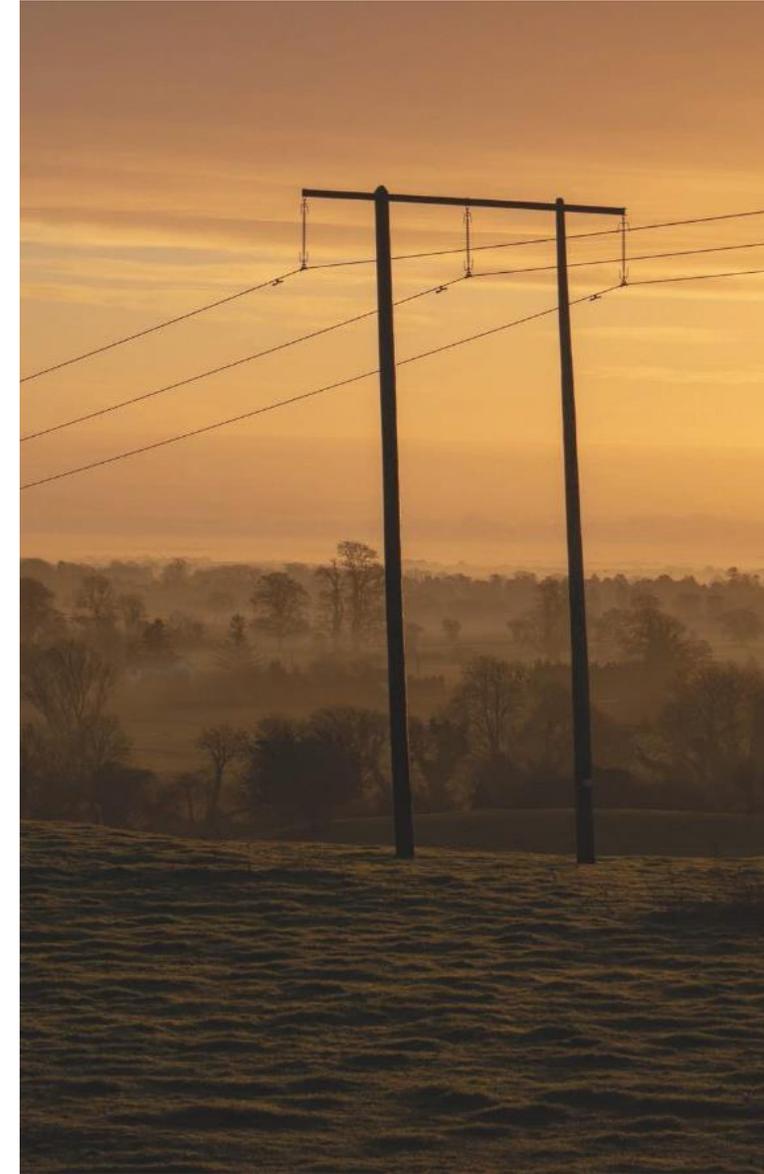


Networks

Timely and efficient development of transmission networks is crucial to delivery of Renewable Ambition

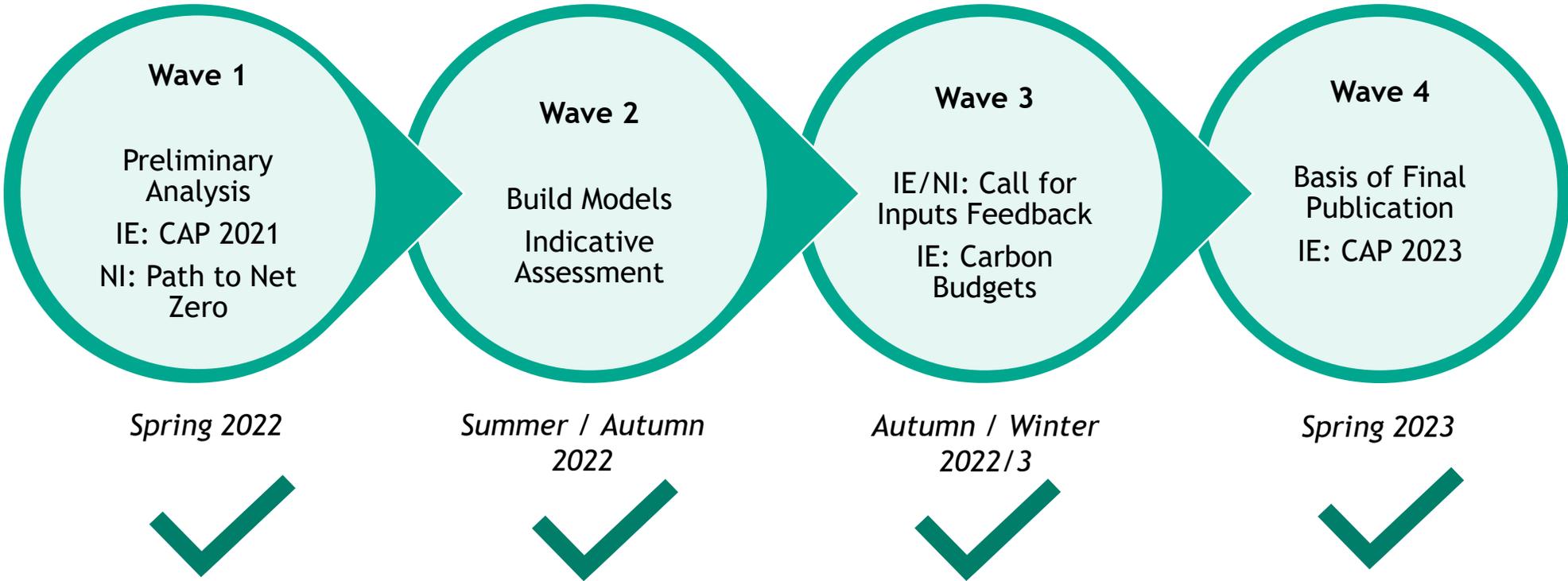
Comprehensive set of network planning studies to determine potential transmission projects

