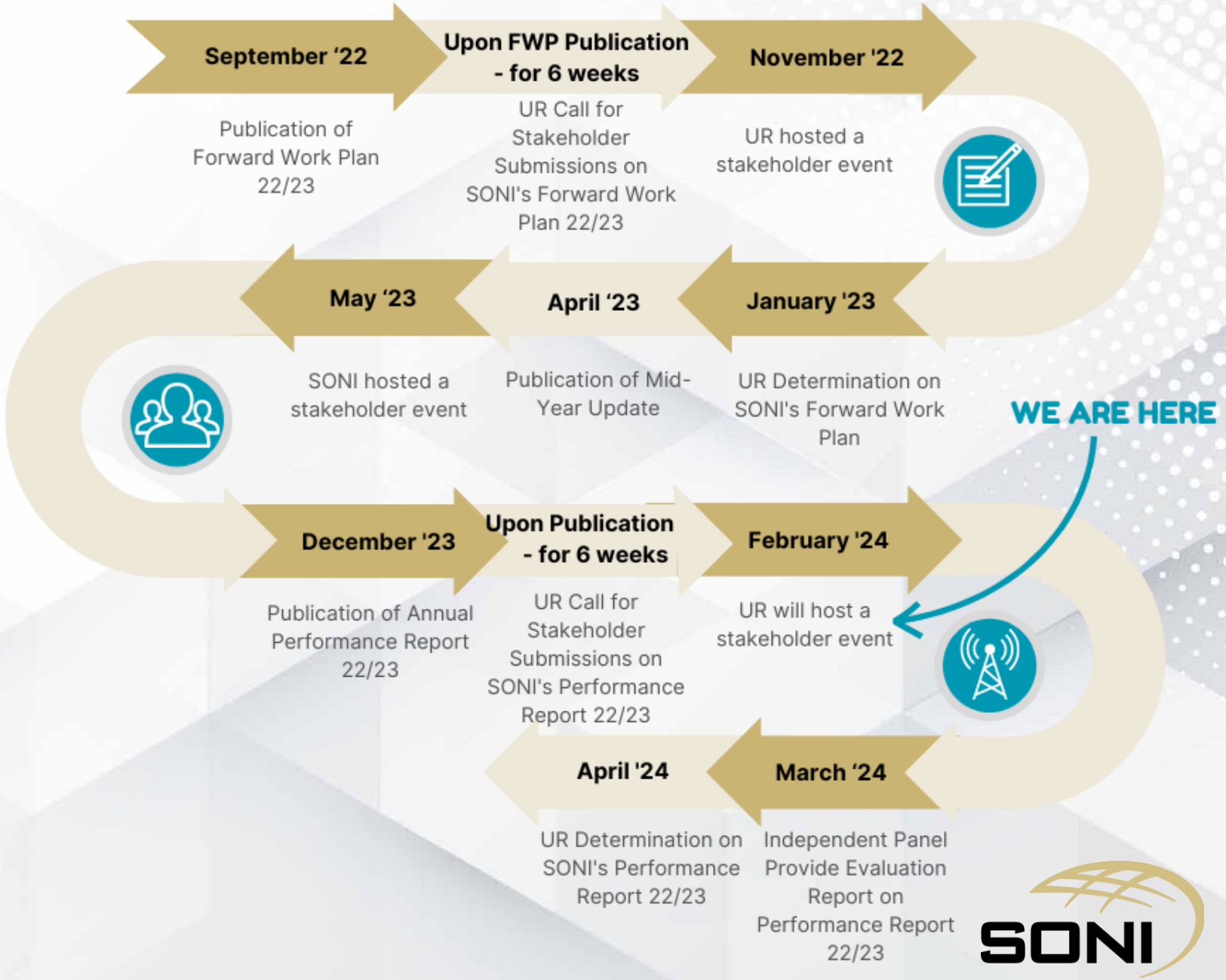
SONI Performance Report 2022-23

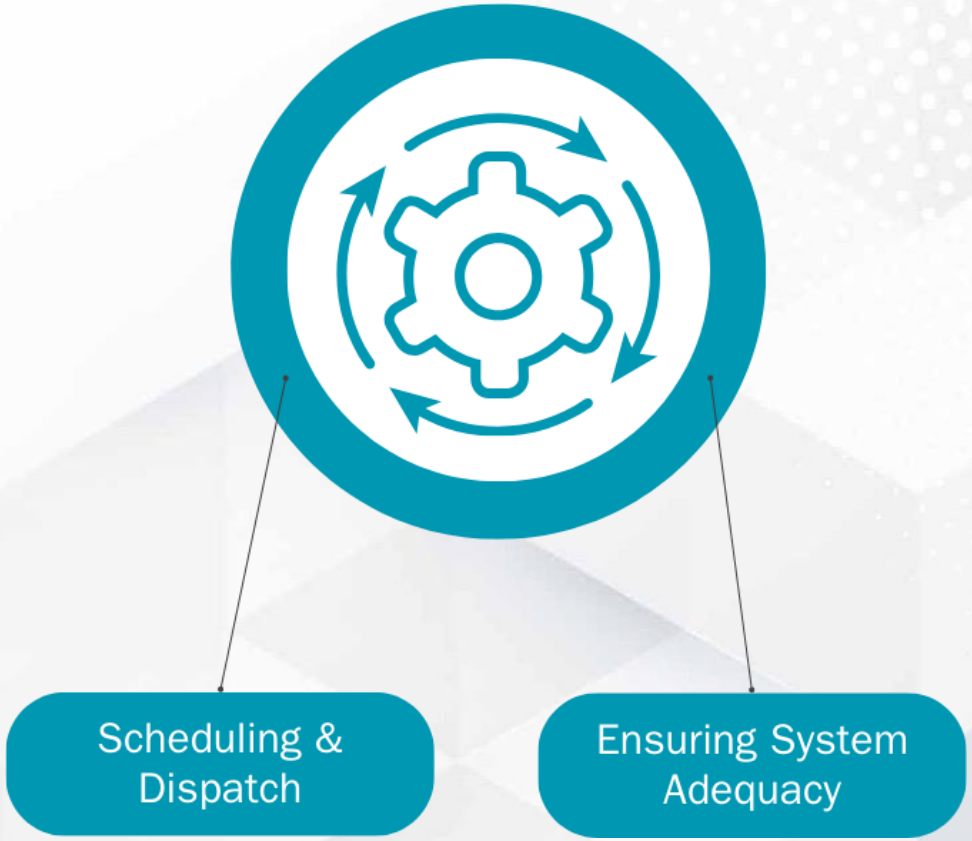
UR Stakeholder Event

Overview of the 2022/23 Evaluative Performance Framework Process



SONI's 4 Roles

Role 1 Overview



Role 1 primarily captures the **Operations and Markets related activities** and a focus on Scheduling & Dispatch, Future Arrangements, Emergency Preparedness and Security of Supply

Our work in facilitation of renewable generation is also key within the context of the Northern Ireland Energy Strategy.
This Role is fully aligned with the requirements under the SEM

