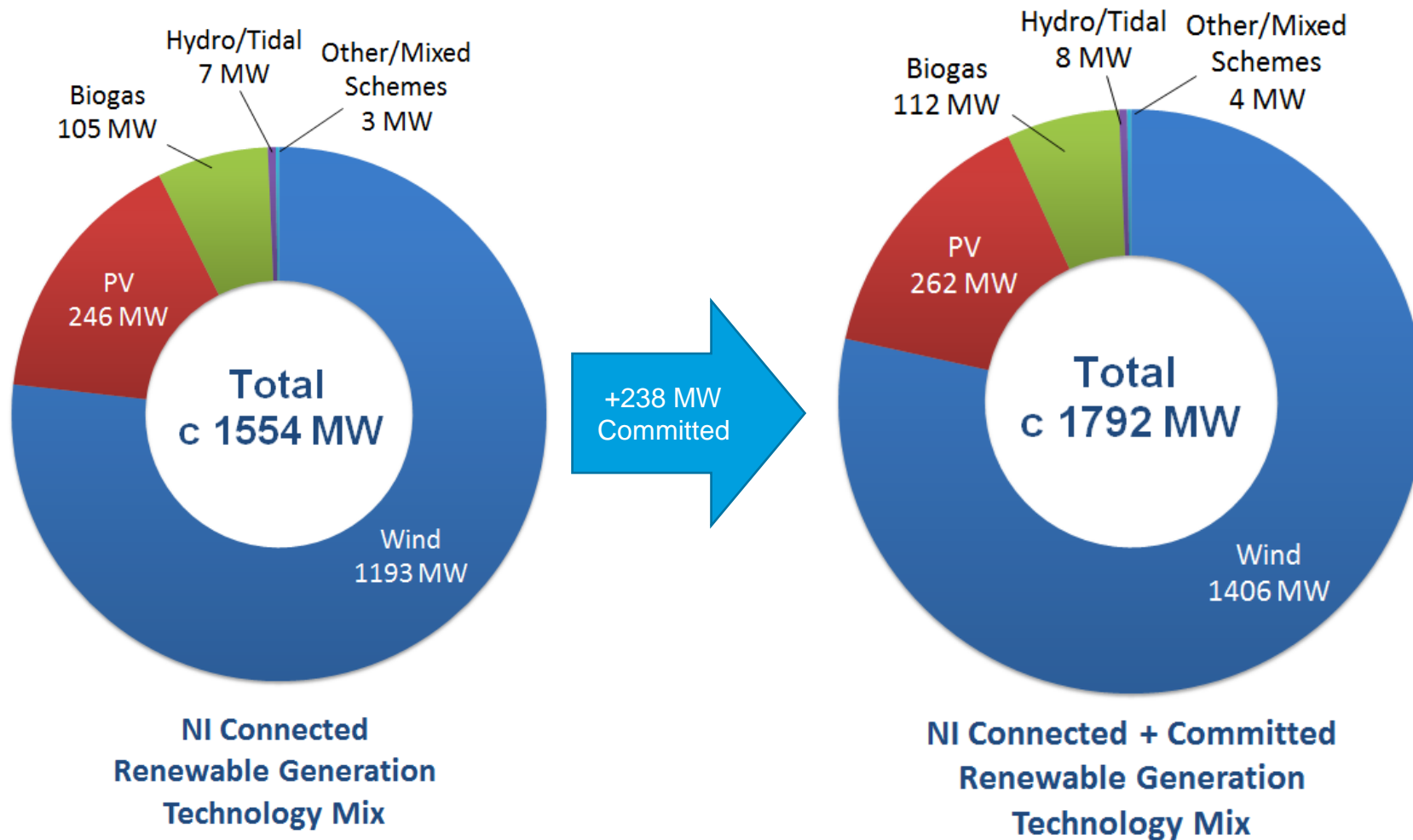
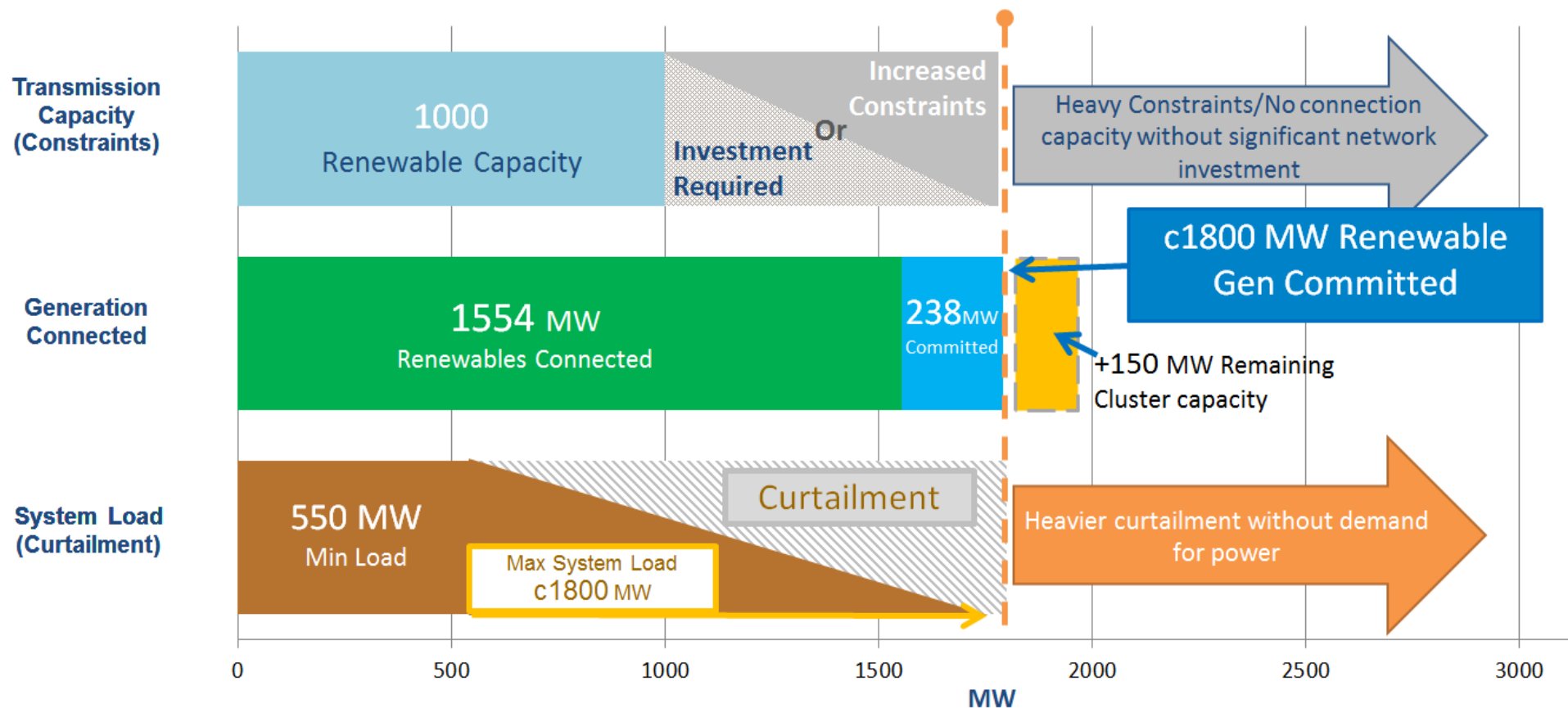


