











Grid Code Modification		At what stage is this document in the process?
<h1>GC0105:</h1> <h2>Mod Title: System Incidents Reporting</h2>		<div><div>01</div><div>Proposal Form</div></div> <div><div>02</div><div>Workgroup Consultation</div></div> <div><div>03</div><div>Workgroup Report</div></div> <div><div>04</div><div>Code Administrator Consultation</div></div> <div><div>05</div><div>Draft Grid Code Modification Report</div></div> <div><div>06</div><div>Final Grid Code Modification Report</div></div>
<p>Purpose of Modification: The Grid Code Review Panel has previously received an annual report from National Grid indicating system incidents and reporting unplanned outages of Interconnectors, load or generation connected to transmission or distribution networks. This annual report is important to industry and to the Grid Code Review Panel as it helps monitor the effectiveness of the technical requirements in the Grid Code and Distribution Code.</p>		
	This document contains the discussion of the Workgroup which formed in February 2018 to develop and assess the proposal, the responses to the Workgroup consultation which closed on 21 December 2018, and the voting of the Workgroup held on 1 February 2019.	
	High Impact: None identified	
	Medium Impact: None identified	
	Low Impact: all users	

Contents		 Any questions?
1	About this document	3
2	Original Proposal	4
3	Proposer's solution	5
4	Workgroup Discussions	7
5	Workgroup Vote	13
6	GC0105: Relevant Grid Code Objectives	15
7	Implementation	16
8	Legal Text	17
	Annex 1: GC0105 Terms of Reference	18
	Annex 2: Most recent system incidents report to GCRP in January 2017 ref ROCOF GCRP 15-16	23
	Annex 3: Proposer Presentation to Workgroup October 2018 "Examples of reporting"	31
	Annex 4: NGET Proposed Workgroup Alternative Grid Code Modification (WAGCM)	39
	Annex 5: Workgroup Attendance Register	40
Timetable		 07790370027 Proposer: Guy Nicholson, Element Power  guy.nicholson@elpoer.com  07824145479 National Grid Representative: Simon Sheridan  simon.sheridan@nationalgrid.com  07967765889
The Grid Code Review Panel has agreed the following timetable:		
Initial consideration by Workgroup	22 February 2018	
Workgroup Consultation issued to the Industry	29 November 2018	
Modification concluded by Workgroup	February 2019	
Workgroup Report presented to Panel	28 February 2019	
Code Administration Consultation Report issued to the Industry	w/c 4 March 2019	
Draft Final Modification Report presented to Panel	25 April 2019	
Modification Panel decision	25 April 2019	
Final Modification Report issued the Authority	w/c 29 April 2019	
Decision implemented in Grid Code	No later than 14 June 2019	

1 About this document

This document is the Workgroup Report that contains the discussion of the Workgroup which formed in February 2018 to develop and assess the proposal, the responses to the Workgroup Consultation which close on 21 December 2018, the voting of the Workgroup held on 1 February 2019.

GC0105 was proposed by Element Power and was submitted to the Grid Code Review Panel for its consideration on 18 October 2017. The Panel decided to send the Proposal to a Workgroup to be developed and assessed against the Applicable Grid Code Objectives.

GC0105 aims to amend the Grid Code to incorporate a Systems Incident Report that would be produced by National Grid. The Workgroup consulted on this Modification and a total of four responses were received. These responses can be found in Annex 5 below.

Section 2 (Original Proposal) and Section 3 (Proposer's Solution) are sourced directly from the Proposer and any statements or assertions have not been altered or substantiated/supported or refuted by the Workgroup. Section 4 of the Workgroup Report contains the discussion by the Workgroup on the Proposal and the potential solution.

The Grid Code Review Panel detailed in the Terms of Reference the scope of the work for the GC0105 Workgroup and the specific areas the Workgroup should consider.

The table below details these specific areas where the Workgroup have covered them or will cover post Workgroup Consultation.

The full Terms of Reference can be found in Annex 1.