System Operation and Adequacy

Role 1 Performance

Performance Report 2022/23

Plan Delivery

26 Milestones:

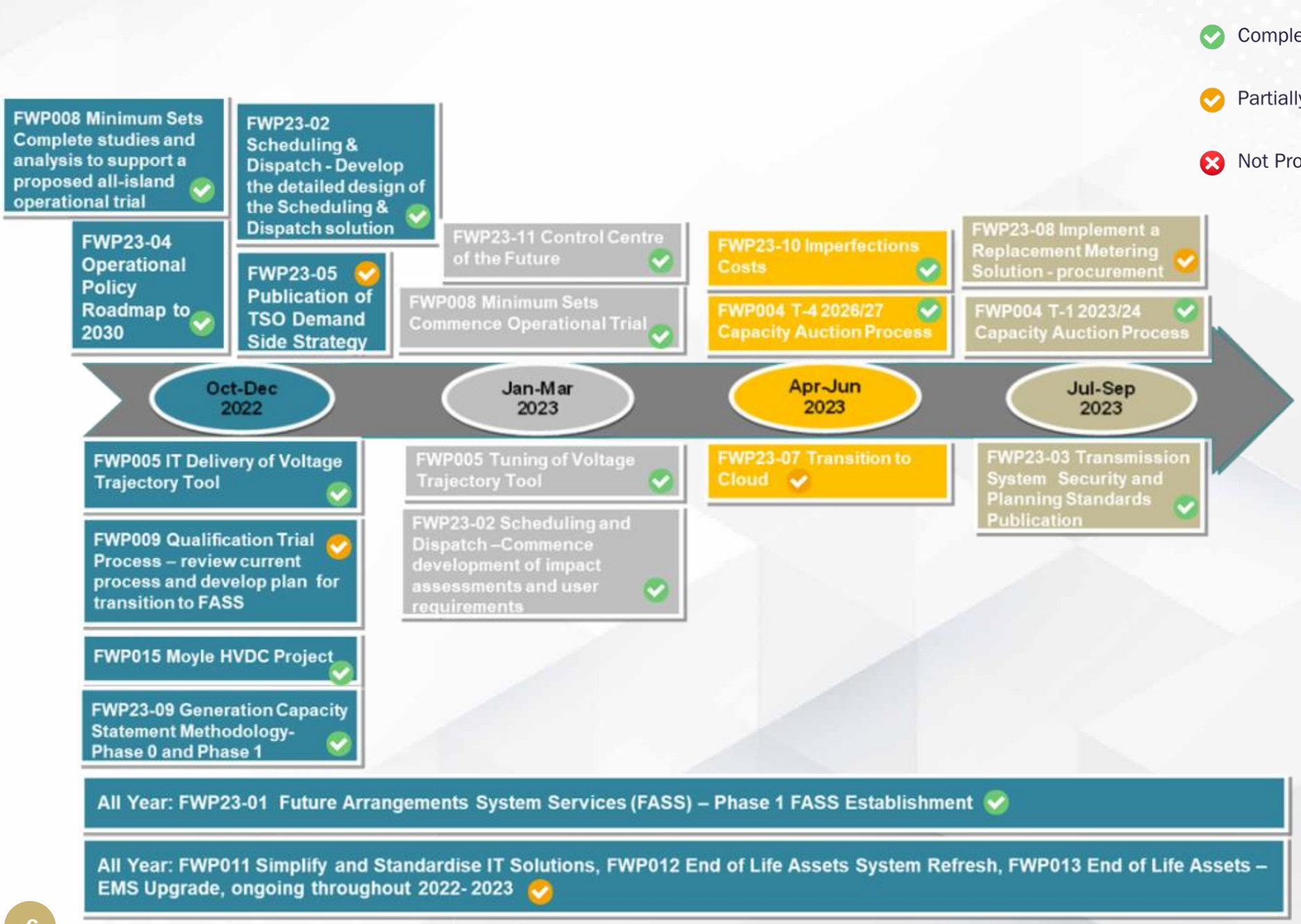
- 18 Completed
- 8 Partially Completed

Of the 8 remaining milestones which are not complete:

- 5 are **SONI-related delays**
- 2 were delayed for reasons **outside of SONI's control.**
- 1 is postponed to secure an **improved outcome for consumers**

Key Areas of Focus

FWP23-01: Future Arrangements System Services (FASS)
FWP23-02: Scheduling and Dispatch
FWP23-04: Operational Roadmap to 2030
FWP23-05: TSO Demand Side Strategy
FWP23-05: Control Centre Tools
FWP23-11: Control Centre of the Future
FWP013: End of Life Assets - EMS Upgrade



Those projects that were a **SONI – related delay** were due to project prioritisation.

The projects that were **outside of SONI's control** were due to delays on the delivery of critical IT hardware due to supply chain challenges and procurement.

The projects that were delayed for an **improved outcome for the consumer** was in order to enable further engagement with the relevant internal and external stakeholders

Role 2 Overview

Role 2 Independent Expert looks towards activities where we are **actively engaging with stakeholders**, providing key materials for stakeholders to remain informed on future activities and SONI's role in supporting the energy strategy.

Representing the NI voice is a key aspect, and in order to do so we must ensure that we are listening to all of our stakeholders.

Independent Expert

Role 2 Performance

Performance Report 2022/23

Plan Delivery

19 Milestones:

- 18 Completed
- 1 Partially Completed

The 1 remaining milestone which is not complete is a **delay outside of SONI's Control**

SONI has completed 2 Additional Deliverables in this space:

- Tomorrows Energy Scenarios Northern Ireland (TESNI)
- Constraints Report (NI)

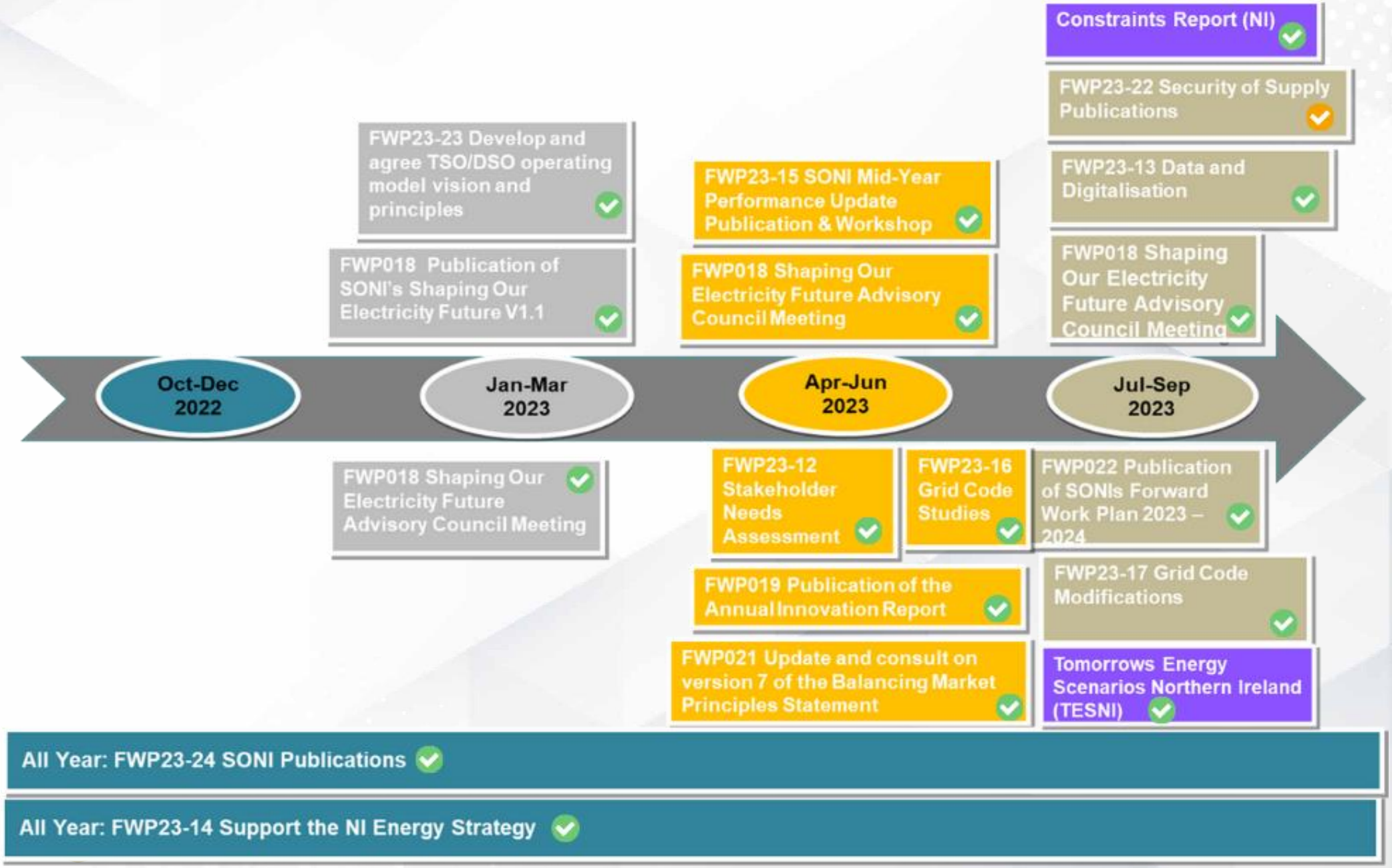
Key Areas of Focus

FWP018: Shaping Our Electricity Future Version 1.1

FWP23-12: Stakeholder Needs Assessment

FWP23-14: Support the NI Energy Strategy

FWP019: Annual Innovation Report



The one project that was delayed for reason **outside of SONI's control** was due to dependencies on an external stakeholder.

Role 3 Overview

Role 3 is focused on System Planning.

The development of the transmission network and interconnection and the associated projects are detailed in the Transmission Development Plan for Northern Ireland (TDPNI).

System Planning

Role 3 Performance

Performance Report 2022/23

Plan Delivery

23 Milestones:

- 13 Completed
- 7 Partially Completed
- 3 Not Progressed yet

Of the 10 remaining milestones which are not complete:

- 7 are delayed for reasons **outside of SONI's control**
- 3 are postponed to **secure an improved outcome for consumer**