3. Renewables Status Update

31 March 2018 Renewable Generation Status



31 March 2018 Renewable Generation Status



Cluster update 31 March 2018

Cluster	Present denominator (MW)	Connected (MW)	Committed (MW)	Remaining Capacity (MW) - not yet committed	Uncommitted Applications - (Queuing for capacity or Quotation issued)
Magherakeel	138	119.2	16.5	2.3	-
Gort	90	56.5	11	22.5	25.74
Tremoge	90	77.15	-	12.85	-
Rasharkin	90	99 (89.81 MEC)	-	0.19	No further capacity
Curraghmulkin (Drumquin)	90	0	67.9	22.1	-
Garvagh	90	0	90	0	No further capacity
Kells	90	0	0	90	168.4

Please note that due to factors outside of NIE Networks control, this information is subject to change at any time following publication

4. Consultation on Connecting Further Generation in Northern Ireland

Introduction

- Background
- Distribution Generation Connection Application and Offer Process
 - Summary of Responses
 - Decision Paper
- Connecting Further Generation in Northern Ireland, Next Steps Paper
 - Summary of Responses
 - Outline of Next Steps Paper
 - ToR for Connection Innovation Working Group

Background

Level of Responses

- 15 responses received from industry, with the majority representing large scale generators, one representing small scale generators and another who was a manufacturer of smart technologies.

Approach to Decision

Two stage approach has been taken to the consultation

- Decision Paper 1 – Distribution Generation Application and Offer Process
- Decision Paper 2 – Connecting Further Generation in Northern Ireland, Next Steps

Distribution Generation Offer and Application Process

Sections 5.2 to 5.4 of Consultation

Summary of Responses

Level of Responses

15 responses received from industry, with the majority representing large scale generators, one representing small scale generators and another who was a manufacturer of smart technologies.

Phase 1 Milestone

- 91% agreed with the introduction of the Planning Approval Milestones
- 67% believed the Planning Approval Milestone should be brought forward to Acceptance
- All but one agreed that there should be no extensions to this milestone other than applicants undergoing a JR

Phase 2 Milestones

- 71% did not agree with the introduction of phase 2 milestones and believed they were too onerous
- They suggested that Longstop Dates should be introduced instead

Decision Paper on Distribution Generation Connection Application and Offer Process

Queuing Principles

- As of the 18th of May 2018 at 17:00, all new generation applications received will have their queue position determined by the date and time at which their application is deemed valid
- Those who had planning permission prior to the 18th of May 2018 at 17:00 had their queue position frozen

Milestones

- Planning Approval Milestone
 - 120 days from date of Terms Letter
 - No extension, other than projects undergoing a JR
- Longstop Milestone
 - 24months after the Scheduled Completion Date
 - Extensions in case of force majeure
- Utilisation Milestone
 - For New/Modified Export – 24 months from date of connection works complete
 - For zero export/over-installs - 24 months from date of connection works complete
 - For offers with supply adequate – 24 months from date of Terms Letter

Connecting Further Generation in Northern Ireland, Next Steps

Sections 5.5 to 7.2 of Consultations

Summary of Responses

Forecast Statement Further Information Request

Respondents made a number of suggestions for further information which could be included within the SONI forecast statement, however the two main requests were:

- ATRs to make connected and committed generation firm with timelines
- Update constraint analysis which industry should be allowed to feed into

Sharing of Queue Information

- Large number of respondents in favour of a clause requiring mandatory disclosure of generation information to be published
- SONI share Transmission queue through the Connections register
- Recognition that sharing Distribution queue is outside NIE Networks' control
- Requires further consultation, with suggestions that the consultation should be driven by those who have the power who can ultimately approve the information to be disclosed

Summary of Responses

DS3 Summary

- A number of respondents suggested prioritisation is not required as no batch in place
- Concerns around potential technology discrimination
- Need to consider how offers could be made to enable new entrants to access DS3 Tender process

Potential Capacity Solutions

- There was concerns that zero Firm Access Quantity (FAQ) offers could erode the viability of existing generators who do not have full FAQ
- Such zero FAQ offers might not be commercial viable for certain technologies
- Large support for formation of a Connection Innovation Working Group (CIWG)
- Updated constraint analysis required to allow industry to have an informed input
- Further information required on what level of capacity could be released by ANM scheme
- ANM scheme should be funded by an innovation price control allowance

Summary of Responses- Other Areas

Planning as a pre-requisite

- Stakeholders illustrated a strong wish for Planning Permission to be a pre-requisite for applying for a generation connection application and legislative changes should be made