Specific Area	Location in the report
Impact on system processes for National Grid and other users	Section 3 & 4 of the report
History of previous reports and consideration of previous reporting mechanism	Section 3 & 4 of the report

Benefits to system operator and users in helping to perform future policy	Section 3 & 4 of the report
Suitability/flexibility of report for future use	Section 3 & 4 of the report
Inclusion of 'SOF' scenarios and demonstration of what industry wants to do with the information	Section 3 & 4 of the report

2 Original Proposal

Defect

The Grid Code Review Panel has previously received an annual report from National Grid indicating system incidents and reporting unplanned outages of Interconnectors, load or generation connected to transmission or distribution networks. This annual report is important to industry and to the Grid Code Review Panel as it helps monitor the effectiveness of the technical requirements in the Grid Code and Distribution Code.

What

National Grid has produced System Incidents reports for the Grid Code Review Panel on an approximate annual basis for approaching 20 years; however, the requirement to do so and the specification for the report have not been included in the Grid Code. The requirement for National Grid in its role as GB System Operator to provide this report to the Panel needs to be enshrined in the Grid Code.

Why

National Grid has provided the report in the past. The report has been vital in monitoring the effectiveness of the Grid Code for example the risk of generation and consequently load disconnection as a result of high Rate of Change of Frequency (RoCoF) events. The reporting procedure was established in 1997 and was referenced in National Grid's February 2009 report on the load disconnection during the significant system incident occurring on 27 May 2008.

Under the new governance arrangements, National Grid has taken the view that the System Incidents report is not mandated by the Grid Code and therefore may not necessarily be delivered. By putting the requirement into the Grid Code this defect will be rectified. As noted above, the report has been vital in monitoring the effectiveness of the Grid Code for example the risk of generation and consequently load disconnection as a result of high Rate of Change of Frequency (RoCoF) events. The reporting procedure was established in 1997 and was referenced in National Grid's February 2009 report on the load disconnection during the significant system incident occurring

on 27 May 2008. Examples of reporting by EirGrid, FinGrid and National Grid at the Ops Forum are included in Annex 1¹ Future reporting will help ensure that the Grid Code requirements are fit for purpose and will serve as an early warning if certain Grid Code requirements need to be reassessed as the transmission and distribution systems (together with the load and generation connected to them) changes as GB moves towards a low carbon economy.

How

The Grid Code will be modified to codify the requirement on National Grid to produce the report.

3 Proposer's solution

The Original Proposal as put forward by the Proposer was to codify in the Grid Code a requirement for NGET to prepare and present to the October² Grid Code Review Panel every year a report titled – **System Incidents Report** - containing the following information:

1. A record of every significant event on the National Electricity Transmission System including the following events:
 - a. A loss of infeed or exfeed (import or export including generation, demand and interconnection) of $\geq 250\text{MW}$.
 - b. a frequency excursion outside the operational limits (49.8-50.2Hz).
 - c. A fault on the transmission network which:
 - i. Could be linked to the known or reported tripping of any Power Station, DC Converter or User System.
 - ii. Is linked to a change in the transmission system voltage of more than:
 - a. 400kV: $> \pm 5\%$ for $> 15\text{min}$
 - b. 275kV or 132 kV: $> \pm 10\%$ for $> 15\text{min}$

¹ Annex 1 is the presentation (7 slides) from Element Power in October 2018.

² October has been chosen as summer is the most challenging period for operating the system (due to the lighter loading and higher % penetrations of renewables) and an October report will be up to date for summer events.

- d. Any known demand disconnected $\geq 50\text{MW}$ from the National Electricity Transmission System or other lesser demand if notified to System Operator.
 - e. Any Demand Control action taken.
2. A report of each significant event with the following data as appropriate and available:
- a. The time(s) in hh.mm.ss of the significant event and any potentially related occurrences.
 - b. Any known or reported loss of Embedded Power Station(s) with locations and ratings where available.
 - c. The frequency record (in table and graphical format) at ≤ 1 second intervals for 1 minute before and after the incident.
 - d. The frequency (to 2 decimal places) immediately before the significant event.
 - e. The frequency (to 2 decimal places) immediately after the significant event.
 - f. The maximum rate of change of frequency recorded during the significant event over a specified time period e.g. 500ms.
 - g. Where known the MW of all individual losses or trips related to the significant event.
 - h. Where known the identity the Users and Network Owner of all demand losses or trips related to the significant event.
 - i. The location of any reported transmission fault on the network diagram and geographically.
 - j. The extent of any voltage dip associated with the significant event.
 - k. An estimate of system inertia in MWs (Mega Watt Seconds) immediately before and immediately after the event so that estimated inertia lost in the event is identified.
 - l. Any other data available that is of value to a clearer understanding of the significant event and its potential implications.