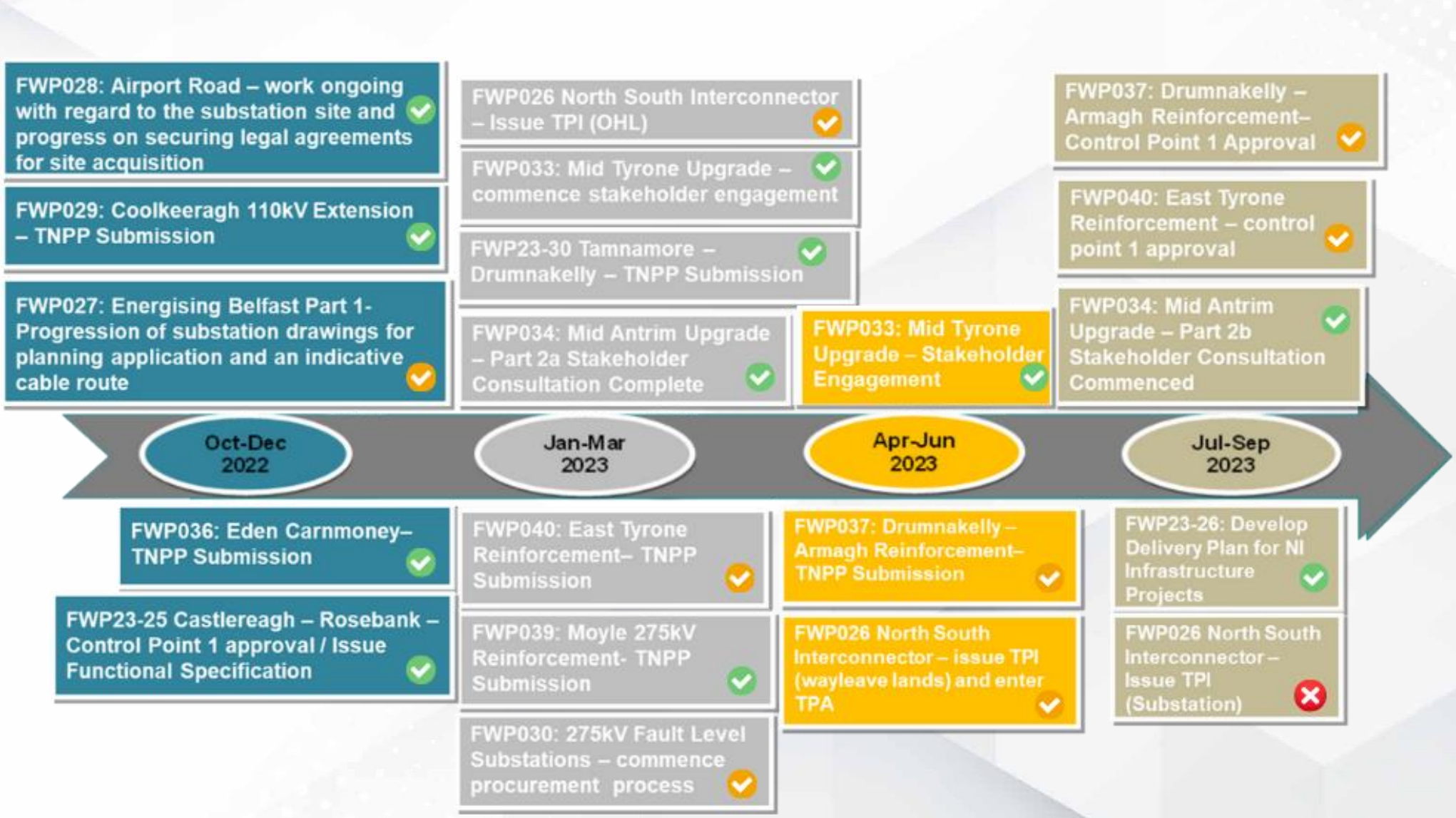
Key Areas of Focus

FWP027: Energising Belfast

FWP034: Mid-Antrim Upgrade

FWP026: North South Interconnector

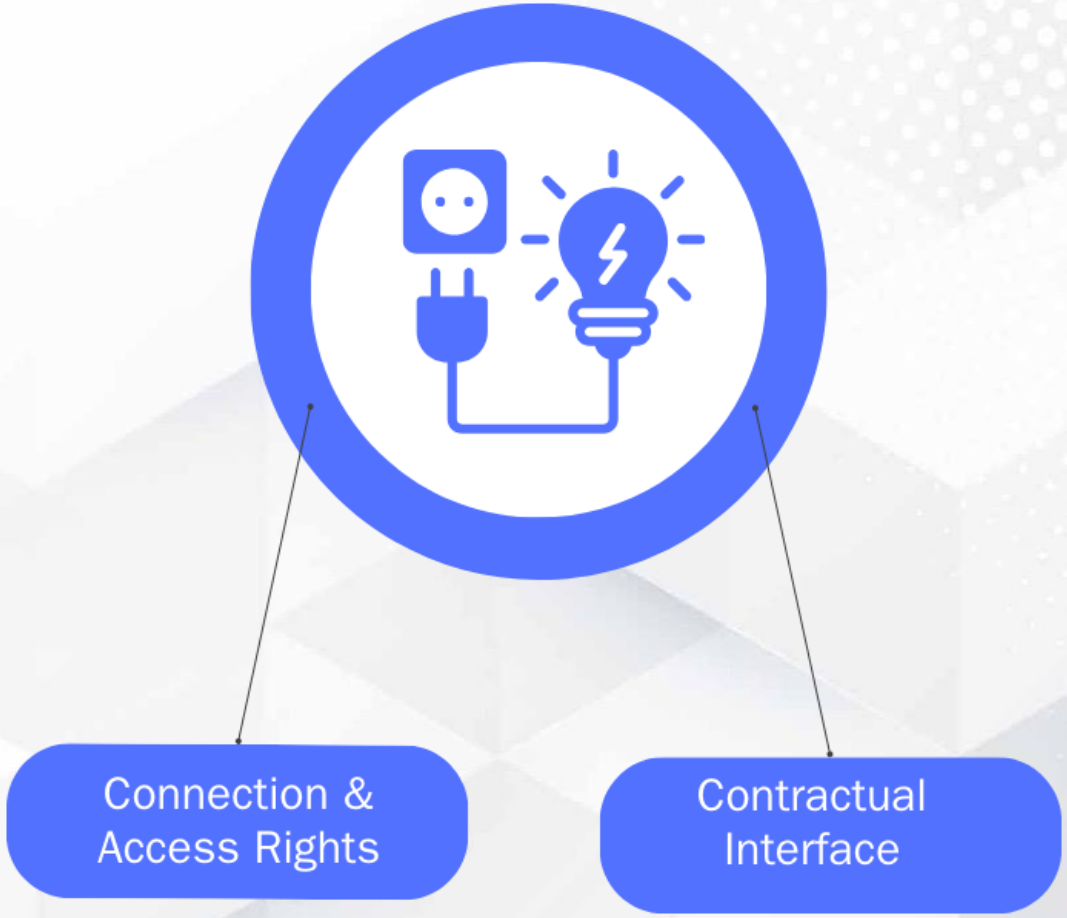
Progression of Several TNPP Submissions to progress Pre Construction activities



The projects that were **outside of SONI's control** were due to dependencies on external stakeholders.

The projects that were delayed for an **improved outcome for the consumer** was in order to enable further engagement with the relevant external stakeholders

Role 4 Overview



Role 4 primarily focuses on our **interactions with customers through the Connection Offer Process**, engaging with NIE Networks through associated Construction Offers and Preparation of Connection Agreements and Transmission Use of System Agreements. It also looks at Moyle Interconnector and the contractual arrangements we facilitate for connectees.

Commercial Interface

Role 4 Performance

Performance Report 2022/23

Plan Delivery

8 Milestones:

- 5 Completed
- 3 Partially Completed

Of the 3 remaining milestones which are not complete;

- 2 were delayed for reasons **outside of SONI's control**
- 1 is postponed to secure an **improved outcome for consumers**

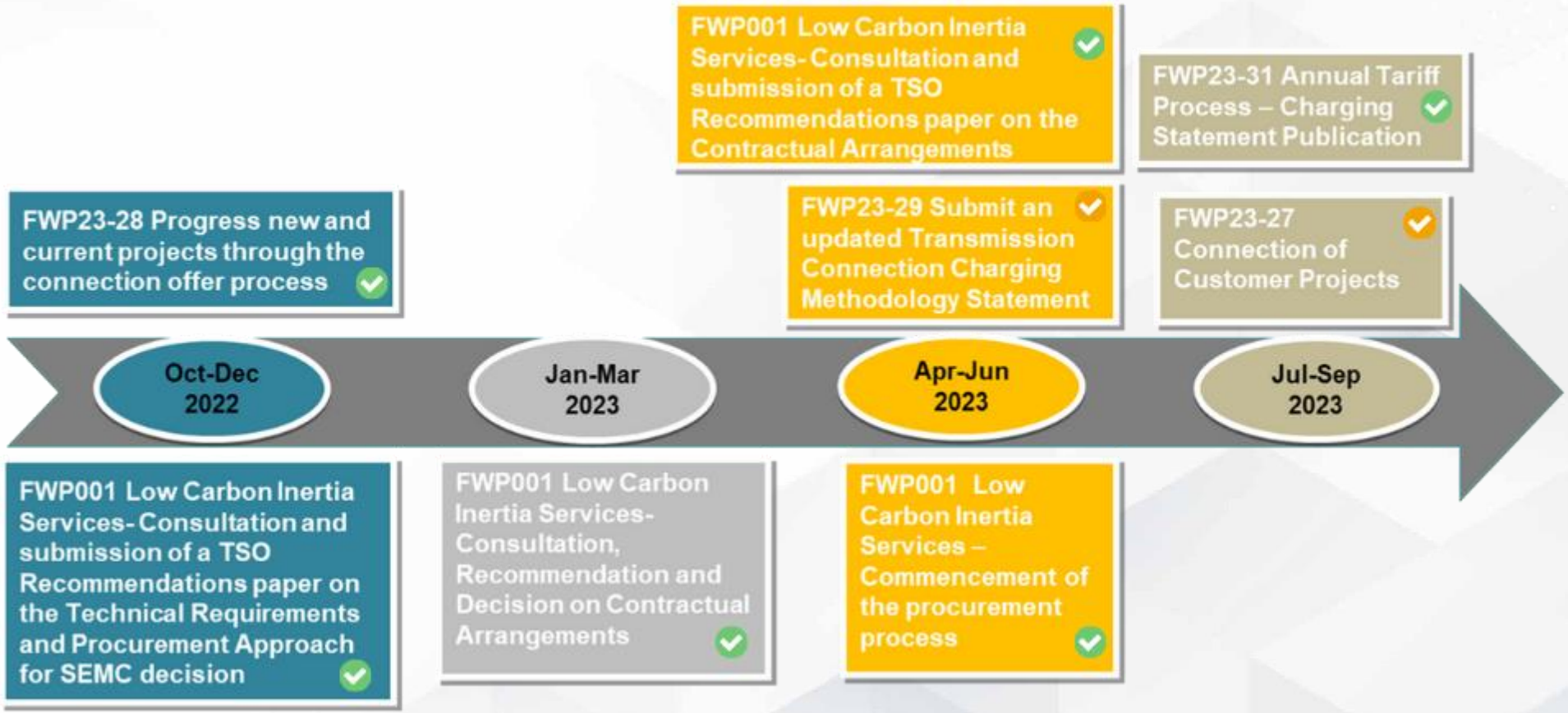
Key Areas of Focus

FWP001: Low Carbon Inertia Services

F**WP23-29**: Transmission Connection Charging Methodology Statement (TCCMS) Update