NIAUR's Role

- There was large support from stakeholders for NIAUR to be given additional powers to enable them to set connection policy due to the changing environment

Further Network Rebuild

- A large number of applicants believe there is no adequate substitute to network build and reinforcement and urge NIAUR, DfE, SONI and NIE Networks to work together to facilitate economic development

Rebates

- There was a call for NIE Networks to outline their proposals for facilitating rebates

Cluster Policy

- Small number of stakeholders believe there is merit in reviewing cluster policy as the commercial environment for applicants has been totally transformed

Connecting Further Generation in NI, Next Steps Paper Minded to Position

Further Information Request

- Updated ATRs to be published on SONI's website shortly
- An explanatory note will be published on SONI's website to describe how best to use the different sources of information, provided by SONI, in conjunction

Sharing Queue Information

- NIE Networks agree that further consultation is required and agree that this should be consulted on by the body who can implement the change required.

DS3

- Lack of capacity in network and where capacity is available at present is locational
- No batch process to enable prioritisation
- No plan to change the connection process

CIWG

- Terms of Reference (ToR)

CIWG, ToR

Aim

To consider and as appropriate progress solutions that facilitate the connection of further Distributed Energy Resources in Northern Ireland, which are technically and commercially feasible for the System Operators and for DER developers/operators of both new and existing projects.

Initial area of investigation

- The technical feasibility of allowing distribution connections to be made on a potentially permanent basis with zero FAQ
- The commercial viability for DER operators of new and existing projects
 - Constraint/curtailment information and forecasting;
 - Network chargeability issues.

Anticipated deliverables

- Potential development of new connection policy to enable zero FAQ distribution connections
- Development of scope for further investigation of Smart schemes e.g. Active Network Management

CIWG, ToR

Membership Level

- 3 NIE Networks
- 3 SONI
- 6 Industry Representatives
- 1 UR
- 1 DfE

With the six Industry representatives selected through a nomination process similar to the Hybrid Site Working Group

Kick off meeting of the CIWG to be held at the start of September

Connecting Further Generation in NI, Next Steps Paper

What is not included within this Consultation

Rebates

- In the UR's "Review of Distribution and Transmission Connection Policy" Decision paper, the UR stated that they had written to the Department, noting stakeholder views and that they are open to engagement on this issue
- NIE Networks and SONI are willing to engage

Cluster Policy

- NIE Networks has noted the support of stakeholders for the existing cluster methodology seen in the above UR consultation
- Further review of the cluster methodology will be considered dependent if capacity becomes available either through traditional reinforcement or findings of CIWG

Planning as a pre-requisite

- Implementation of this is outside the control of SONI or NIE Networks, to make this change it would require amendment to the primary legislation
- We therefore would formally like to pass on industry view to both DfE and UR that planning permission should be a pre-requisite for application of a generation connection for their consideration

Connecting Further Generation in NI, Next Steps Paper

What is not included within this Consultation

Network Reinforcement

- SONI will continue to put forward networks reinforcement options to the UR alongside cost benefit analysis report of carrying out such reinforcement in line with UR guidance published March 2018
- UR has indicated previously that it is that where network reinforcement are solely for generation purposes that the cost benefit analysis will be considered in line with current energy policy for NI
- NIE will bring forward any construction/capital approvals to the UR

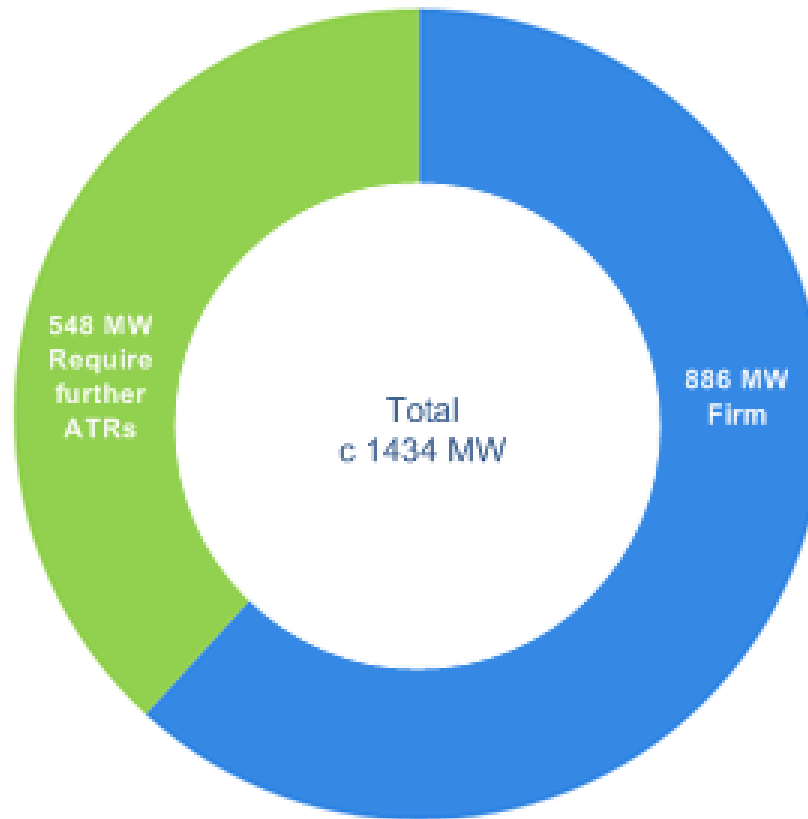
Connecting Further Generation in NI, Next Steps Paper to be published by the end of June 2018