Studies identified network connected projects and equipment that add flexibility.



Networks Analysis - Iterative Approach

Vision of 2030 power system, deep transmission network reinforcements



Inputs to Note

Ireland

- 9GW Onshore Wind, 8GW SolarPV, 5GW Offshore Wind
- Second Ireland to France interconnector
- Connection of large amounts of long duration batteries
 - 375MW/1500MWhr (4hr), 1350MW/8100MWhr (6hr), & 700MW/5600MWhr (8hr)
- Over 20% of demand is assumed flexible

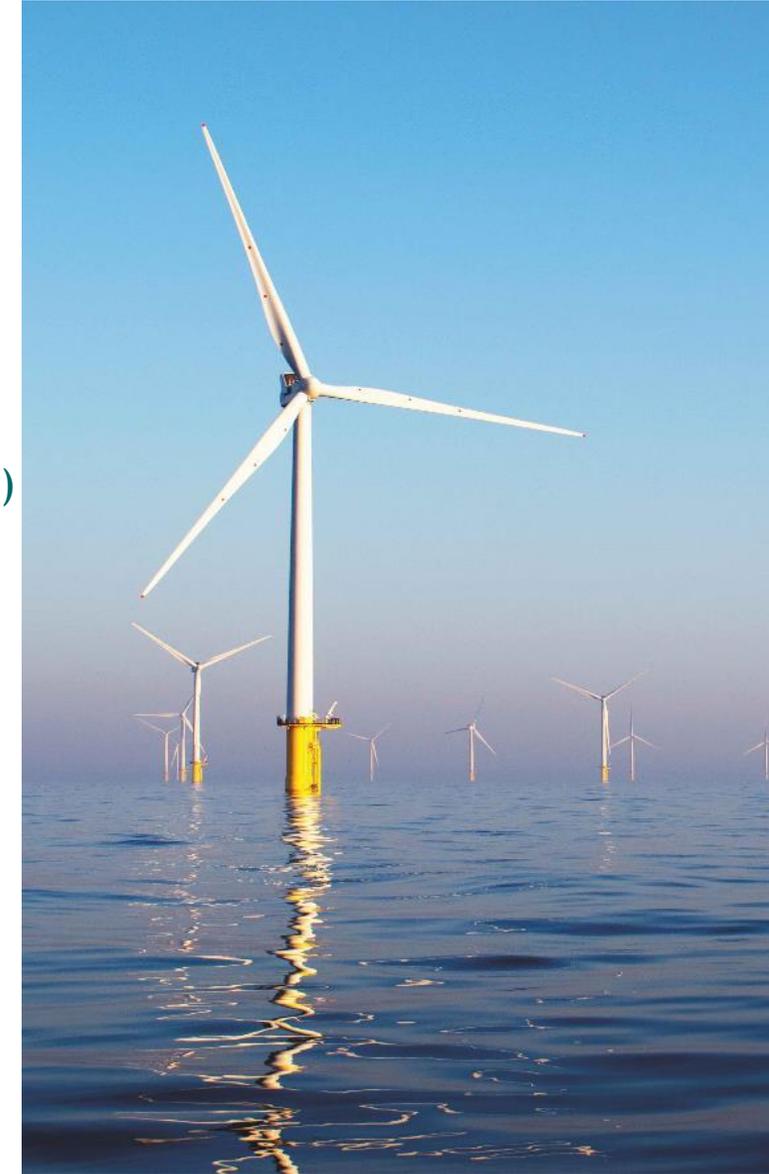
Northern Ireland

- 2.5GW onshore, 0.6GW SolarPV, 0.5GW Offshore
- New 700 MW LirIC HVDC interconnector to Scotland
- Connection of large amounts of long duration batteries
 - 125MW/500MWhr (4hr) & 250MW/2000MWhr (8hr)
- Over 20% of demand is assumed flexible