FWP23-28: Connection Offer Applications

FWP23-27: Connection of Customer Projects



Completed

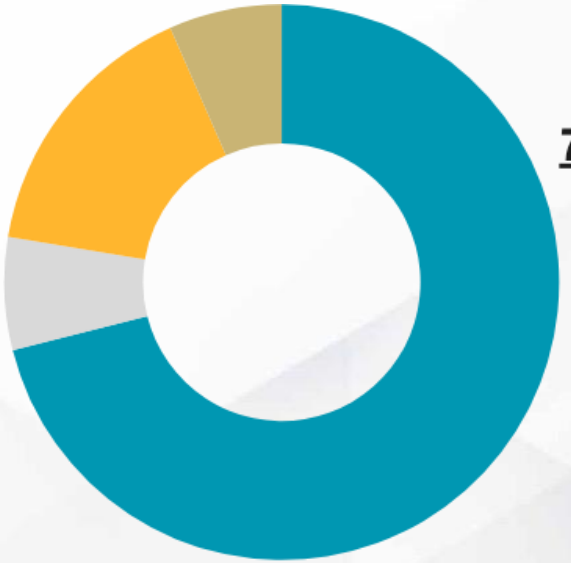
Partially Complete

Not Progressed

The projects that were **outside of SONI's control** were due to dependencies on external stakeholders.

The projects that were delayed for an **improved outcome for the consumer** was in order to ensure upcoming policy changes were better understood (in order to avoid potential nugatory work).

Overall Delivery & Reflection



76 Milestones:

- **54** Completed
- **19** Partially Completed
- **3** Not Progressed Yet

Lessons Learned

External Dependencies

Internal Communications

SONI Governance

Key Performance Indicators

SONI Service Quality

Timely Delivery of Publications -
17 out of 19 milestones completed

Quality & Quantity of Feedback -
86% of Stakeholder poll Satisfied

System-Wide Costs

Imperfection Costs - €10.2m

Decarbonisation

SNSP (%) - 75% ✓

Renewable Dispatch Down (%) - 9.4% ✓

Grid Security

System Frequency (%) - 98.6% ✓

SONI

Stakeholder Engagement

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Stakeholder Needs Assessment

- **Objective:** to develop an understanding of the needs and priorities for SONI's stakeholders in terms of engagement, priority areas of emphasis and key thematic areas of concern
- Independent research provider – Penta
- Internal SONI SME Working Group
- Approx. 90 stakeholders (29 participated from General public, Customers, Market participants, Regulatory, Industry, Government and political representatives, Business Groups, Civic society and other representative bodies) and 500 sample in public poll
- Qualitative and quantitative methods – IDIs, stakeholder survey, public poll

Key findings

- The areas stakeholders engage with SONI most frequently on are: new grid infrastructure, future energy demand and supply, system operations and connections to the grid.
- According to stakeholders, the top issues facing the grid are: meeting NI's renewable energy targets; developing enough infrastructure to manage more renewable energy and ensuring a safe, reliable, consistent supply of electricity.
- Stakeholders think that SONI should prioritise the following areas in the next 5 years: having enough resources to do the job; having knowledgeable people and providing useful, accurate, consistent communication to all constituencies.
- SONI strengths are seen as: communicating at my level of understanding; having knowledgeable people, being committed to renewable energy and having a safe, reliable, secure supply of electricity.
- Priority areas for improvement were identified as: ensuring customers can connect to the grid in a timely fashion, having enough resources to do the job and planning and upgrading grid infrastructure.
- Amongst the public, there is a little recognition of SONI, but little appetite to hear regularly from grid operator
- Amongst those who are aware of SONI, they are broadly favourable in their views.

SONI Satisfaction

Relationships with SONIs staff have been positive and drive satisfaction among stakeholders. To improve the already high satisfaction, SONI should focus on increased transparency and more frequent communication.

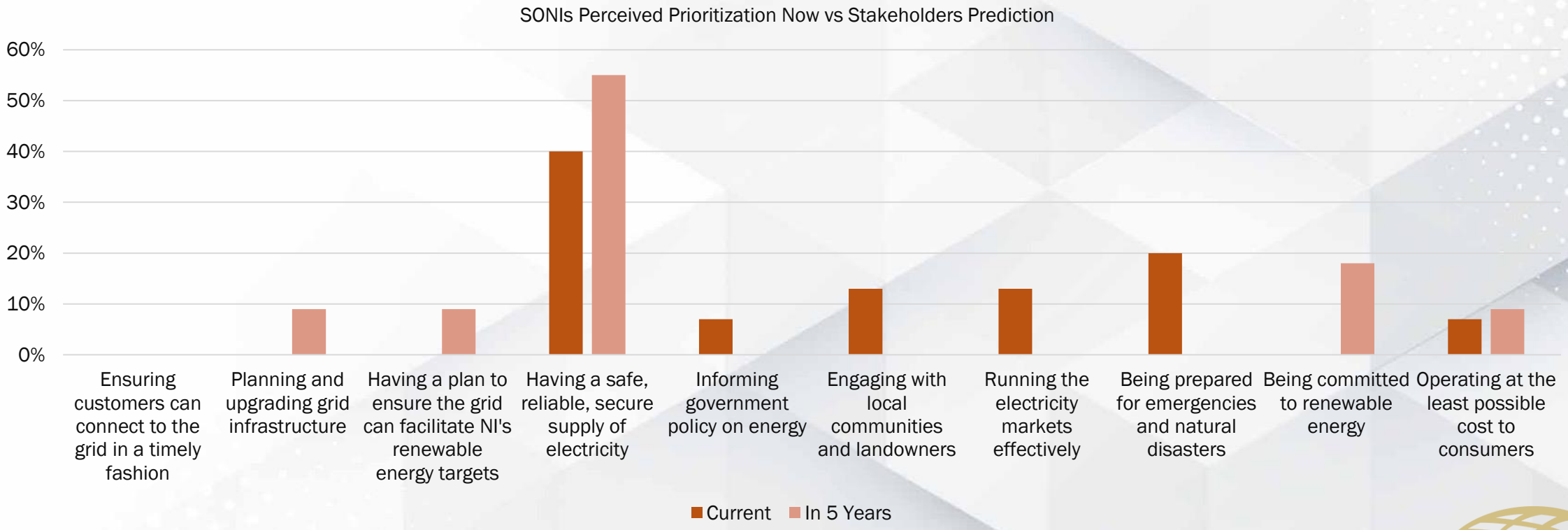
Satisfaction Metric Showing %	Stakeholders
Very satisfied	36%
Somewhat satisfied	50%
Somewhat dissatisfied	14%
Very dissatisfied	0%

Improvement Tactic Showing %	Stakeholders
More transparency in decision-making	57%
More frequent communication	50%
More knowledge about SONI and its role	29%
More opportunities to input into SONI's work	29%
More face-to-face engagement	21%
Quicker response to my queries	14%
More visibility of senior management team	14%
A better understanding of my needs and views	14%
Easier to understand communications	0%
Nothing	14%
Don't know	14%

How satisfied have you been with your interactions with SONI?
What would improve your experience interacting with SONI?

