;

| Grid Code Modification | At what stage is this document in the process? |
|---|---|
| # GC0105:<br>## Mod Title: System Incidents Reporting | 01 Proposal Form<br>02 Workgroup Consultation<br>**03 Workgroup Report**<br>04 Code Administrator Consultation<br>05 Draft Grid Code Modification Report<br>06 Final Grid Code Modification Report |

**Purpose of Modification:**

This modification aims to rectify the identified defect which is: “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. In 2017 National Grid stopped providing the report”. The Modification aims to reinstate the report and at the same time to specify the content and timing.

| | |
|---|---|
| | 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 x xxx 2019. |
| | **High Impact**: None identified |
| | **Medium Impact:** None identified |
| | **Low Impact:** All users |

 

## Contents



## Timetable

| The Grid Code Review Panel has agreed the following timetable: | |
|---|---|
| Modification Stage 1 (modification raised) | 10 October 2017 |
| Initial consideration by Workgroup | 22 February 2018 |
| Workgroup Consultation issued to the Industry | 29 November 2018 |
| Modification concluded by Workgroup | xxxx 2019 |
| Workgroup Report presented to Panel | xxxx 2019 |
| Code Administration Consultation Report issued to the Industry | xxxx 2019 |
| Draft Final Modification Report presented to Panel | xxxx 2019 |
| Modification Panel decision | xxxx 2019 |
| Final Modification Report issued the Authority | xxxx 2019 |
| Decision implemented in Grid Code | xxxx 2019 |

**Any questions?**


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# 1 About this document

## Executive Summary

This document is the Workgroup Report and contains the discussion of the Workgroup which formed in February 2018 to develop and assess the proposal.

GC0105 was proposed by Element Power, which was subsequently acquired by Statkraft (the Proposer) on 10 October 2017. The modification proposal was submitted to the Grid Code Review Panel for its consideration on 18 October 2017. The Panel decided to send the Original Proposal to a Workgroup to be developed and assessed against the Applicable Grid Code Objectives.

The Proposer raised the modification proposal due to an identified defect, defined below, in the Grid Code. The defect relates to the continued production of an annual report on system incidents by National Grid Electricity System Operator (National Grid ESO). The Proposer's Original Solution, put forward on 10 October 2017, was modified during the Workgroup process (9 Workgroup meetings, a consultation and bilateral discussions) to the Proposer's Solution in Section 3 below. National Grid ESO have proposed a Workgroup Alternative Grid Code Modification proposal (WAGCM) which is set out in Annex 4. As part of the work undertaken by the Workgroup, a Workgroup Consultation, which closed on 21 December 2018, was undertaken. The details of the outcome of the consultation can be found in Section 4 and the responses are detailed in Annex 5. The Workgroup has voted on the options and recorded their views in Section 5 below.

**Commented [H(E1]:** Including the webex scheduled on 2 October 2019

In this document the following terms are used:

| Term/Acronym | Definition |
|---|---|
| Grid Code Review Panel (GCRP) | A Panel of elected and appointed individuals that make decisions in relation to proposed and ongoing Grid Code modifications. |
| National Grid Electricity System Operator (National Grid ESO) | The Electricity System Operator for England and Wales |
| Original Proposal | This is the Modification Proposal as raised on 10 October 2017 and presented |

 

| | |
|---|---|
| | to the Grid Code Review Panel 18 October 2018. |
| Proposer's Solution | This is the Proposer's final solution (i.e. Modification) developed through the work of the Workgroup. |
| RoCoF | Rate of Change of Frequency Hz/s |
| SOF | System Operability Framework |
| STC | System Operator Transmission Owner Code |
| STCP | System Operator Transmission Owner Code Procedure. |
| System Operation Guideline (SOGL) | The European Union System Operation Guideline |
| System Operator Transmission Owner Code (STC) | A code that defines the relationship between the transmission system owners and the National Grid ESO. |
| Workgroup Alternative Grid Code Modification (WAGCM) | This is the alternative proposal that has been raised by the National Grid ESO representative. |

## Background

GC0105 aims to amend the Grid Code to incorporate a Systems Incident Report that would be produced by National Grid ESO. The Workgroup consulted on the Proposer's Solution and WAGCM 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 in relation to the Original Proposal, Proposer's Solution, and the work undertaken to reach its final form as presented in this report.

The Grid Code Review Panel (GCRP) 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.

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

 

| Specific Area | Location in the report |
|---|---|
| Impact on system processes for National Grid ESO[1] and other users | Section 3 and 4 of the report |
| History of previous reports and consideration of previous reporting mechanism | Section 3 and 4 of the report |
| Benefits to system operator and users in helping to perform future policy | Section 3 and 4 of the report |
| Suitability/flexibility of report for future use | Section 3 and 4 of the report |
| Inclusion of 'SOF' scenarios and demonstration of what industry wants to do with the information | Section 3 and 4 of the report |

## 2 Original Proposal

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### Defect

The Grid Code Review Panel (GCRP) has previously received an annual report from National Grid ESO indicating system incidents and reporting unplanned outages of ~~i~~interconnectors, load or generation connected to transmission or distribution networks. This annual report is important to industry and to the G~~rid C~~ode R~~eview P~~anel as it helps monitor the effectiveness of the technical requirements in the Grid Code and Distribution Code. In 2017 National Grid stopped providing the report.

### What

National Grid has produced System Incidents reports for the G~~rid C~~ode R~~eview P~~anel 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 ESO~~in its role as GB System Operator~~ to provide this report to the ~~Panel~~GCRP needs to be enshrined in the Grid Code.