9. FAQ and ATR Update

RGLG Tuesday 5th June 2018



FAQ Status - Connected and Committed



ATRs – June 2018

Associated Transmission Reinforcement (ATR)		Scheduled Completion Date	Comment
1	Omagh - Tamnamore 3 – New 110 kV Circuit	Complete	Project Complete end January 2018
2	Omagh – Dromore 110 kV Double Circuit Uprate	2019	Pre-construction
3	Voltage Support	2021	Pre-construction outline design
4	North South 400kV Project	2020	Pre-construction
5	Coolkeeragh – Magherafelt 275 kV Double Circuit – Asset Replacement Project	2021	Pre-construction
6	Kells – Rasharkin 2 – New 110 kV Circuit	2024	Pre-construction outline design
7	Ballylumford – Eden – Carnmoney – Castlereagh 110 kV Double Circuit Uprate	2025	Project Definition
8	Further Reinforcement of the Western Network	2027	Project Definition



9. Update on TDPNI and Renewable Developments

RGLG - 5th June 2018



Overview

- TDPNI update - inc. Strategic Environmental Assessment (SEA)
- Current status of renewables
- New SONI Grid Development Process
- Update on reinforcement projects
- Transmission issues

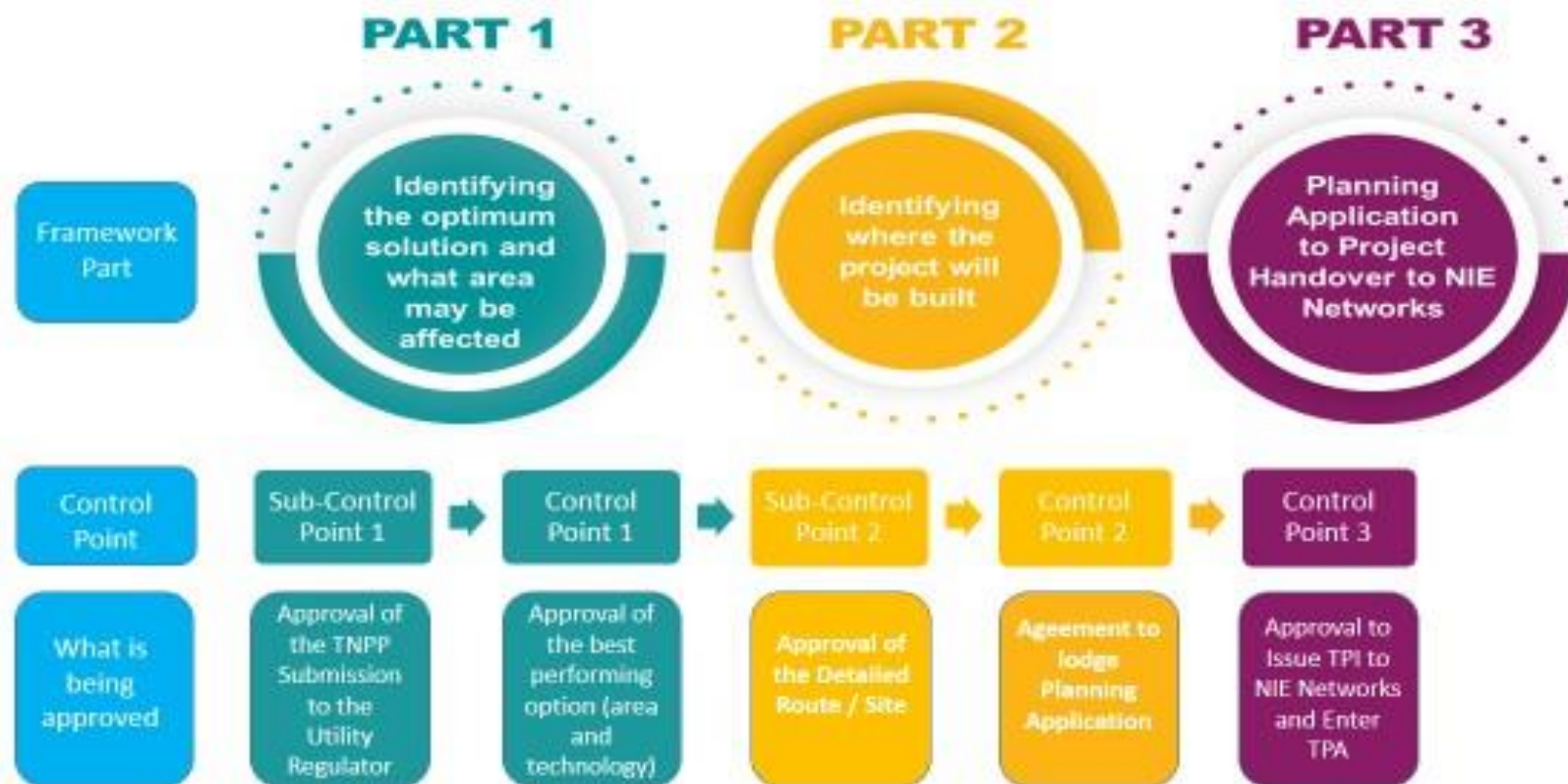


TDPNI

- Licence condition 40 (October 2017) – SONI requirement to produce a ten year Transmission Development Plan from 2018
- Rolling plan updated yearly – current document under preparation covers 2018-2027
- Under Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (S.R. 280/2004) a SEA must be carried out
- SEA being carried out with RPS – scoping phase about to finish; SEA will be out for consultation in July
- TDPNI will be out for consultation in Q3



SONI's Grid Development Process – An Overview



Update on Reinforcement Projects

Omagh – Dromore restring

- Currently at SONI approval stage
- To be followed by issue of functional specification to NIEN

2nd Kells – Rasharkin 110 kV circuit

- At outline design stage



Transmission Issues

Coolkeeragh – Magherafelt phase angle issues

- Under a trip of the Coolkeeragh – Magherafelt double circuit during periods of high wind, the potential exists for a large voltage phase angle to open up between both stations
- If this angle exceeds 20° then the lines cannot be safely reclosed
- This threatens system security as planning standards are based on rapid restoration after transient faults
- Significant disturbance to system causing heavy loading of 110 kV network