SONI Business Prioritization

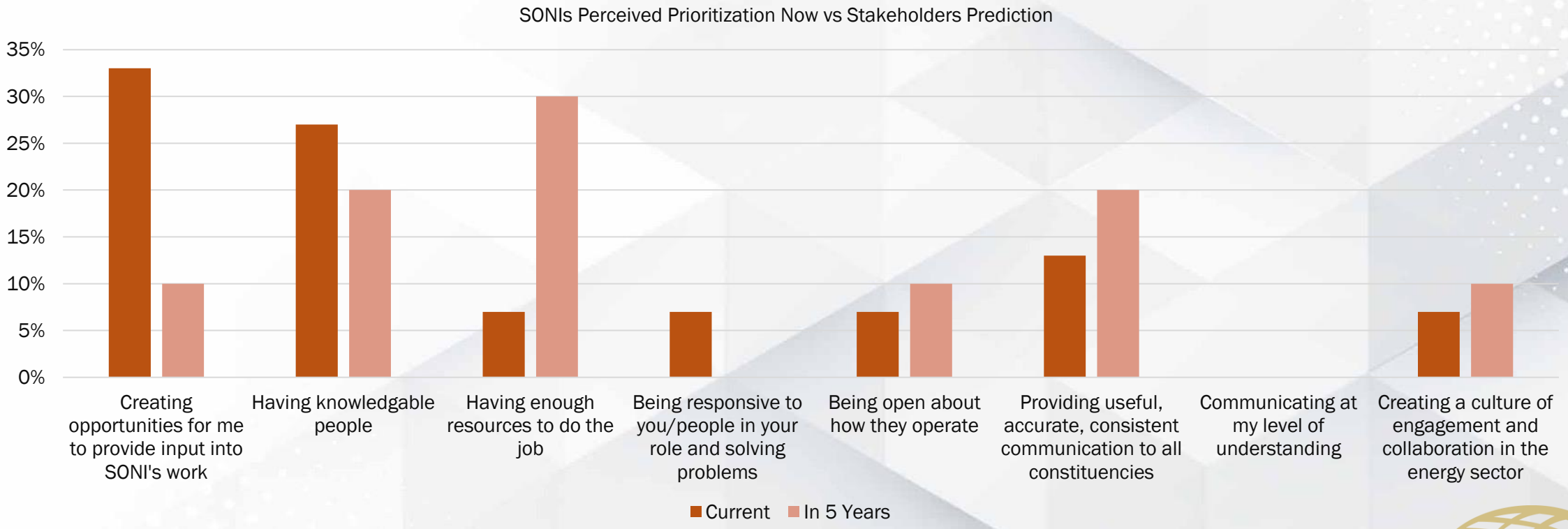
SONI is already seen as prioritizing having a safe, reliable, secure supply of electricity but stakeholders still expect that to become an area of increasing focus in the next five years.



Please rank each of the following aspects of SONI's business in terms of how you believe they prioritise them today.
Please re-rank each of the following aspects of SONI's business in terms of how you believe they should prioritise them in five years.

SONI Engagement Prioritization

SONI is viewed as prioritizing opportunities for collaboration as well as having knowledgeable people, but the expectation is that having enough resources will become more of a focus in the next five years.



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Please rank each of the following aspects of SONI's engagement in terms of how you believe they prioritise them today.
Please re-rank each of the following aspects of SONI's business in terms of how you believe they should prioritise them in five years.

Key activity - snapshot

Stakeholder Grouping	Key activity
Local communities and landowners	Mid Antrim Upgrade Part 2b Energising Belfast Part 2a Mid Tyrone Part 1 North-South Interconnector Part 2c 8 community consultation events
Industry and Customers	Shaping Our Electricity Future Advisory Council meetings x 2 Bi-lateral roundtables with Renewables NI x 2 Exhibition and partnership for Smart Energy Conference Frequent Renewables Grid Liaison Group engagement Transmission Development Plan Engagement event Multiple TIA and SMT bi-lateral engagements with NIE Networks Energy Forum events in partnership with NI Chamber x 4 NI Constraints Study briefing event with RNI Shaping Our Electricity Future 1.1 briefing with RNI
Business groups and civic society	Transmission Development Plan Engagement event Membership of CBI Energy Working Group Membership of NI Chamber Council Bi-lateral engagements with Manufacturing NI and Londonderry Chamber of Commerce Winter Outlook and Security of Supply briefing series Exhibition at NI Festival of Business Hosted and presented at Retail NI AGM
Regulatory partners	Ongoing EPF engagements including FWP and Mid Year
Government and elected representatives	Energy spokesperson briefing series Alliance Party visit to Castlereagh House Security of supply working group Offshore Renewable Energy Action Plan Working Group participation
Market participants	Quarterly Market Operator User Group forums

SONI

A snapshot

Pictured above: SONI Transmission Development Plan briefing with business groups

"I have received extremely positive feedback on the TDPNI session from members – it has been fed back to me that it was very well organised with good engagement and relevant presentations so thanks again for that"
– Renewables NI

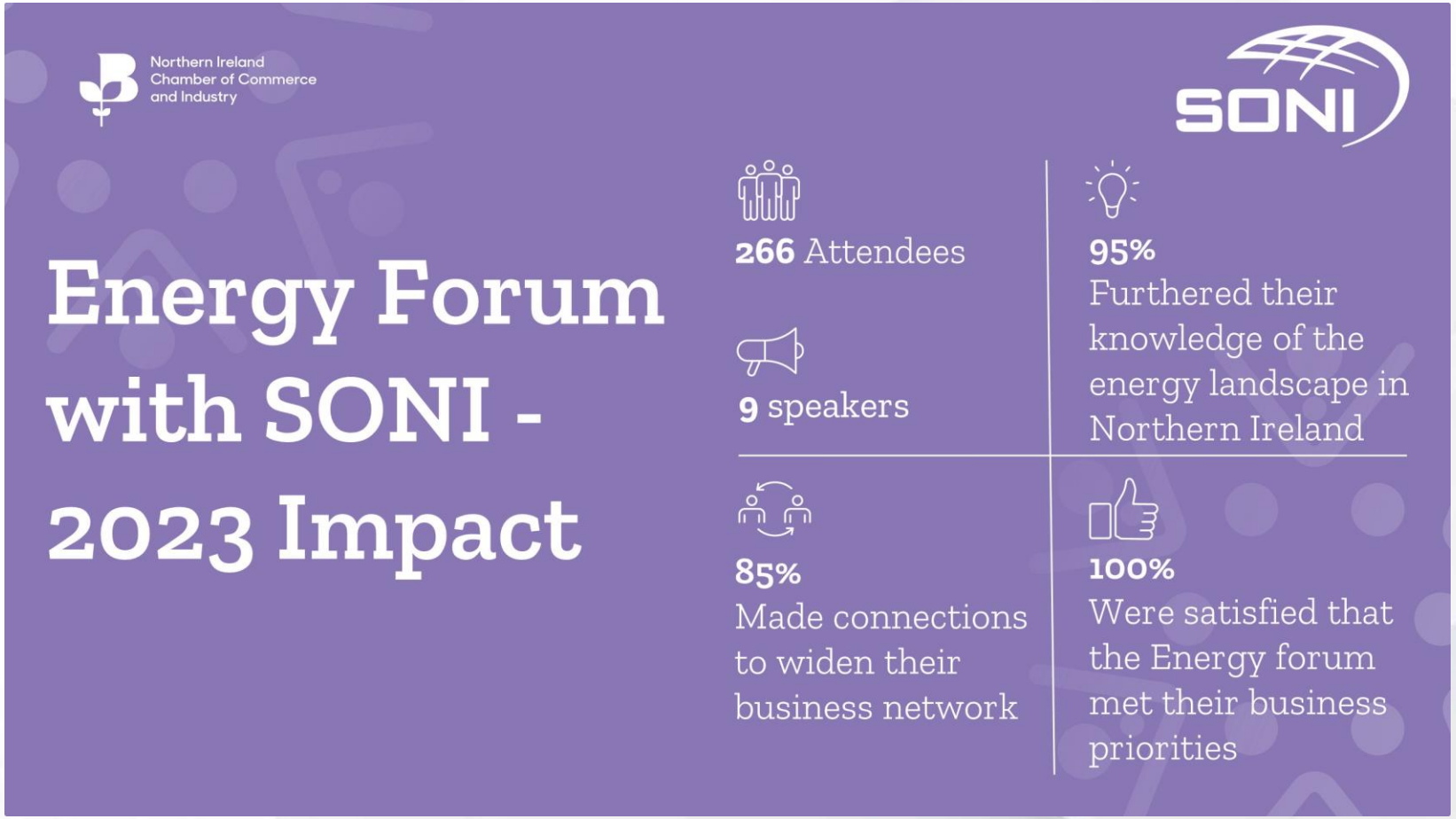
Pictured above: Over 100 industry delegates attend SONI/NI Chamber Energy Forum on the subject of engaging with local communities.

Pictured left: SONI host Retail NI AGM and visit to Castlereagh House

Pictured above: SONI contributes to Technology and Innovation Panel at NI Energy Summit which welcomed over 400 delegates.

Pictured right: SONI engages with US Special Envoy Joseph Kennedy III at NI Energy Summit

Outcomes Case Study – NI Chamber/SONI Energy Forum



SONI

Outcomes Case Study – Mid Antrim Citizen Sounding Board

100% Agreed/Strongly Agreed

"I was given enough information to form opinions on new subjects"

100% Agreed/Strongly Agreed

"I can see clearly that my views were taken into consideration throughout this process"

83% Agreed/Strongly Agreed

"'I understand how the Mid Antrim Upgrade will help Northern Ireland meet its 80% renewal energy target by 2030"

100% Agreed/Strongly Agreed

"Processes like these should be used more by SONI to inform their decision making"

SONI completes Citizen Sounding Board initiative

Pictured above: Weekend two of Mid Antrim Citizen Sounding Board

Outcomes Case Study – RNI SOEF 1.1 briefing

85% Agreed/Strongly Agreed

"The engagement met my expectations and added value to my role"

85% Agreed/Strongly Agreed

"I have a better understanding of SONI's role and the relevant subject matter"

85% Agreed/Strongly Agreed

"The information provided was accessible and proportionate to my needs"

85% Agreed/Strongly Agreed

"There was sufficient opportunity for me to engage and ask questions"

Pictured left: SONI Team exhibiting at RNI Smart Energy Conference where over 240 industry delegates attended.