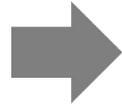
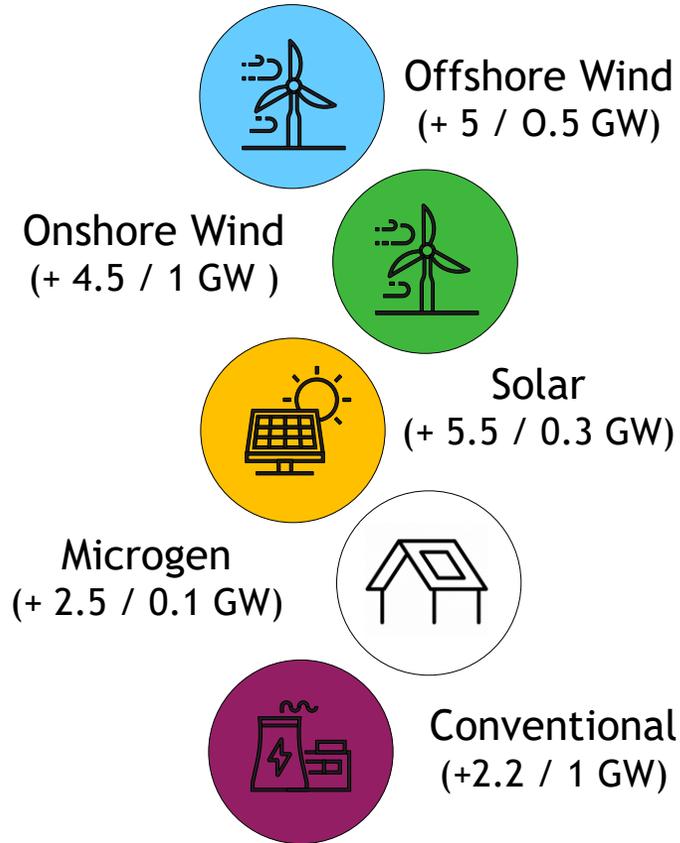
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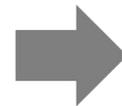
Whole of Electricity System Challenge

Supply (IE/Nl)

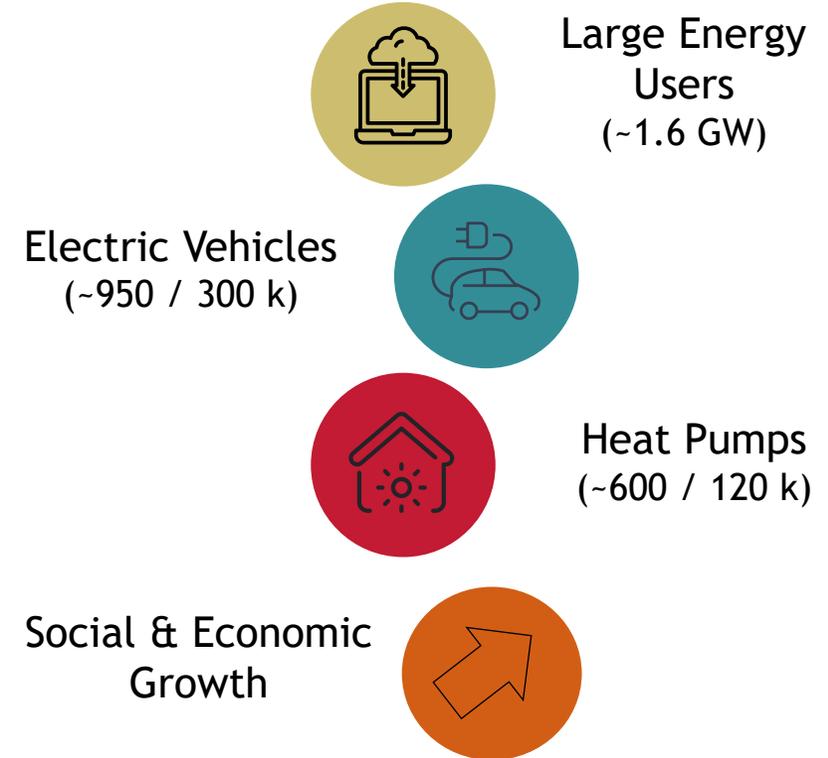


Shaping Our Electricity Future

- + c. 350 Network Reinforcements
- + c. 25 Smart Network Devices
- + System Operation Transformation
- + Electricity Market Transformation
- + 4 HVDC Interconnectors
- + 2.8 GW Long Duration Storage
- + Over 20% demand flexibility
- + 10 GVAs Low Carbon Inertia Services



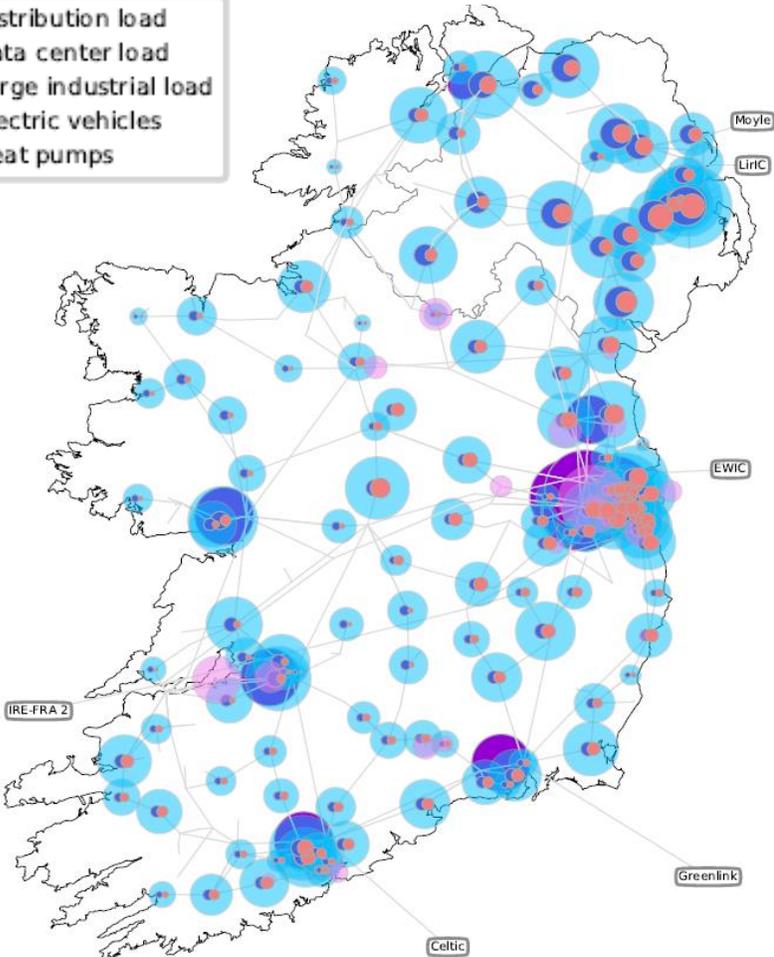
Demand (+50%) (IE/Nl)