To obtain, manage, present, communicate and report the data above NGET shall:

- Present the System Incidents Report in a pdf and the associated data in a spreadsheet.
- Maintain an area of the National Grid web site with a list of all historic System Incidents Reports and information on any process required for legitimate parties to obtain the reports (if reports are not available to download)
- Notify all Electricity Distribution Licence holders and Network Operators of every significant event and request information to fulfil its duties in section 2 above.
- Include a section in the System Incidents Report showing how system inertia is estimated for Section 2k above.
- Include a section in the System Incidents Report outlining progress towards reporting events and associated data on the National Electricity Transmission System including:
 - three phase fault;
 - three phase to earth fault;
 - phase to phase faults
 - phase to earth faults
 - the associated voltage dips – durations and spreads.
 - over-voltages;
 - under-voltages
 - voltage dips of >50%;
 - lightning strikes.

4 Workgroup Discussions

The Workgroup convened six times to discuss the issue, detail the scope of the proposed defect, devise potential solutions, and assess the proposal in terms of the Grid Code Applicable Objectives and review the responses to the Workgroup Consultation.

The Proposer presented the defect that they had identified in the GC0105 Proposal and highlighted that the defect related to National Grid's withdrawal of an equivalent System Incidents report which was historically produced.

The Workgroup explored several aspects in its meetings to understand the implications of the proposed defect and solutions. The discussions and views of the workgroup are outlined below.

Since the Grid Code Review Panel took the decision to send the proposal to Workgroup in October 2017, the Workgroup has convened six times between February 2018 and February 2019 to develop the solution in accordance with the Terms of Reference and Grid Code Applicable Objectives.

At the initial Workgroup meeting the Workgroup reviewed the reporting requirements that the Proposer had outlined in the Original Proposal³. This can be located in Annex 3.

National Grid stated that they would be able to provide the majority of the proposed requirements. The other requirements as set out below were discussed by the Workgroup.

‘Significant event’

Whilst the Workgroup agreed on the reporting metrics to be used for each significant event report as listed at 2(a) to (l) in the original proposal, National Grid made representations about the scaling around fault reporting and specifically the proposed reporting threshold of 250MW in the Original proposal. National Grid considered this too low to be considered as being a ‘significant’ event and suggested a higher 600MW threshold. A Workgroup Alternative Grid Code Modification (WAGCM) has been raised by NGET as consideration was being given for an Alternative Modification Proposal based on this higher threshold (See Annex 4).

Notification Obligations

The Proposer recognised the need for a pragmatic approach around how NGET reports on significant events to the Distribution Licence holders and Network Operators and how these parties respond to the data requests. The Proposer clearly stated that he is not seeking to introduce any new requirement for reporting by means of this proposal but is only seeking to use existing processes and channels to gather the relevant and available data. The Workgroup recognised the need to understand the extent of current reporting mechanisms and obligations in the Grid and Distribution Codes to avoid the risk of duplication.

³ <https://www.nationalgrid.com/sites/default/files/documents/GC0105%20Modification%20Proposal.pdf>

The Workgroup discussed the requirements of STCP 03-1 *Post Event Analysis and Reporting* which sets out how parties (namely NGET and each Transmission Owner) liaise with each other in response to transmission system events, from occurrence through to joint investigations if necessary. The Workgroup discussed the potential need for a consequential change to the STC requiring each TO to provide the System Operator with the information it needs to produce the report. The Proposer stated that they did not want the modification to evolve to require consequential modifications having to be raised for other Codes. The Proposer noted that should any of the required information not be available (from the Transmission Owner) to complete the System Incidents Report, when the report is produced, then it should be noted in the report and should it be a reoccurring issue then another modification could be considered and raised in the future to address it.

When

The Workgroup agreed that the first annual report should be produced within 12 months of implementation of GC0105 and thereafter on the anniversary of the first month after the first report. The legal text will be worded to reflect this requirement.

The Workgroup discussed the Workgroup Consultation, agreeing that it would be useful to understand what Industry members would use the proposed report for and whether the Workgroup has captured the correct items or whether additional items would provide value. These questions can be found on the response proforma.