Studies

- Previous studies (2016) highlighted issues
- 2025 full-year analysis

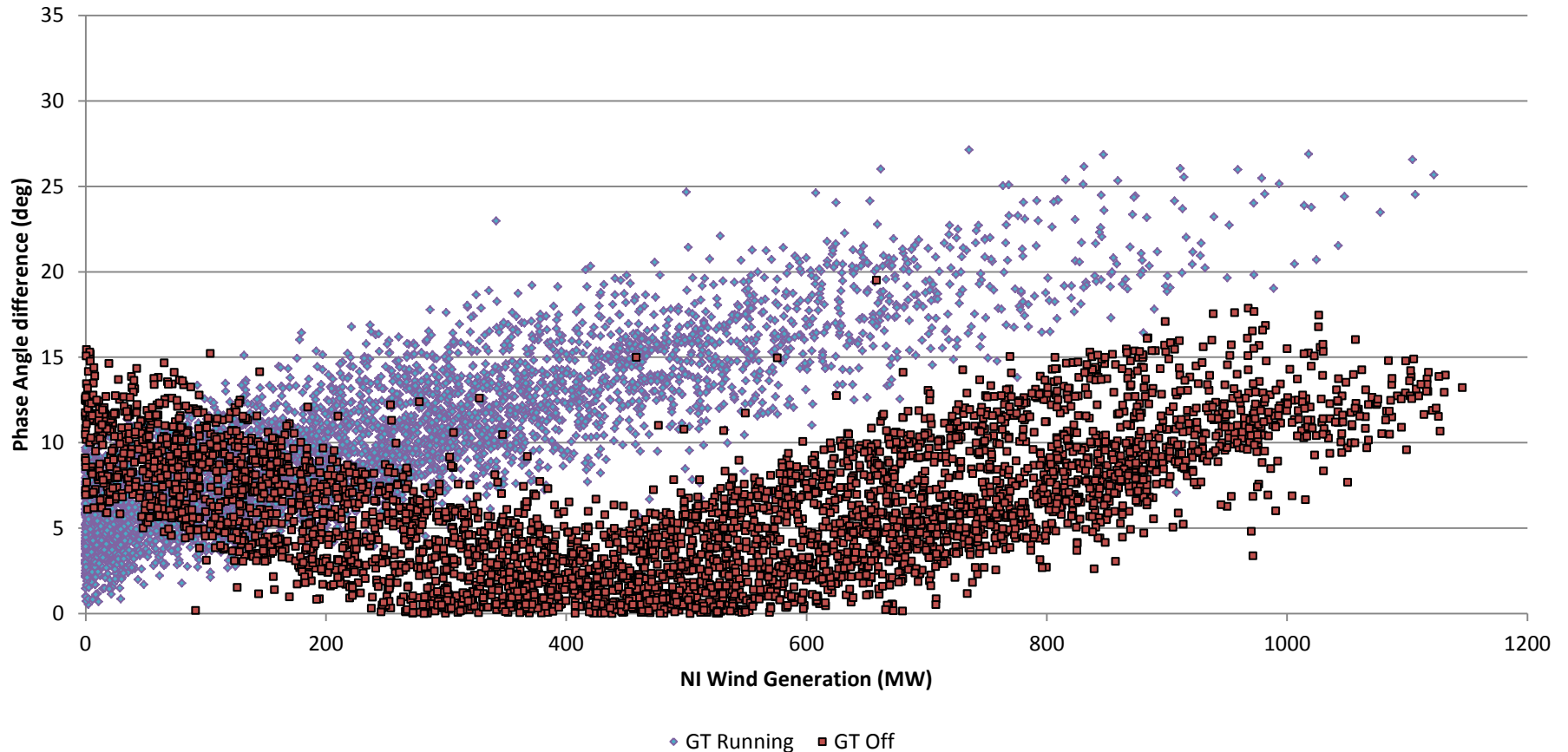
Assumptions:

- North-South Interconnector in place
- 2nd Kells – Rasharkin circuit in place
- Omagh, Coleraine and Tamnamore STATCOMs operational
- Coolkeeragh runback scheme operational
- New CCGT in east of NI