Demand & Generation - Widespread Growth

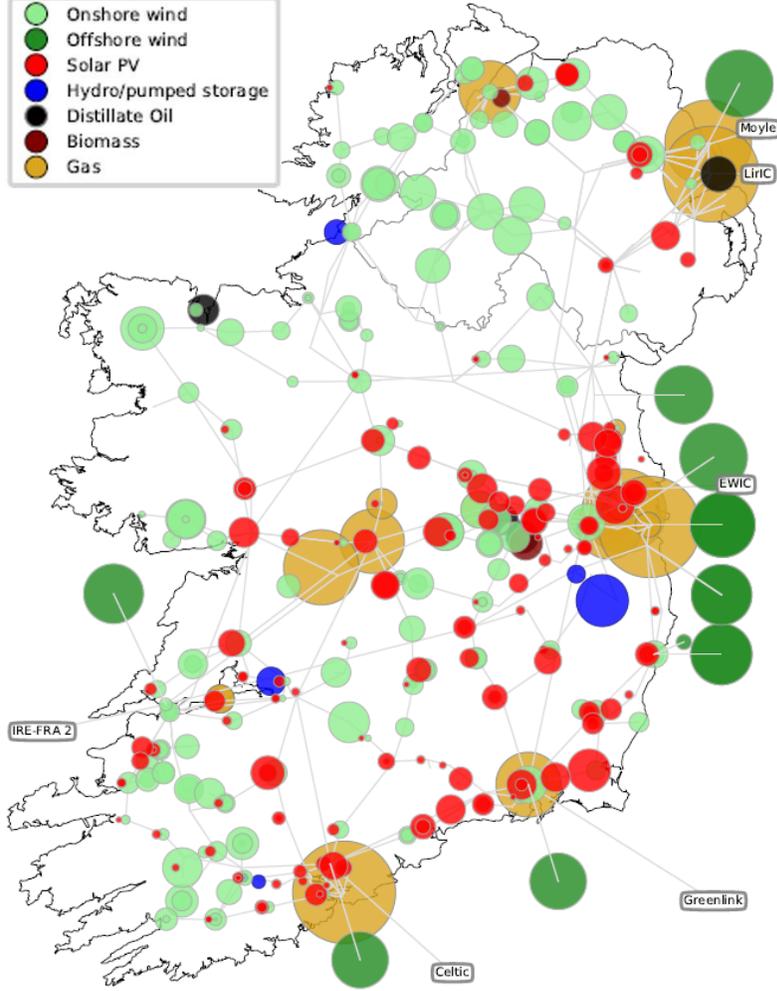
2030 Demand

- Distribution load
- Data center load
- Large industrial load
- Electric vehicles
- Heat pumps



2030 Generation

- Onshore wind
- Offshore wind
- Solar PV
- Hydro/pumped storage
- Distillate Oil
- Biomass
- Gas