System Operations

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Key message from Winter Outlook 23/24

This assessment highlights that, whilst there is an **increased risk** of operating outside of existing security standards for generation margin due to a reduction in conventional generation capacity, there should be **sufficient generation** this winter to **meet expected demand** in **normal operating conditions.**

Winter Outlook 2023/24

October 2023

Winter 2023/24 Preparation

Collaboration with Stakeholders

- Preparation with European TSOs – CORESO
  - National Grid
- Emergency exercises with Northern Ireland key responders
- Civil contingencies – working with Authorities to ensure alignment of processes
- Significant Communication Exercise with Industry

Control Centre

- Development of an NI specific plan for system security for all expected scenarios that could arise in Winter 2023/24 and beyond
- Control Room Training
  - Working in close coordination with NIE Networks
- Review and update of existing plans and policies including the Alert process

System and Generators

- Tracking run hour limited plant to ensure availability of peaking generation
- Tracking Fuel Stocks
- Optimisation of Outage Plans in conjunction with EirGrid
- Maximisation of available generation
- Guidelines for Generators during an Alert

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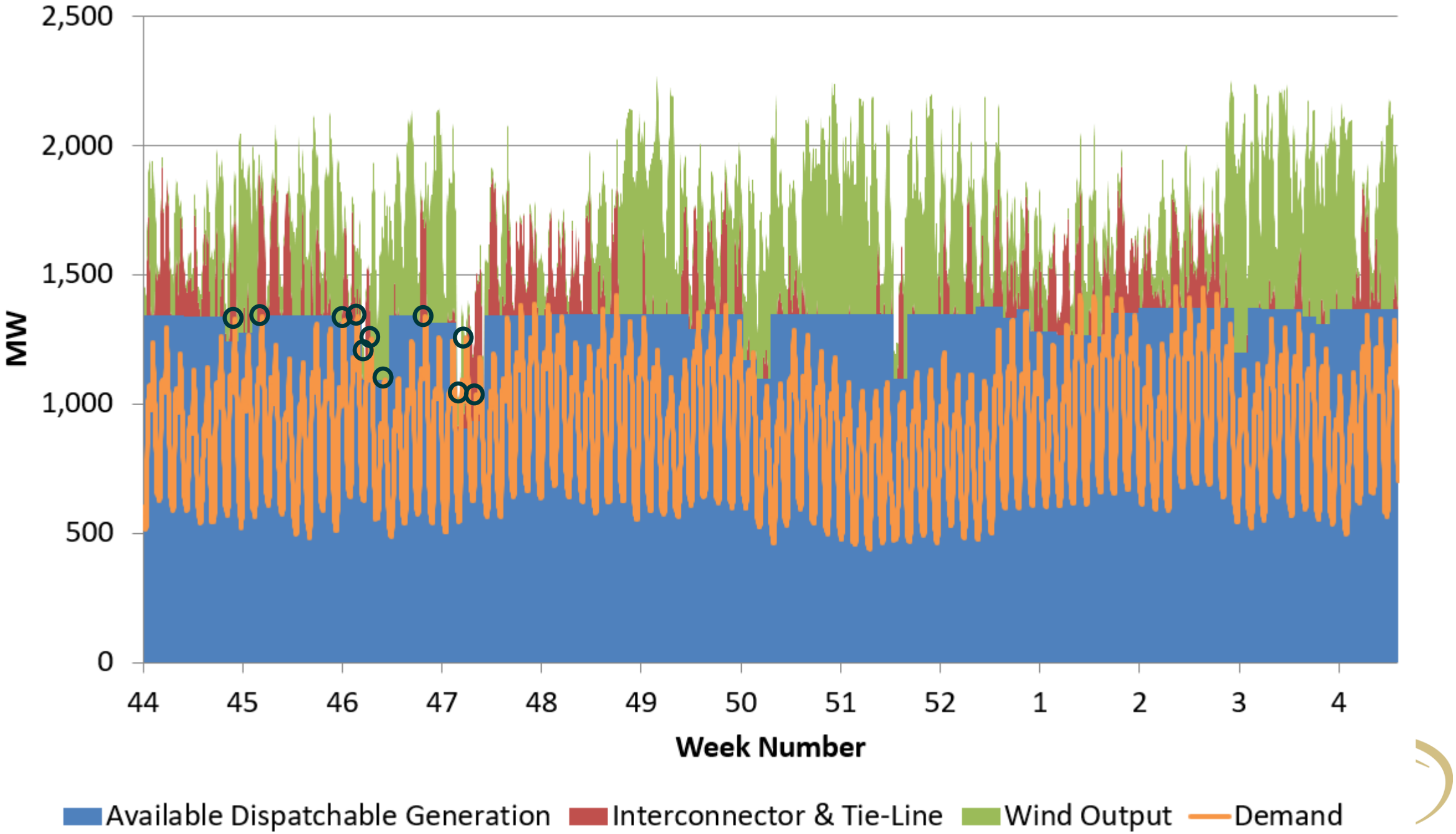
Winter 2023/24 to date

Winter 2023/24

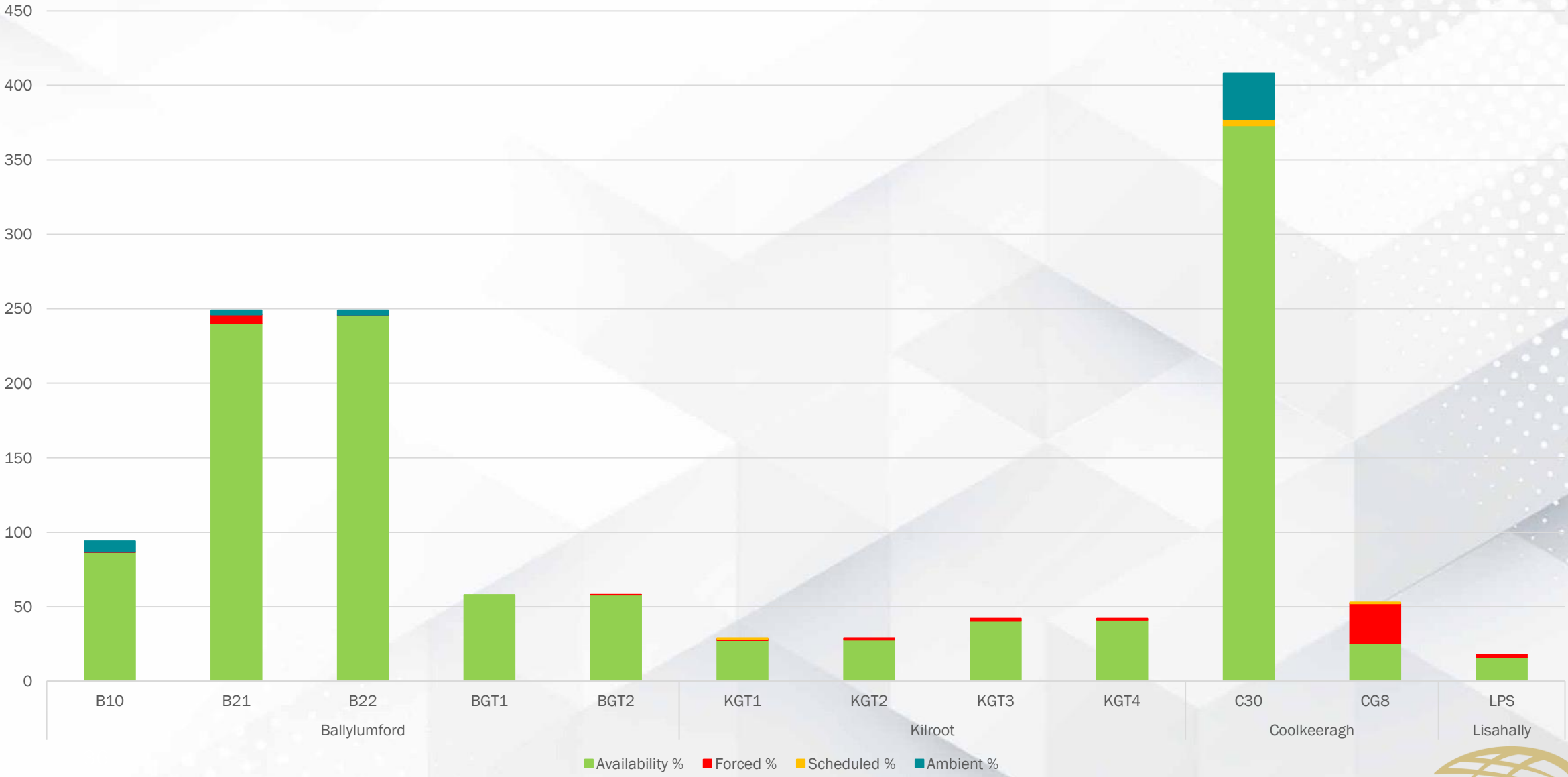
- Winter 2023/24 has been mild to date with average maximum and minimum temperatures above 20-year average
- Two short cold spells, not in succession
- The demand in Northern Ireland has not reached the same levels experienced even in recent mild winters


2,500
2,000
1,500
1,000
500
0
MW
44
45
46
47
48
49
50
51
52
1
2
3
4
Week Number
Available Dispatchable Generation
Interconnector & Tie-Line
Wind Output
Demand

Winter 2023/24

- 30% of the time Northern Ireland has been dependent on Interconnection and wind generation to meet Demand
  - Dependency increases when operational reserve requirement is taken into consideration
- Generation margins have been tight throughout the winter period at times of low wind generation
- Good interconnector support from GB when required.
  - Even at times when GB have had low generation margins, support has been available from mainland Europe
- Reliability from Conventional Generation has been high