Third Workgroup meeting

Given the length of time between the second Workgroup meeting (16 March 2018) and third Workgroup meeting (17 October 2018), at the third Workgroup meeting, the Proposer provided the Workgroup with a recap about the modification. The Proposer stated that historically National Grid had produced a System Incidents Report which covered ex-feed losses and in-feed losses. This report was discontinued. The Proposer requested that the report was continued as it contained useful information to industry. However, National Grid at that time decided not to continue with the report. Therefore, the Proposer raised this modification to compel National Grid to produce an annual report which included system incidents.

The Proposer confirmed that they did not want to be too prescriptive as to the content of the report to allow flexibility to the System Operator but that the report would bring clarity as to what was required in terms of the provision of information. In the event that the report does not meet industry's requirements, a further modification could be raised at a later date.

The NGET representative agreed that there was nothing in the Grid Code to compel National Grid to produce a system incidents report. The NGET representative stated that they will be raising a WAGCM (See Annex 4) in relation to the content of the proposed

report as there is disagreement about the content of the report. The areas of disagreement include:

- i. The loss of in-feed and ex feed reported should be set to 600 Megawatts as this is more proportionate than the current proposal of 200 Megawatts;
- ii. The report should be available to the Grid Code Review Panel and relevant parties rather than generally available due to security; and
- iii. To remove the requirement of an annual report as the requirement was more about regular assessment of the system incidents so it does not fit with this modification and therefore specifying an annual report does not add value.

The Workgroup discussed the issue of security and concluded that if the information is made available to some members of industry it must be considered to be in the public domain. The Proposer informed the Workgroup that the previous report was in the public domain and therefore there were competition concerns. The NGET representative stated that further thought needed to be given to the implementation.

A Workgroup member queried what would happen in the event that a Transmission Operator failed to provide the requested information to the System Operator?

The Proposer and NGET representative both confirmed that in their proposals the System Operator would produce the report.

The NGET representative stated that they will incorporate as much of the original proposal as possible into their WAGCM (See Annex 4) so that the differences between the options are minimal.

A workgroup member stated that if the proposal goes into the Grid Code, it will also be required for to be added into the System Operator Transmission Code.

Following the Workgroup Consultation, the Workgroup convened to discuss the consultation responses and whether the Proposed Solution or Workgroup Alternative Grid Code Modification needed to be amended in light with the consultation responses.

The Workgroup noted that there had been four responses to the consultation from Drax Power Limited, Northern Powergrid, National Grid Electricity System Operator and ScottishPower Generation Limited. The Workgroups discussion and observations are listed below:

Question 1: Do you believe that the Original Proposal better facilitates the Grid Code Objectives?

The Workgroup noted that three of the respondents provided an answer to this question.

The Workgroup discussed the NGESO consultation response. A Workgroup member expressed that they did not believe the NGESO response was legally robust as the role of the System Operator s to enhance the transmission operator. Further, in response to

the NGESO position that they would provide the information voluntarily, the Workgroup member stated that codification is required due to the past actions of withdrawing publication of the System Incidents Report.

The Proposer stated that he disagreed that the reason for the original report has passed and when requested National Grid declined to continue publishing the System Incidents Report.

It was further stated by a Workgroup member that NGESO's statement that looking at the technical detail was not part of the Grid Code Review Panel's role was incorrect as they do have a role that links to EU implementation and this position runs contrary to what has been previously stated in public.

The NGESO representative stated that their position was set out in the consultation response and he has nothing further to add. However, it is worth noting that NGESO has suggested alternatives to a code modification and has volunteered, following further consideration, to provide the requested information in the System Operability Framework (SOF) which would not necessarily need code modification to deliver.

A Workgroup member expressed that there would be a lack of certainty as to whether NGESO would withdraw the System Incident Report again in the future. Therefore, their view was that it was better to proceed with the modification to place an obligation on NGESO.

A Workgroup member queried the statement in NGESO's consultation response about the reason for the historic System Incident Report. NGESO stated that this is detailed in the consultation response. Further detail may be contained within the GC0035 modification.

Question 2: Do you support the proposed implementation approach?

The Workgroup noted that all four respondents provided a response to this question. All the Workgroup consultation respondents agreed with the implementation approach.

The Proposer stated that a date for the annual report needs to be fixed. He noted that the most important data is available over the summer and therefore he proposed the following:

- i. A data cut-off date of the end September for a given year;
- ii. Data is collated and processed in October for a given year;
- iii. A check, review and sign off of two weeks; and
- iv. Report published/sent to industry on or around 14 November of a given year.