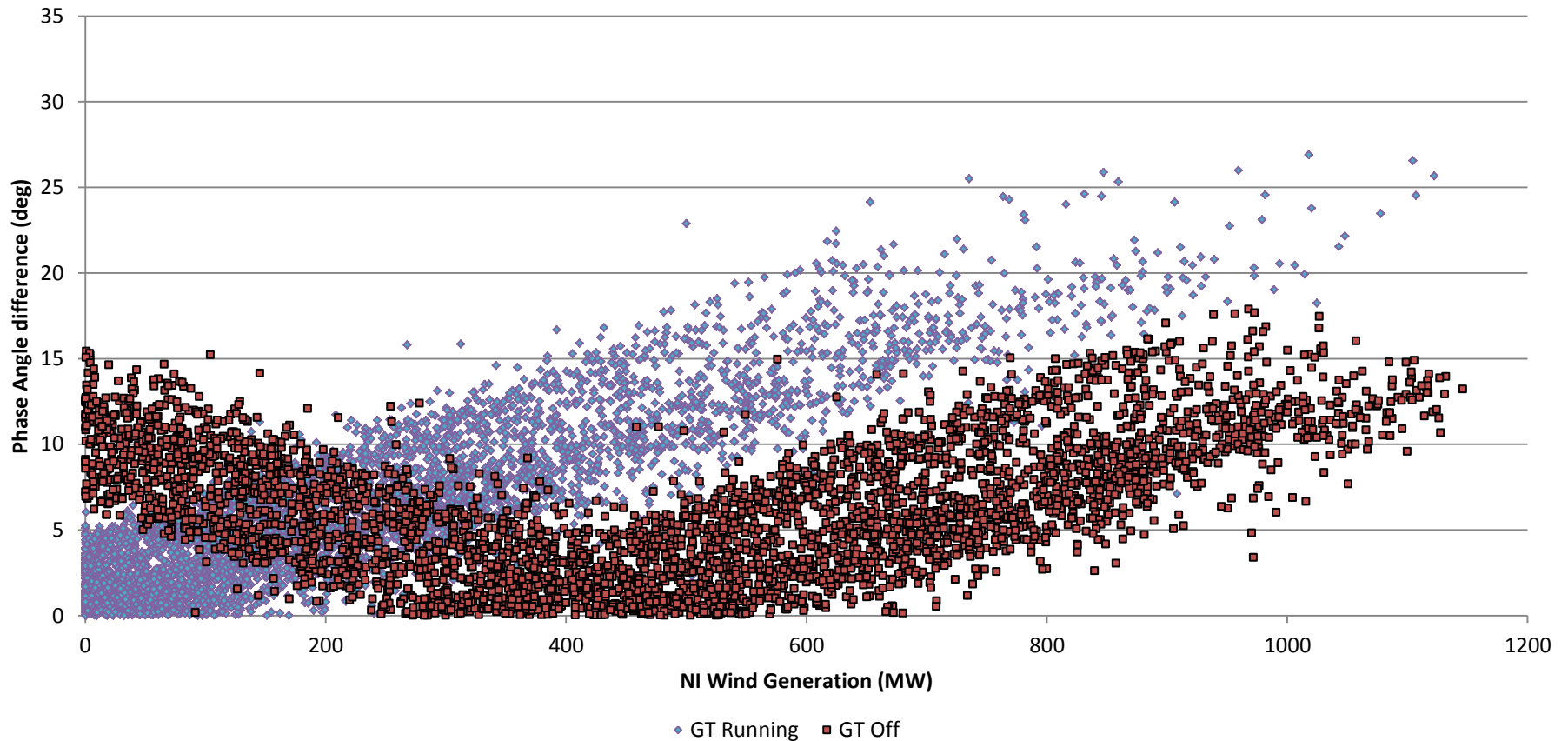


Preliminary Results

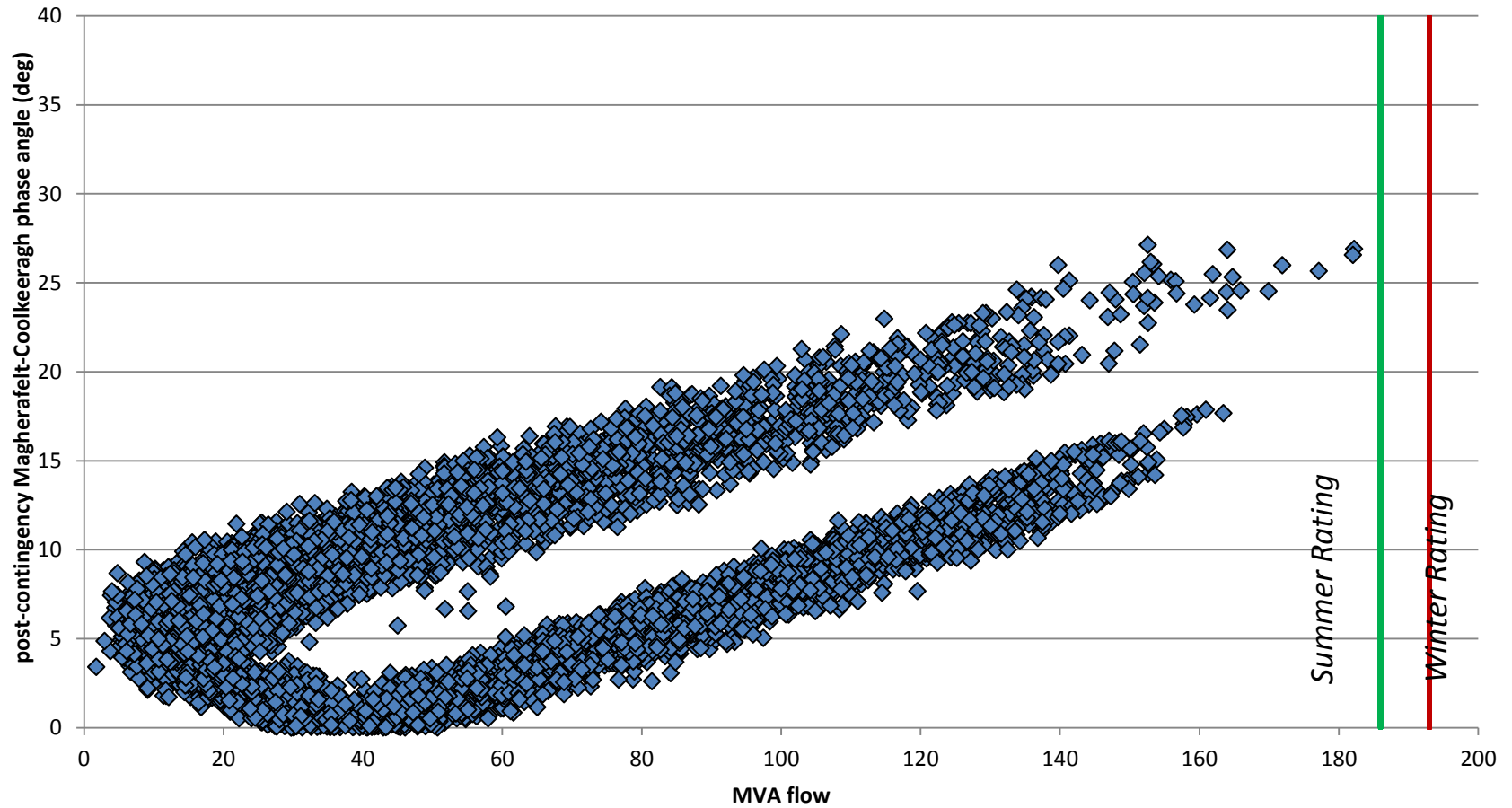
2025 Coolkeeragh - Magherafelt Phase Angle, post DCT
ST tripped, GT at pre-event output