Candidate Reinforcements

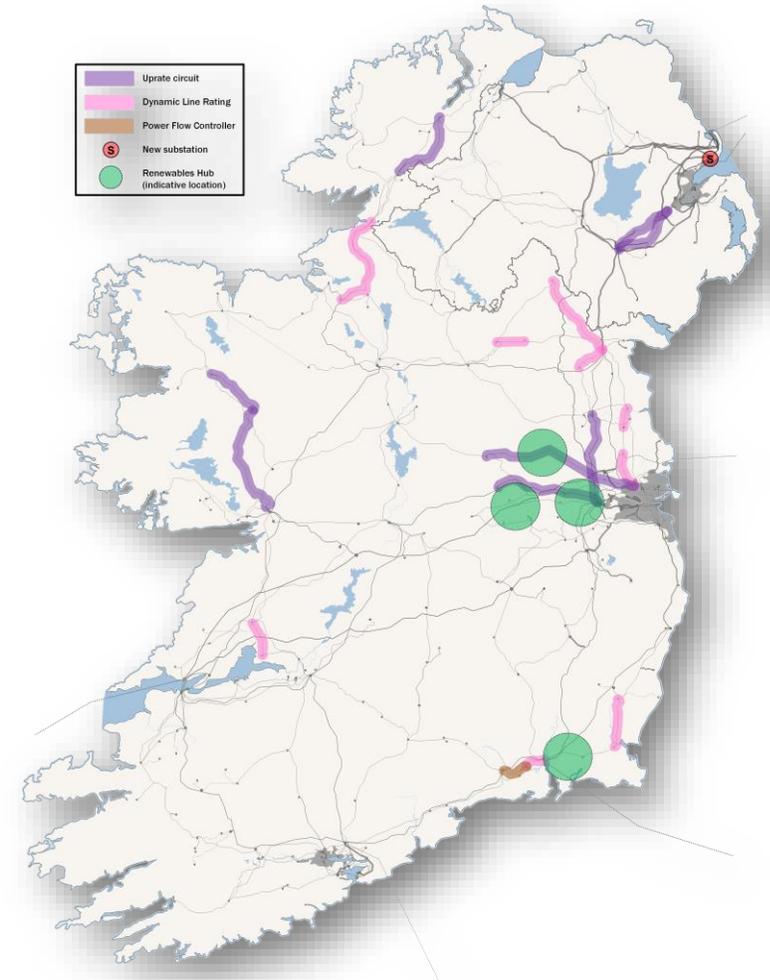
Have maximised use of existing grid and focussed on publicly acceptable, deliverable solutions

Additional candidate reinforcements on top of the existing c. 350 pipeline of transmission reinforcements (includes “no regrets” projects identified and progressed during development of SOEF V1.1)

IRELAND	4 Large Scale Renewable Hubs*	<ul style="list-style-type: none">• 1 x 400kV loop-in• 1x 220 kV loop-in• 2 x 220 kV tailed clusters
	16 Network Projects (~€177m)	<ul style="list-style-type: none">• 4 x 110 kV uprates, 2 x 220 kV uprates• 10 Smart Devices (9 Dynamic Line Rating, 1 Dynamic Power Flow Controller)
NORTHERN IRELAND	3 Network Projects (£60m)	<ul style="list-style-type: none">• 1 x 275 kV Substation• 2 x 110 kV uprates

Candidate reinforcement projects will undergo more detailed analysis in the Grid Development processes in Ireland and Northern Ireland

**Renewable Hubs could be delivered contestably by renewable developers*

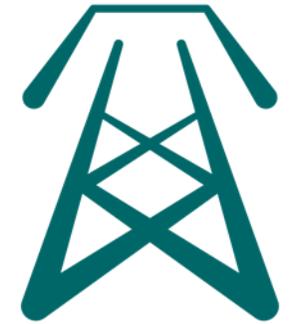


Candidate Reinforcements

Candidate Reinforcements in addition to:

- Network Delivery Portfolio & TDPNI
- SOEF v1.0 (52 Projects)

#	Component	Voltage (kV)	Path	Domain	Region
1	Deenes - Drybridge 110 kV	110	New	Static device (DLR)	North-East
2	Gorman - Maynooth 220 kV	220	Uprate	Circuit	North-East
3	Meath Hill - Louth 110 kV	110	New	Static device (DLR)	North-East
4	Lisdrum - Louth 110 kV	110	New	Static device (DLR)	North-East
5	Ratrussan - Shankill 110 kV	110	New	Static device (DLR)	North-East
6	Baltrasna - Corduff 110 kV	110	New	Static device (DLR)	Mid-East
7	Corduff - Blundelstown - Mullingar 110 kV	110	Uprate	Circuit	Mid-East
8	Maynooth - Castlelost 220 kV	220	Uprate	Circuit	Mid-East
9	Crane - Wexford 110 kV	110	New	Static device (DLR)	South-East
10	Cullenagh - Waterford 110 kV	110	New	Static device (PFC)	South-East
11	Great Island - Waterford 1 110 kV	110	New	Static device (DLR)	South-East
12	Drumline - Ennis 110 kV	110	New	Static device (DLR)	South-West
13	Letterkenny - Golagh T 110 kV	110	Uprate	Circuit	North-West
14	Cashla - Dalton 110 kV	110	Uprate	Circuit	North-West
15	Castlebar - Dalton 110 kV	110	Uprate	Circuit	North-West
16	Srananagh - Cathaleen's Fall 2 110 kV	110	New	Static device (DLR)	North-West
17	Lisburn - Tandragee 1 110 kV	110	Uprate	Circuit	NI
18	Lisburn - Tandragee 2 110 kV	110	Uprate	Circuit	NI
19	New 275 kV substation in South East Antrim	275	New	Substation	NI



