

RENEWABLE GRID LIAISON GROUP

Meeting #26, 10:00 Tuesday 4th September 2018

UR Offices, Queen Street

AGENDA

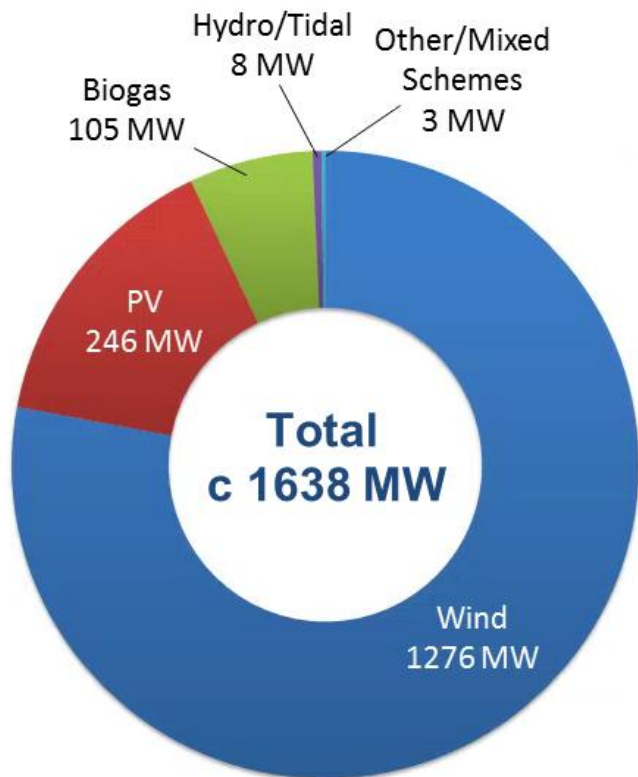
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|---|--------------------------|
| 1. Apologies | |
| 2. Minutes/Updates from last meeting | |
| 3. Renewables Status Update & 2020 target | NIE Networks/SONI |
| 4. Update on Transmission Applications | SONI |
| 5. Consultation Update | NIE Networks/SONI |
| 6. DfE - General Update | DfE – Written Submission |
| 7. Contestability Update | |
| a) Distribution | NIE Networks |
| b) Transmission | SONI |
| 8. Network Development/ATR Update | SONI |
| 9. Operational Update | |
| a) RoCoF Update | NIE Networks |
| b) SSG SCADA Update | NIE Networks |
| 10. General Update and membership | UR |
| 11. AOB | |
| a) Dates of 2018/19 meetings | |

1. Apologies

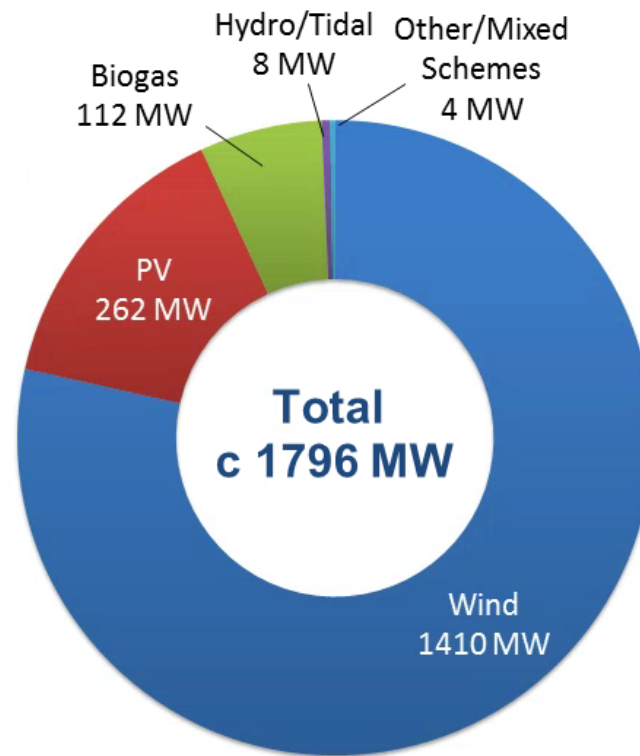
2. Minutes / Updates from last meeting

3. Renewables Status Update

31 August 2018 Renewable Generation Status



NI Connected
Renewable Generation
Technology Mix



NI Connected + Committed
Renewable Generation
Technology Mix

3. 2020 RES Target Projection

RGLG Tuesday 4th Sept 2018



2020 Target Calculation

	Energy Produced	Capacity Installed	Capacity Factor
Wind	3380	1401	20% SSG, 30% LSG
AD/CHP/Biogas	626	100	70%
Solar	220	258	10%
Hydro	18	6.3	33%
TOTAL RES Energy	4244		
TOTAL Energy Requirement	9170		

Curtailment and Constraints level assumed 5%

4. Update on Transmission Applications



5. Consultation on Connecting Further Generation in Northern Ireland

Connections Innovation Working Group- Draft Proposals

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

Expressions of Interest Update

Proposed Membership Level

- 3 NIE Networks
 - 3 SONI
 - 6 Industry Representatives
 - 1 UR
 - 1 DfE
-
- Received 9 expressions of interest from various parties
 - Currently reviewing Expressions of Interest with notifications next week
 - Kick off meeting of the CIWG to be held at the end of September

6. Department for the Economy Update:

Ongoing restructuring within Energy Division has resulted in the creation of three new Energy Divisions covering Energy Strategy and Clean Energy Package (Joe Reynolds); Infrastructure, Renewables and Energy Efficiency (Thomas Byrne); and, EU Exit (June Ingram). Revised organisation charts can be provided when vacancies have been filled.