2025 Coolkeeragh - Magherafelt Phase Angle, post DCT Post-runback (ST tripped, GT at 160 MW)



Tremogue - Tamnamore 110 kV circuit
Line loading, post CPS-MAG DCT
Coolkeeragh ST tripped, GT at pre-event output



Results

- Probability of phase angle issues low **but** heavily dependent on assumptions
- Potentially a high impact/low probability event
- Likelihood of a double-circuit fault during adverse phase angle conditions low (but faults more likely in high wind)
- Sensitivities on wind profiles and potential projects necessary (Coolkeeragh – Trillick)

Next Steps

- Investigate redispatch options post-fault
- Statistical analysis on correlation of fault risk and wind speed and probabilistic risk assessment
- Sensitivity analysis
- Engage with stakeholders

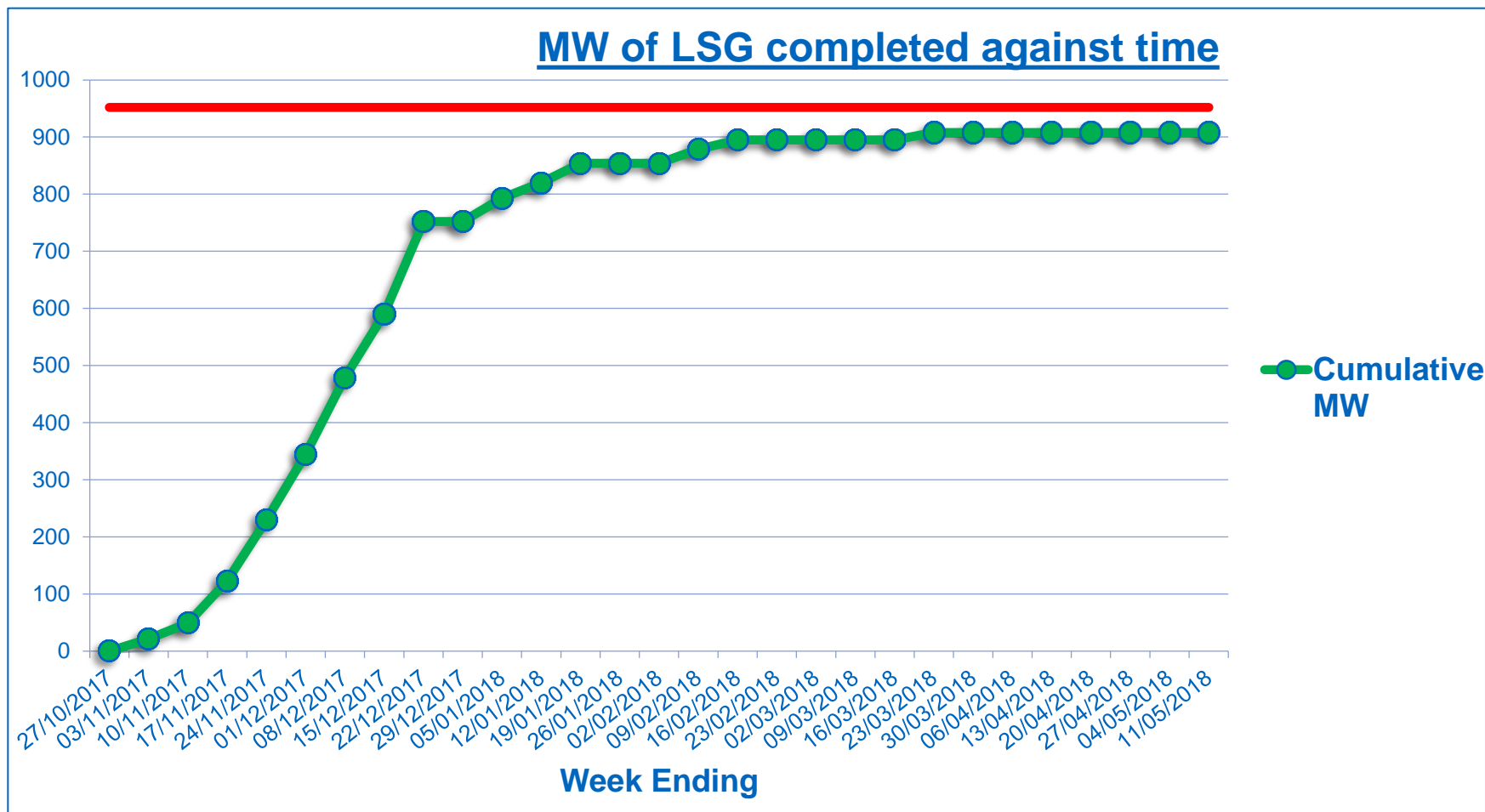
Thanks for your attention
Any questions?



11. Operational Update

RoCoF Update

LSG RoCoF Progress



- To date 96% (914MW) has been changed to new RoCoF setting
- Over 1GW of 1Hz/s RoCoF compliant generation (including sites that have connected since the programme started)
- **5 LSG sites still to change**
 - All remaining sites expected to test before end of June
 - All remaining sites date back to 1990's and require G59 relay changes
 - All owners are committed to making the changes

- **Consultation Response and implementation plan options submitted to UR in Feb 18**
- **Proposed that LoM (RoCoF) amended to 1.0Hz /second (with a 500ms time delay)**
- **D-Code amendments approved by UR and D-Code Issue 4 published 11 May 2018**
- **Implementation plan agreed based on view from UR**
- **c1500 SSG sites in scope (c370MW excluding micro-generation)**
- **Letters requesting G59 changes sent out 01 June 2018**
- **SSG owners required to make changes by 30 September 2019**

- **Letters requesting G59 changes sent out 01 June 2018**
- **SSG owners to acknowledge receipt by 29 June 2018**
 - Online or by return pre-paid envelope
- **For assurance purposes SSG owners to use G59 approved contractors**
 - List of approved contractors on NIE Networks website
- **G59 approved contractor list established following procurement exercise**
 - c20 contractors on list
- **SSG owners to make the changes by 30 September 2019**
- **Costs associated with making the changes borne by SSG owners**

- **G59 contractor technical workshop completed**
- **Briefing sessions held with interested parties, UFU, NIRIG, RGLG..**
 - UFU to include article in the Farming Life newspaper
- **Further briefing sessions will be held with owners of multiple SSG sites**
 - 20 companies own 25% of SSG capacity
- **c1500 letters sent to SSG owners**
 - SAE envelopes included for acknowledgement test results returns
- **G59 changes guidance note provided to SSG owners**
 - Gives the reasons and benefits for the changes and the technical detail of how to implement the changes

Dear Sir/Madam

G59 SETTINGS NOTIFICATION

We are writing to advise you that following an industry consultation the Distribution Code has been amended and that this affects the connection of your generator to the Distribution Network owned and operated by NIE Networks.