Conventional Generator Reliability November 2023 - 31 January 2024

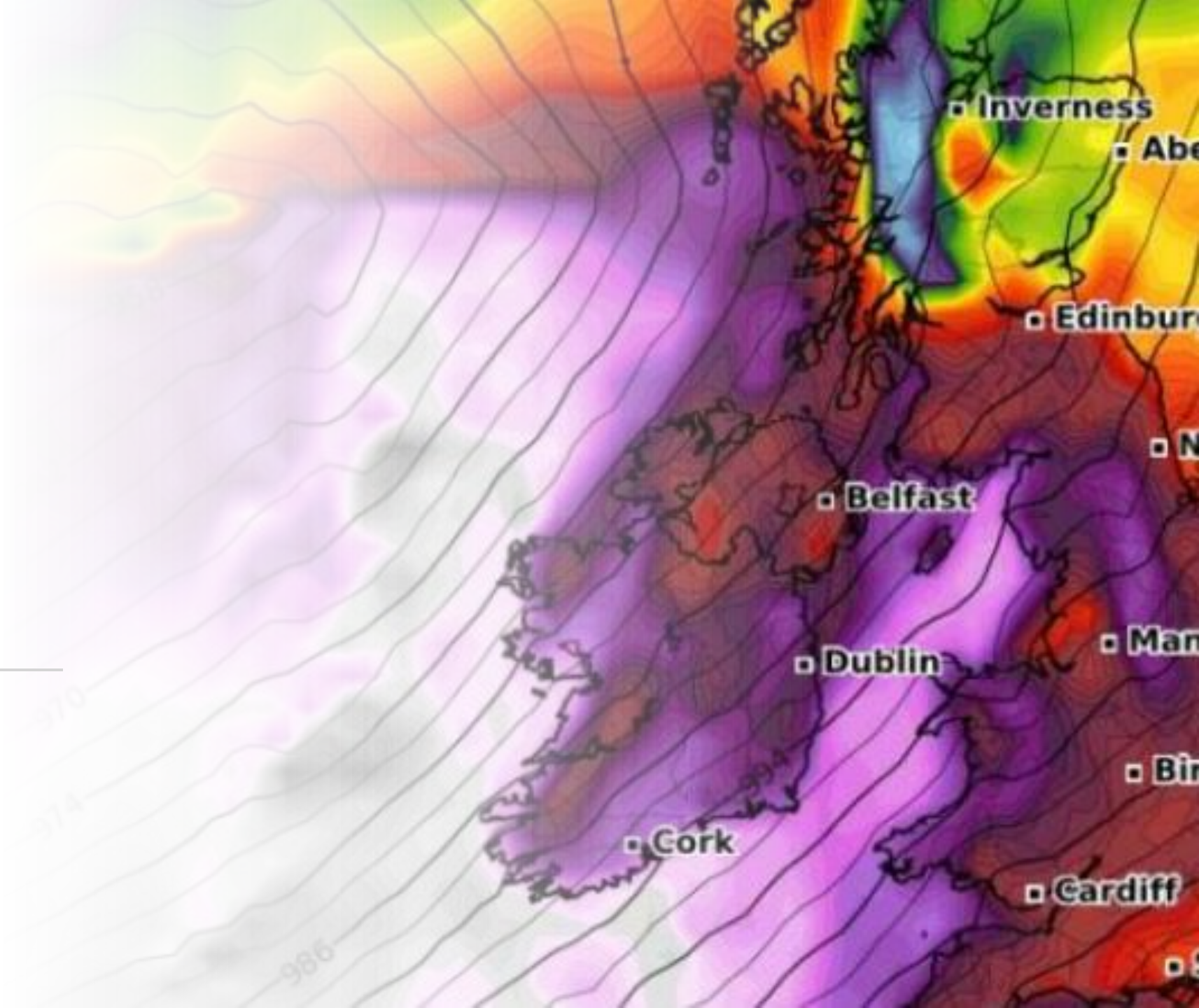


Winter 2023/24 challenges

Amber Alert

- A System Alert was issued from 17:00 until 18:30 on the evening of 15 January 2024 due to high demand and low renewable generation availability.
- Wind availability was 25 MW at peak
- Full import on Moyle Interconnector towards Northern Ireland over system peak with EWIC importing 504MW to Ireland
- Conventional generation availability was high in Northern Ireland (98%)
- DSU availability remained poor with 29 MW available of total contracted capacity of 97MW
- System Alert passed without incident, with generation margins remaining tight throughout the remainder of the week

Storm Isha

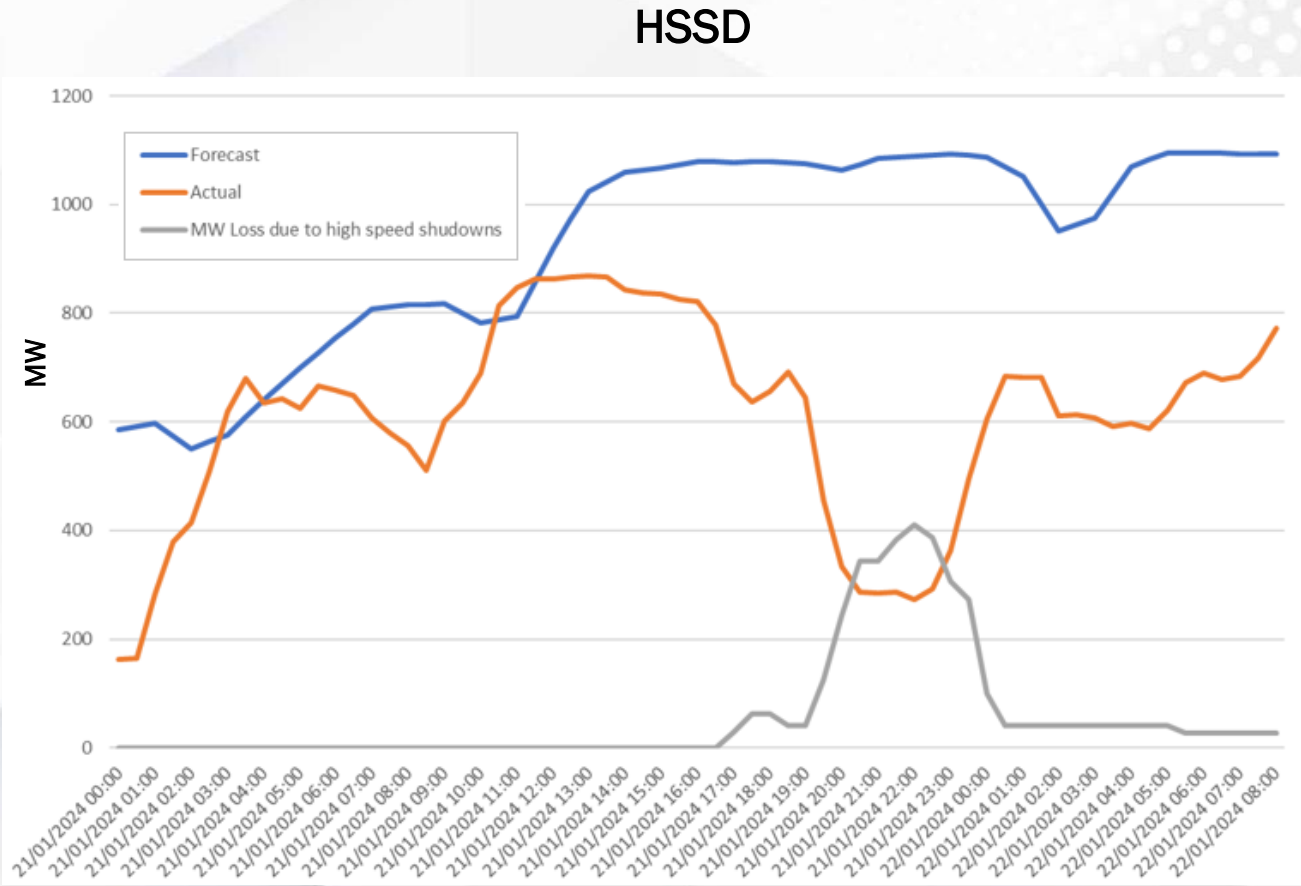


Storm Isha

- Transmission system in Northern Ireland remained intact
- Significant disruption to the Distribution system

Managing Variable Renewable Generation

- Wind forecast predicted wind generation >1000 MW
- Moyle interconnector exporting 181 MW from Northern Ireland to Great Britain
- Due to severe wind speeds, High-Speed Shutdown (HSSD) was expected, however the level of HSSD that occurred (up to 60 %)was in excess of expectations
- This level of HSSD on the Northern Ireland system had a significant impact on generation margin.
- To secure the system, additional conventional generation was brought online in Northern Ireland



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Winter 2023/24 (to date) in review

Summary

Significant preparedness activities were undertaken prior to Winter 2023/24

Generation margins have been tight throughout the winter period even with demand down and particularly at times of low wind generation

Reliability of dispatchable generation has been high and support from interconnection has been available when required to support Northern Ireland

System Operations have been able to manage any challenges that have arisen throughout the winter period to date