Noel Lavery, Permanent Secretary of DfE, is keen that the current hiatus on Energy Strategy is brought to a close. As such, Departmental officials will be speaking at two upcoming energy events in September - the University of Ulster Northern Ireland Future Energy Systems Event on 20 September and NI Energy Forum 2018 on 27 September. Following this the Department will increase its stakeholder engagement to help inform a future strategy.

7. Contestability Update

- a) Distribution
- b) Transmission

8. Update on TDPNI and Renewable Developments

RGLG - 4 September 2018



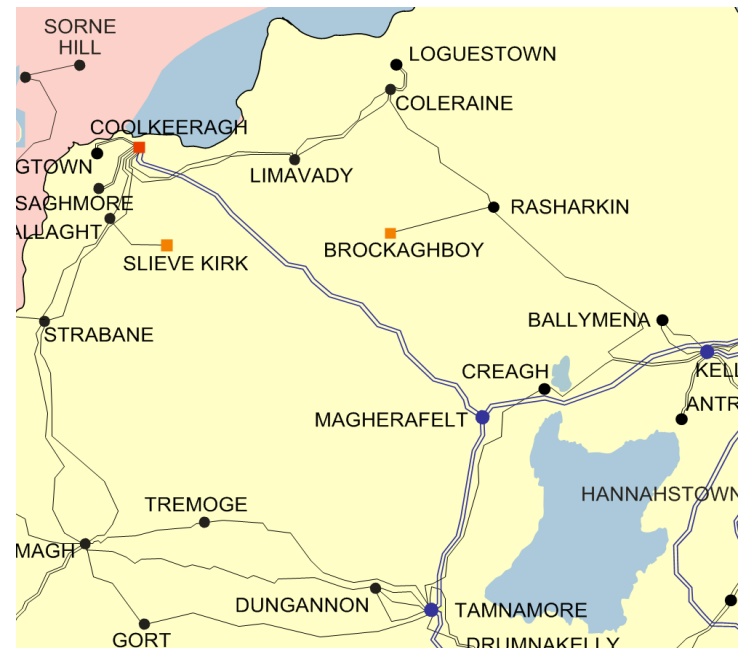
Transmission Development Plan NI 2018-2027

- 10 year plan detailing all asset replacement, uprates and reinforcement projects anticipated by 2027
- Will include a longlist of potential solutions for several projects that are at an early stage
- Subject to Strategic Environmental Assessment and due for publication imminently
- Will be published for consultation on SONI website this month

Transmission Issues

Northwest phase angle issues update

- Loss of Coolkeeragh – Magherafelt 275 kV double circuit can lead to an adverse phase angle between the two stations
- If this angle exceeds 20° then the lines cannot be safely reclosed
- Significant disturbance to system causing heavy loading of 110 kV network



2025 Analysis Results

Scenario	Immediately post-fault: hours breaching 20° phase angle limit	5 minutes post-fault: hours breaching 20° phase angle limit
1. 2025 base case	2.2% (192 hrs)	1.02% (90 hrs)
2. New Coolkeeragh- Trillick 110 kV line	5.01% (439 hrs)	3.44% (301 hrs)
3. No 2 nd Kells-Rasharkin 110 kV line	4.2% (365 hrs)*	2.34% (205 hrs)
4. No Runback at Coolkeeragh	12.68% (1111 hrs)*	n/a

**Scenarios 3 and 4 also show overloads on a number of 110 kV lines*

Results

- Network vulnerable to cross-country faults if cross-Sperrin 275 kV double circuit trips
- Particularly reliant on planned projects and Coolkeeragh runback (NW Special Protection Scheme) to prevent adverse phase angle/overloads
- Work planned to improve redundancy of NW SPS
- TDPNI details potential projects which may help solve – but options will require further study

Next Steps

- Dynamic studies ongoing to confirm 20° as safe limit
- Investigating reserve availability for re-dispatch post-fault – may be affected by capacity market
- Probabilistic analysis of fault/wind correlation