As a generator which is connected to the Distribution Network, you are required to comply with the Distribution Code (Issue 4) (available at www.nienetworks.co.uk/distributioncode).

You need to take action NOW to make changes to the G59 protection settings at your generator to ensure that your generator remains compliant with the latest Distribution Code (Issue 4). Failure to make the changes may result in your generator being disconnected from the Distribution Network.

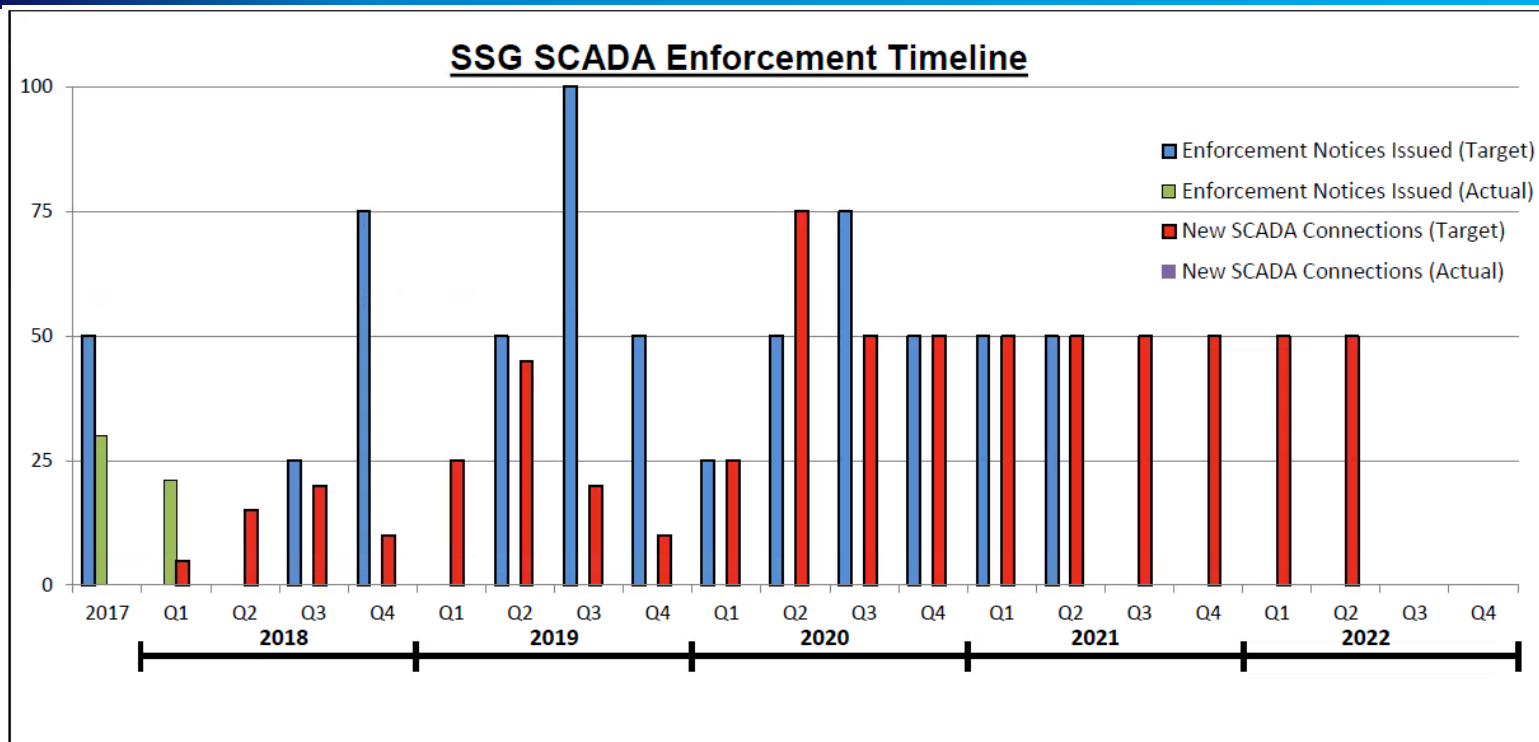
Full technical details of the changes you need to make to your generator and the reasons why they are being implemented are explained in the attached guidance document. However, in summary, you will need to:

- Engage a qualified engineer to update the G59 protection settings at your generator. Full details of G59 contractors are available online at www.nienetworks.co.uk/G59contractors.
- Confirm to NIE Networks by 29th June 2018 that you have received this letter and that you have engaged a G59 contractor. This can be done online at www.nienetworks.co.uk/G59replyform or by post using the enclosed acknowledgement form and return envelope.
- For generators with a connection point at 11kV and above, book an appointment for an NIE Networks' engineer to witness a protection test of the new G59 settings.

11. Operational Update

SSG SCADA Update

Ssg SCADA Enforcement Timeline



Total Sites Requiring SCADA	635
SCADA SAT Certificates Issued	1
SCADA Reminder Letters Issued	310
Customer Responses	11

Notes

Total Enforcement Notices Issued	51
Customer Responses	12
Enforcement Notices Expiring in 6 months	10
Enforcement Notices Expiring in 60 days	6
Sites in progress/testing	0

Installer Enquiries	4
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