The winter period is not over yet and extends to March

Dispatch Down Review

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Agenda

- Review of 2022
- Review of 2023 (focus on changes)
- Review of Drivers

Overview 2022 – Dispatch Down – 9.4%

			2022															
			Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2022
Wind	AI	**Dispatch Down**	**8.9%**	**8.1%**	**7.1%**	**8.1%**	**5.7%**	**9.4%**	**10.7%**	**8.6%**	**5.0%**	**4.6%**	**7.2%**	**5.8%**	**12.2%**	**9.7%**	**7.9%**	**10.1%**	**8.5%**
		Constraints	1.6%	4.1%	4.4%	3.4%	3.4%	7.7%	10.2%	7.0%	4.6%	4.5%	5.6%	4.9%	6.4%	6.4%	2.1%	5.2%	[illegible]
		Curtailments	7.3%	4.0%	2.7%	4.7%	2.3%	1.7%	0.6%	1.6%	0.4%	0.2%	1.7%	0.8%	5.8%	3.3%	5.8%	4.9%	3.5%
	IE	**Dispatch Down**	**9.1%**	**8.1%**	**7.4%**	**8.2%**	**5.5%**	**10.2%**	**10.1%**	**8.6%**	**3.2%**	**3.5%**	**7.0%**	**4.8%**	**11.8%**	**9.3%**	**7.5%**	**9.7%**	**8.3%**
		Constraints	1.7%	4.4%	4.8%	3.7%	3.1%	8.6%	9.6%	7.1%	2.7%	3.3%	5.3%	3.9%	6.1%	5.9%	1.7%	4.8%	4.8%
		Curtailments	7.3%	3.8%	2.6%	4.5%	2.4%	1.6%	0.5%	1.5%	0.4%	0.2%	1.8%	0.9%	5.7%	3.4%	5.8%	4.9%	3.5%
	NI	**Dispatch Down**	**8.6%**	**8.0%**	**6.0%**	**7.7%**	**6.5%**	**6.7%**	**13.1%**	**8.6%**	**11.4%**	**8.9%**	**8.1%**	**9.4%**	**13.8%**	**11.3%**	**10.0%**	**11.9%**	**9.4%**
		Constraints	1.2%	2.9%	2.9%	2.4%	4.4%	4.6%	12.2%	6.9%	11.3%	8.8%	6.9%	8.9%	7.8%	8.4%	4.1%	7.1%	[illegible]
		Curtailments	7.4%	5.1%	3.2%	5.3%	2.1%	2.1%	0.9%	1.7%	0.1%	0.1%	1.2%	0.5%	6.0%	2.9%	5.9%	4.8%	3.6%
Solar	NI	**Dispatch Down**	**3.5%**	**2.8%**	**4.5%**	**4.0%**	**6.4%**	**3.4%**	**6.3%**	**5.4%**	**4.1%**	**4.2%**	**2.5%**	**3.7%**	**8.1%**	**1.9%**	**7.5%**	**6.1%**	**4.6%**
		Constraints	0.6%	1.8%	2.5%	2.2%	6.3%	3.1%	6.0%	5.1%	4.1%	4.2%	2.5%	3.7%	6.0%	1.5%	6.0%	4.7%	4.1%
		Curtailments	2.8%	1.0%	1.9%	1.8%	0.1%	0.3%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	2.1%	0.3%	1.5%	1.5%	0.6%

Overview 2023 – Dispatch Down – 18.6%

			2023															
			Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2023
Wind	AI	Dispatch Down	10.8%	5.6%	6.9%	7.9%	7.3%	3.3%	3.6%	5.3%	14.4%	9.9%	13.8%	12.7%	13.2%	11.7%	17.6%	14.8%	10.7%
		Constraints	4.3%	3.6%	3.8%	3.9%	4.2%	2.9%	3.1%	3.5%	9.4%	7.8%	8.9%	8.7%	10.1%	7.7%	5.9%	7.4%	6.1%
		Curtailments	6.5%	2.0%	3.1%	4.0%	3.1%	0.4%	0.5%	1.7%	4.9%	2.2%	4.9%	4.0%	3.1%	4.0%	11.7%	7.3%	4.7%
	IE	Dispatch Down	9.9%	4.9%	6.1%	7.1%	6.0%	2.9%	3.3%	4.4%	11.5%	7.7%	11.1%	10.1%	8.9%	10.0%	15.2%	12.1%	8.9%
		Constraints	3.4%	2.8%	3.2%	3.1%	3.1%	2.4%	2.8%	2.9%	6.8%	5.5%	5.7%	6.0%	5.3%	6.0%	3.2%	4.6%	4.2%
		Curtailments	6.6%	2.1%	2.9%	4.0%	2.8%	0.4%	0.5%	1.6%	4.7%	2.2%	5.4%	4.1%	3.6%	3.9%	12.0%	7.5%	4.7%
	NI	Dispatch Down	14.1%	8.3%	11.1%	11.3%	13.1%	5.5%	5.2%	9.2%	28.2%	19.5%	25.4%	24.3%	27.4%	20.7%	28.0%	26.0%	18.6%
		Constraints	7.9%	6.5%	6.9%	7.2%	8.6%	5.2%	4.7%	6.8%	22.0%	17.4%	22.8%	20.7%	25.6%	16.2%	17.3%	19.5%	14.1%
		Curtailments	6.2%	1.8%	4.2%	4.1%	4.5%	0.3%	0.5%	2.4%	6.2%	2.1%	2.6%	3.6%	1.8%	4.5%	10.6%	6.5%	4.5%
Solar	AI	Dispatch Down					2.9%	3.9%	10.6%	6.5%	11.3%	11.4%	14.7%	12.3%	8.9%	2.8%	14.0%	7.8%	9.1%
		Constraints					2.5%	3.9%	10.5%	6.4%	7.4%	9.2%	11.3%	9.1%	5.5%	0.8%	1.0%	3.2%	7.0%
		Curtailments					0.4%	0.0%	0.1%	0.1%	3.9%	2.3%	3.4%	3.2%	3.4%	2.0%	13.0%	4.5%	2.1%
	IE	Dispatch Down					0.1%	4.6%	13.3%	7.5%	10.5%	11.7%	14.9%	12.1%	8.5%	2.4%	13.4%	7.4%	9.5%
		Constraints					0.0%	4.6%	13.2%	7.4%	6.5%	9.3%	10.9%	8.7%	4.6%	0.1%	0.0%	2.4%	7.2%
		Curtailments					0.1%	0.0%	0.1%	0.1%	4.0%	2.3%	4.0%	3.4%	3.8%	2.3%	13.4%	5.0%	2.3%
	NI	Dispatch Down	12.5%	5.7%	7.2%	7.7%	9.3%	1.8%	1.4%	3.5%	14.5%	10.5%	13.7%	12.9%	10.8%	4.6%	18.2%	9.8%	7.9%
		Constraints	7.7%	5.2%	5.0%	5.5%	8.2%	1.7%	1.3%	3.2%	11.0%	8.4%	12.9%	10.6%	9.4%	4.3%	7.9%	7.5%	6.4%
		Curtailments	4.7%	0.5%	2.2%	2.1%	1.1%	0.1%	0.1%	0.3%	3.4%	2.1%	0.8%	2.2%	1.4%	0.3%	10.3%	2.2%	1.4%

SONI

Drivers for Change in Dispatch Down (NI)

- Mixture of:
  - N. Ireland Transmission Outages (summer only)
    - Uprating of network
  - Coolkeeragh must run (since closure of Kilroot coal units)
    - N. Ireland Security of Supply to maintain high reliability on this large generator
    - Generator located in a region with a high level of installed wind
  - Interconnector Imports increasing from 2022 levels
    - Observed at times of high renewables on the island i.e. market not exporting excess renewables.
    - SONI will trade (priority dispatch) with NGESO when agreed.

SONI

Interconnector Flows - Focus

Electricity Fuel Mix as Percentage of Demand - Calendar Year Figures:

	All Island									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Fuel Type	%	%	%	%	%	%	%	%	%	%
Coal	16.4%	18.4%	17.6%	12.9%	8.7%	3.5%	4.2%	9.4%	8.0%	4.2%
Oil	0.7%	1.1%	0.8%	0.4%	0.4%	0.7%	1.0%	3.6%	2.6%	0.3%
NR Peat	6.8%	6.7%	6.1%	5.6%	5.3%	4.9%	2.3%	0.8%	0.6%	0.3%
Gas	44.9%	44.0%	51.7%	53.3%	50.5%	50.3%	50.7%	46.8%	50.7%	43.9%
Wind	18.0%	22.3%	20.6%	25.3%	28.6%	32.2%	36.4%	29.6%	34.1%	34.1%
Solar	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.6%	0.6%	0.5%	1.3%
Hydro	2.0%	2.2%	1.8%	1.8%	1.8%	2.3%	2.4%	1.9%	1.8%	2.3%
Other Renewables	1.8%	1.8%	2.6%	2.8%	3.3%	3.0%	3.2%	3.3%	3.1%	2.8%
Other Non-Renewables	0.2%	0.2%	0.2%	0.4%	0.8%	0.7%	0.8%	0.8%	0.8%	0.8%
Net Imports	9.4%	3.4%	-1.4%	-2.6%	0.5%	2.0%	-1.5%	3.3%	-2.2%	10.0%
Total Demand	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Renewables	21.7%	26.3%	25.0%	29.9%	33.7%	37.9%	42.6%	35.3%	39.5%	40.5%

Updated: Feb 2023

Summary

- Observed a material change in Dispatch Down across 2023 with a number highlighted of drivers.

- Some of these drivers will exist into 2024 and beyond while the power system transitions