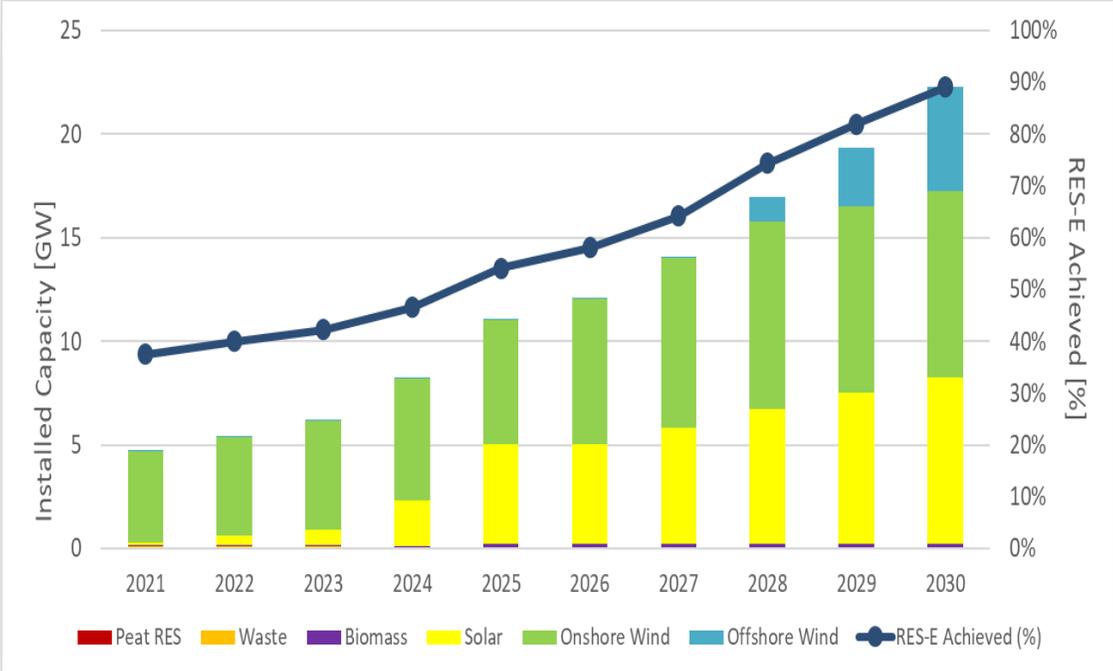
Surplus Renewable Generation - A Demand Opportunity

- More renewable generation available for dispatch than median forecasted demand
- Scale of opportunity identified in SOEF V1.1 - over 20% of available renewable generation
- Presents an opportunity for innovative energy usage as considered in CAP23
 - Timely development and implementation of any incentives and frameworks important
- Flexibility important - the following are already assumed in place in SOEF V1.1:
 - Further new interconnectors (Ireland - France 2, Northern Ireland - Scotland 2)
 - Significant long duration storage
 - Significant demand side flexibility