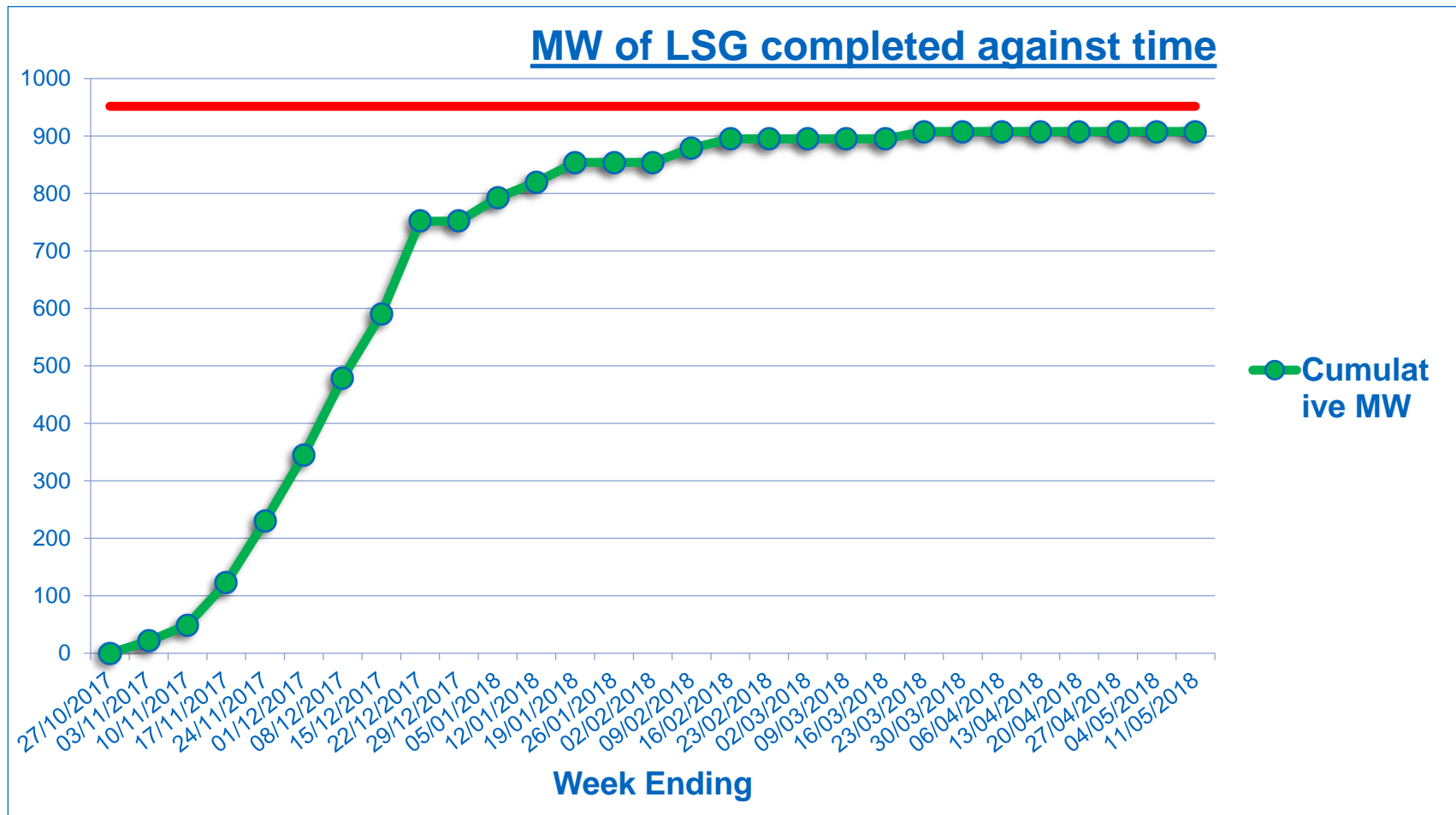
Thanks for your attention
Any questions?



9a. Operational Update

RoCoF Update

LSG RoCoF Progress



- To date 96% (914MW) has been changed to new RoCoF setting
- Over 1.1GW 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 October
 - All remaining sites date back to 1990's and require G59 relay changes
 - All owners are committed to making the changes

- **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

- The table below shows (1) the number of acknowledgment returns and the associated KWs, and (2) the number of sites and KWs complete, up to the end of August 18.

Total Returns	Acknowledgement (kW)	Changes Complete	Changes Complete (kW)
965	295477	21	13282

- Next Steps
 - UR – SONI – NIE Networks progress review meetings.
 - Engagement with the approved G59 contractors to ensure effective programme delivery.
 - Consider further analysis of the 35% of SSG's who did not respond and determine if additional correspondence is required.

9b. Operational Update

SSG SCADA Update

- **600+ sites requiring SCADA or Telemetry**
- **1 SCADA Site Acceptance Test certificate issued**
- **300+ generic ‘reminder’ letters issued**
 - 7 responses
- **10 Enforcement notices issued to HVCs late summer**
 - 4 responses
- **41 LV enforcement notices issued since November**
 - 4 responses

Proposed Rollout

- **51 enforcement notices issued for 2017/2018(Q1)**
- **2018 used as a development year to bring customers and installers up to speed on SCADA requirements.**
- **Development year also allows NIE Networks to refine internal processes**
- **Process ramps up after 2018 getting all sites connected within RP6**

10. General Update and Membership

11. AOB