The Workgroup agreed in principal that this sounded like a sensible solution should the modification proposal or Workgroup Alternative Grid Code Modification (WAGCM) be approved.

Question 3: Do you have any other comments?

The Workgroup noted that there were no consultation responses to this question.

Question 4: Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?

The Workgroup noted that National Grid had already raised a Workgroup Alternative Grid Code Modification WAGCM to this proposal. There were no new proposals raised through the consultation.

Question 5: Do you agree that the proposed contents of an annual System Incident Report including the associated data on the National Electricity Transmission System includes the necessary items and, if not, are there any items that you would include/exclude/amend?

The Workgroup noted that all four respondents provided an answer to this question.

A Workgroup member stated that the NGESO WAGCM suggests 600MW rather than 250MW as stated in the Proposal, which runs counter to a whole system approach. A Workgroup member expressed support for a 250MW threshold as in their view, these could have an impact on the network, particularly over the summer period.

The NGESO representative stated that having reviewed the consultation responses, he is happy to lower the threshold of when the report would be triggered from 600MW to 250MW to provide solution options that are as aligned as possible.

The Proposer stated that they have not been express about the exact details of the content of the report so that NGESO can decide the exact content of the System Incident Report.

A Workgroup member stated that they would like the minimum requirements codified so that what needs to be provided is clear and these can be updated through the code modification process.

Question 6: Do you agree that such a System Incident Report will be a useful report for industry to help improve system resilience?

The Workgroup noted that all four consultation respondents answered this question. It was further noted that NGESO was the only party to respond negatively to this question as their view was that codifying the content of the report would remove future flexibility and that any future changes would require additional Grid Code modification to amend the content but being placed in the SOF would not need a modification.

A Workgroup member stated that the System Incidents Report legal text should specify the minimum core requirements in the report and that NGESO could provide additional information in the report if they so wished. It also provides industry parties an opportunity to raise issues with NGESO on reported faults.

Question 7: Do you consider this to be a useful report for your purposes? If yes please provide, where possible, any examples of what you might use it for.

A Workgroup member expressed that they agreed entirely with Northern Powergrid's consultation response to this question. It was agreed that this information was required to move to a low carbon economy.

The Proposer agreed and stated that they agreed with Drax's response as the transparency will link through to the charging arrangements.

Legal Text Comments

In response to Northern Powergrid's consultation response that the General Conditions may not be the most appropriate part of the Grid Code for the modification to sit, the Proposer suggested that as an alternative to this could be Operating Condition 3, which is currently unused.

The Workgroup discussed the possibility of this also sitting in the Planning Conditions as a new PC.9. The Workgroup consensus was that the Operating Conditions were probably the most appropriate place for them.

5 Workgroup Vote

The Workgroup believe that the Terms of Reference have been fulfilled and GC0105 has been fully considered.

The Workgroup met on 1 February 2019 and voted on whether the Original would better facilitate the Applicable Grid Code Objectives than the baseline and what option was best overall.

The Workgroup agreed **[unanimously/by a majority of x]** that the Original/WAGCM was better than the baseline. The voting record is detailed below.

At the Workgroup meeting held 20 November 2018, the Workgroup agreed to support the proposed WAGCM which became the Workgroup Alternative Grid Code Modification (WAGCM).

The Workgroup voted against the Grid Code objectives for the Original Proposal and the WAGCM. The Workgroup voted and **[x]** Workgroup members concluded that the Original Proposal is the best option, **[x]** Workgroup members believed that the WAGCM is best and the baseline received **[x]** votes.

In conclusion, the Workgroup supported the WAGCM as the best option.

The voting record is detailed below:

Vote 1 – does the original or WAGCM facilitate the objectives better than the Baseline?