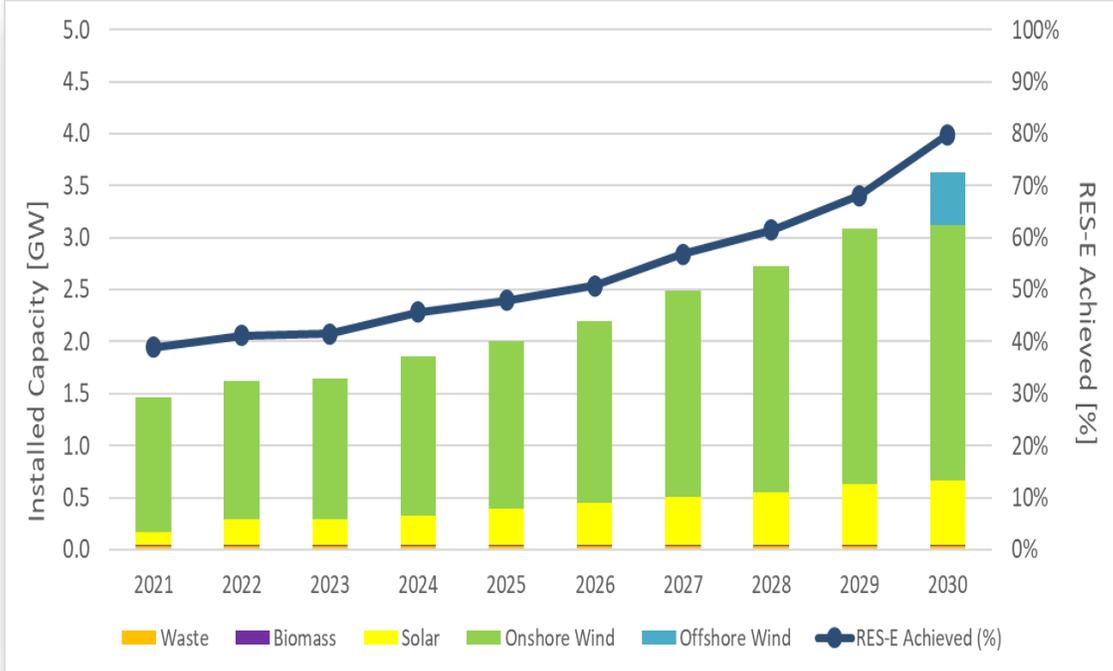


Renewable Projections

Cumulative RES-E - Ireland



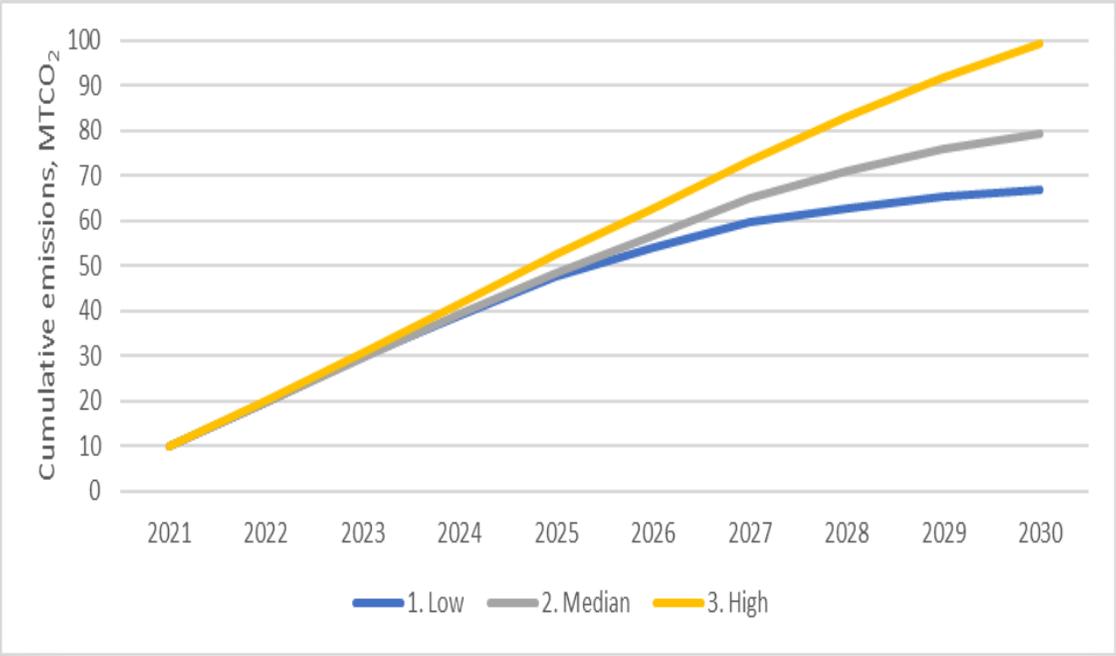
Cumulative RES-E - Northern Ireland



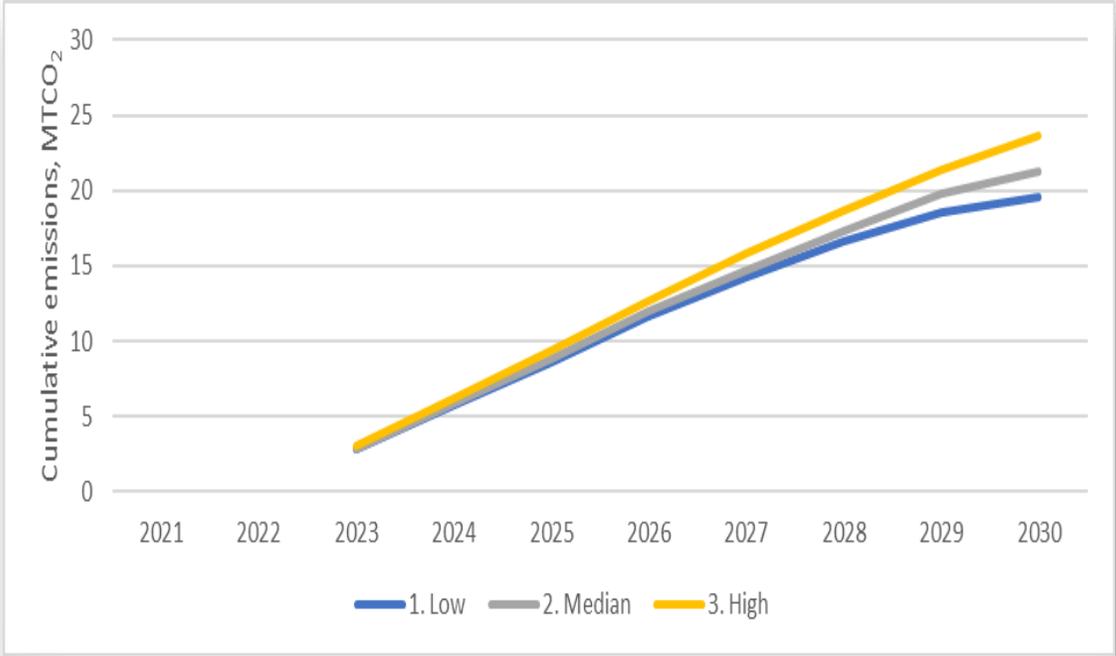
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Emissions Projections

Cumulative Carbon Projections - Ireland



Cumulative Carbon Projections - Northern Ireland



Low, Median and High emissions scenarios correspond with CAP23 emissions analysis



Key messages: Scale of Challenge Without Precedent

EirGrid plays an important role but the whole electricity ecosystem must deliver to achieve the government targets

- Overarching government support needed for the energy transition, including collaborative support and enabling policy for the delivery of new infrastructure and services.
- Surplus Renewable Generation, more renewable generation available for dispatch than median forecasted demand, the scale of opportunity identified in SOEF V1.1 is over 20% of available renewable generation.
- Delivery of large quantities of generation, infrastructure and services in the context of a challenging supply chain environment.
- Delivery of additional interconnection, system flexibility, demand side management, long duration storage, low carbon technologies.
- Planning decisions being made by the relevant authorities in a timely manner.
- Regulatory decisions and securing of funding being made in a timely fashion, including likely need for anticipatory investment.
- Availability of road network for routing of underground cables.
- Securing broad understanding and support across the population for all elements of the energy transition including behavioral changes.

Achievement
of 40% RES-E
over ~15
years

Requirement
for 80% RES-E
/ Carbon
Budgets over
next 7 years

Panel Discussion



Advisory Council: Sub-committee

Renewable Hubs: Introduction and ToR

Presenter: Elin Ahlund



Advisory Council: Sub-committee Renewable Hubs: Introduction and ToR



Introduction

As part of Advisory Council for Shaping Our Electricity Future, sub-committees can be established to explore and elaborate on certain topics to provide a better understanding on the benefits and challenges in relation to that topic.

The findings of the sub-committee can assist to inform approaches to certain matters related to the implementation of the SOEF roadmap to deliver the Renewable Ambition in an effective way.



Remit of Sub-Committee

The Sub-committee will not be a decision making or policy formulation body.

The remit is to:

- Provide a forum for more in-depth discussions on a selected topic.
- Explore, elaborate and discuss the topic specific to the sub-committee.
- Document the finding of the sub-committee
- Report back to the sponsor (EirGrid & SONI) prior to presenting the findings at an agreed Advisory Council Meeting



Schedule & Format

- 4 - 5 meetings over 3-month time horizon
- ~ 60-minute meeting length
- Meetings are chaired and organised by one SC Member
- Initial kick-off meeting chaired by EirGrid/SONI



Membership

- 5 - 10 Members
- Members submit expression of interest to SOEF email addresses*, TSOs will build membership list
- All costs for participating are borne by Members.



Deliverables

- Written report of findings representing all constituencies
- Presentation to next Advisory Council

Advisory Council: Sub-committee Renewable Hubs: Introduction and ToR



Background

One way to contribute to achieving the country's renewable ambition by 2030 is to introduce renewable hubs or collector stations around the transmission system as suggested in SOEF 1.1. The concept is to collect generation in one station which can effectively transport the power to where it is needed in combination with minimising the level of grid infrastructure required overall. In SOEF 1.1 four candidate renewable hubs or collector stations have been assumed. The locations for these hubs has been informed based on existing ECP applications, information from the industry on future projects and in combination with the available capacity in the existing/planned transmission system. These hubs will be further explored by EirGrid in the coming months. Some developers in the ECP process may be offered connections into these hubs.

The concept of collector stations in Ireland is not new. EirGrid introduced collector stations in the South West of Ireland to make use of available capacity on the 220 kV network (namely stations Ballynahulla, Ballyvouskil and Knockanure, see figure below). The renewable generation is gathered at 110kV nodes and transferred to a higher voltage level for onwards transfer to where the power it is needed. All these 220 kV stations were built non-contestable with the 110kV feeders built contestable by various developers.

The above approach was a good way to optimise the required connections and at the same time making use of existing assets and minimise required new transmission infrastructure. EirGrid and the industry need to work together to deliver these stations and associated connections in the most efficient and expedient manner possible.



Advisory Council: Sub-committee Renewable Hubs: Introduction and ToR



The Ask for Renewable Hubs Sub-committee

EirGrid is keen to garner views from sub-committee 1 on the potential challenges associated with renewable hubs. Some of the points we are seeking inputs on include:

1. Are there elements of the current contestable rule set which would need to change in order to facilitate the development of renewable hubs?
2. Are there optimum approaches which need to be considered around the formulation of groups, consortium, lead developers e.t.c for how a renewable hub should be delivered?
3. Are the current funding mechanisms for contestable deliveries suitable for the delivery of major infrastructure like 400 kV or 220 kV hubs?

With the above in mind, the ask of sub-committee 1 is to explore the potential challenges that either EirGrid or industry could encounter if renewable hubs are to be delivered in a very short time period. The ask is also to elaborate on various approaches of delivery of these renewable hubs or collector stations and matters which may come up as needed to be resolved.



SOEF Advisory Council

Progress

 Network Infrastructure			 Electricity Markets			 System Operations			 Stakeholder Engagement		
 Overall status is AMBER & worsening			 Overall status is RED & holding steady			 Overall status is RED & improving			 Overall status is GREEN & holding steady		
Total Enablers	7	Change from Jan	Total projects	8	Change from Jan	Total projects	25	Change from Jan	Total projects	9	Change from Jan
Red	3	(+2)	Red	1	(-)	Red	5	(-2)	Red	0	(-)
Amber	1	(-1)	Amber	2	(-)	Amber	0	(-1)	Amber	0	(-)
Green	1	(-1)	Green	4	(+2)	Green	6	(-)	Green	9	(-)
<i>Not Started</i>	0	(-)	<i>Not Started</i>	1	(-2)	<i>Not Started</i>	1	(-)	<i>Not Started</i>	0	(-)
Complete	2	(-)	Complete	0	(-)	Complete	13	(+3)	Complete	0	(-)

Closing Messages

- Thank you for your time and input today
- We welcome your continued participation and feedback on how to realise the goals of SOEF.
- We will distribute a request for topics for the next ACM.
- Next meeting info:
 - September 2023, Dublin, Ireland