Vote recording guidelines:

“Y” = Yes

“N” = No

“-“ = Neutral

Workgroup Member	Better facilitates AGCO (i)	Better facilitates AGCO (ii)?	Better facilitates AGCO (iii)?	Better facilitates AGCO (vi)?	Better facilitates AGCO (v)?	Overall (Y/N)
Guy Nicholson						
Original						
WAGCM1						
Voting Statement: xx						
Simon Sheridan						
Original						
WAGCM1						
Voting Statement: Xx						
Garth Graham						
Original						
WAGCM1						
Voting Statement: Xx						
Alan Creighton						
Original						
WAGCM1						
Voting Statement: xx						
Isaac Gutierrez						

Original						
WACM1						
Voting Statement: xx						

Vote 2 – Which option is the best? (Baseline, Original solution or WACM(s))

Workgroup Member	BEST Option?
Guy Nicholson	
Simon Sheridan	
Garth Graham	
Alan Creighton	
Isaac Gutierrez	

6 GC0105: Relevant Grid Code Objectives

Impact of the modification on the Applicable Grid Code Objectives:

Relevant Objective	Identified impact
(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity	Positive – because data would be reported which could indicate problems emerging due to the change of generation technologies .
(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);	Positive – because system incidents are generally not zero cost and identification of incidents could provide information for CUSC changes to better reflect such costs.
(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the	Positive – because security is threatened if events are not

electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;	contained and the reporting sheds light on the ongoing effectiveness of containment measures.
(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and	Neutral
(e) To promote efficiency in the implementation and administration of the Grid Code arrangements	Positive – because the report has been provided in the past but has not been documented in the Grid Code and not been clearly specified.

The benefits of publishing a System Incident report have been recognised by the industry and the Grid Code Panel over the years as this reporting has already been implemented on an annual basis since 1997. The benefits are that the report will help ensure that the Grid Code requirements are fit for purpose and will serve as an early warning if certain Grid Code requirements need to be reassessed as the transmission and distribution systems (together with the load and generation connected to them) changes as GB moves towards a low carbon economy.

7 Implementation

The costs are already largely covered as the report has been produced on an annual basis since 1997 at an estimated cost of around £1000 (no more than £10,000). The recommendation is that the requirement to produce a System Incident report should be implemented as soon as practicable as National Grid have made this report many times before.

Therefore, it is proposed that the legal text changes to the Grid Code will be implemented within ten Working Days of an Authority decision. In terms of the production of the report by National Grid⁴, its publications on National Grid's website and then its presentation to the Grid Code Review Panel, this will be done annually on the anniversary of the implementation of this proposal into the CUSC. To ensure

⁴ For the avoidance of doubt; given the current (March 2018) deliberations about the separation of the System Operation functions from the Transmission Owner parts of NGET; the obligation to produce the report will be placed upon the System Operation part of the separated business.

openness and transparency for stakeholders, all System Incidents for the period prior to⁵ the implementation of this proposal (GC0105) will be reported in the first report.

8 Legal Text

The Legal text is contained in Section 3 of this report.

⁵ The last report ref “ROCOF GCRP_15-16” submitted to the GCRP covered the period up to [20/Nov/2016

Thus, the first report will cover the period from that date onwards.

Annex 1: GC0105 Terms of Reference

Annex 2: Most recent system incidents report to GCRP in January 2017 ref ROCOF GCRP 15-16

Annex 3: Proposer Presentation to Workgroup October 2018

“Examples of reporting”

Annex 4: NGET Proposed Workgroup Alternative Grid Code Modification (WAGCM)

The following proposed WAGCM below was raised by NGET, this has currently not been voted upon by the Workgroup as the Proposer is awaiting the outcome of this consultation.

Annex 5: Workgroup Attendance Register

The following is the attendance register for the Workgroup:

Name	Organisation	Role	22/02/17	16/03/17	17/10/18	14/01/19	01/03/19
Naomi Davies	Code Administrator	Chair	Attended	Attended		-	-
Ren Walker	Code Administrator	Technical secretary	Attended	-		-	-
Emma Hart	Code Administrator	Chair and technical secretary (from August 2018)	-	-	Attended	Attended	Attended
Guy Nicholson	Statkraft	Proposer	Attended	Attended	Attended	Attended	Attended
Simon Sheridan	National Grid System Operator	Workgroup Member	-	Attended	Attended	Attended	Attended
Rob Wilson	National Grid System Operator	Workgroup Member	Attended	Attended	-	-	-
Garth Graham	SSE	Workgroup Member	Attended	Attended	Attended	Attended	Attended

Alan Creighton	Northern Powergrid	Workgroup Member	Attended	Attended	Attended	Attended	Attended
Isaac Gutierrez	Scottish Power	Workgroup Member	Attended	Attended	Attended	Attended	Attended