### Why

National Grid ESO 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

[1] NB legal separation of National Grid Transmission Owner and National Grid Electricity System Operator occurred on 1 April 2019. Therefore, this term of reference is deemed to relate to the Electricity System Operator. All references within this report which relate to current functions carried out by National Grid ESO have been updated accordingly within this report to refer to National Grid ESO.

 

(RoCoF) events. The reporting procedure was established in 1997 and was referenced in National Grid ESO'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 ESO 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. Examples of reporting by EirGrid, FinGrid and National Grid ESO at the Ops Forum are included in Annex 1.[2] 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 ESO to produce the report.

## 3 Proposer's Solution

The Proposer's Solution which has developed from the Original Proposal through workgroup discussions, a consultation and several bilateral discussions, is to codify in the Grid Code a requirement for National Grid ESO to ~~annually prepare and present to the November~~[3]produce a monthly report of incidents and frequency data to be provided to the G~~rid~~ C~~ode~~ R~~eview~~ P~~anel~~. ~~every year a~~ The report will be titled ~~–~~ **System Incidents Report** ~~-~~and containi~~ng~~ the following information:

1. A record of each and all of any of the following events ~~very significant event~~ on the National Electricity Transmission System ~~including the following events~~:

    i. A loss of infeed or exfeed (import or export including generation, demand and interconnection) of =>250MW.

    ii. a frequency excursion outside the limits[4] 49.75~~90~~-50.25~~10~~Hz.

    iii. A fault on the transmission network which:

        A. Could be linked to the known or reported tripping of 250MW or more as in (i) above~~any Power Station, DC Converter or User System~~; and/or~~.~~

**Commented [H(E3]:** Guy, I have amended this in track changes for you for ease. Can you please check you are happy with this as you own this section?

I have taken the details from your latest version of legal text circulated around the workgroup and updated the first paragraph to reflect the changes.

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

[3] ~~November 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.~~

[4] Refer to Grid Code definition of "Target Frequency"

 

B. Is linked to a change in the transmission system voltage of more than[5]:

a. 400kV: > +/-5% for >15min; or

b. 275kV or 132 kV: > +/- 10% for >15min

iv. Any known demand disconnected >=50MW from the National Electricity Transmission System or other lesser demand if notified to System Operator.

v. Any Demand Control action taken.

2. A report of each significant event with the following data as appropriate and available:

i. The time(s) in hh.mm.ss of the significant event and any potentially related occurrences.

ii. Any known or reported loss of Embedded Power Station(s) with locations and ratings where available.

iii. The frequency record (in table and graphical format) at <=1 second intervals for 1 minute before and after the ~~incident~~significant event.

iv. The frequency (to 2 decimal places) immediately before the significant event.

v. The frequency (to 2 decimal places) immediately after the significant event.

vi. The maximum rate of change of frequency recorded during the significant event over a specified time period e.g. 500ms.

vii. Where known the MW of all individual losses or trips related to the significant event.

viii. Where known the identity the Users and Network Owner of all demand losses or trips related to the significant event.

ix. The location of any reported transmission fault on the network diagram and geographically.

[5] Refer to Grid Code CC6.1.4

 

x. The extent of any voltage dip associated with the significant event.

xi. 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~~at the time of the event along with how it has been calculated.

xii. Any other data available that is of value to gain a clearer understanding of the significant event and its potential implications.

3. an outline of progress towards reporting events and associated data on the National Electricity Transmission System including:

i. three phase faults;

ii. three phase to earth faults;

iii. phase to phase faults;

iv. phase to earth faults;

v. the associated voltage dips – durations and spreads;

vi. over-voltages;

vii. under-voltages;

viii. voltage dips of >50%;

ix. lightning strikes.

To obtain, manage, present, communicate and report the data above ~~NGET~~ National Grid ESO shall:

i. Present the System Incidents ~~r~~Report ~~in a pdf~~ and provide the associated data in a spreadsheet.

ii. Maintain an area of the National Grid ESO web site with a list of all historic System Incidents R~~r~~eports and information on any process required for legitimate parties to obtain the reports (if reports are not available to download).

iii. Notify all Electricity Distribution Licence holders and Network Operators of every significant event and request information to fulfil its ~~duties in section 2 above~~.

~~iv. Include a section in the System Incidents report showing how system inertia is estimated for Section 2k above.~~

~~v. 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.~~

**Timescales for reporting:**

~~vi. A data cut-off date of the end September for a given year;~~
~~vii. Data is collated and processed in October for a given year;~~
~~viii. A check, review and sign off at National Grid ESO~~
~~ix. Report published in November for a given year and included as part of the System Operability Framework (SOF) report~~

National Grid ESO to publish the System Incidents Report monthly as follows:

i. data cut-off date of the end of each month for that reporting month;

ii. data is collated, reviewed and processed in the subsequent two months for a reporting month;

iii. System Incidents Report to be published at the latest on the last working day of the second month after each reporting month (in other words the report for January would be published on the last working day of March, and so on) and submitted to the next regular GCRP. For the avoidance of doubt, if there are no incidents arising a System Incidents Report would, nevertheless, still be published stating that 'No System Incident occurred in month [X]'.

National Grid ESO to prepare and publish on the National Grid ESO website the "Historic Frequency Data" monthly, in a spreadsheet form, recording system frequency data at a maximum of one second intervals for the whole month within the following timescales:

i. data cut-off date of the end of each month for that reporting month;

ii. data is collated, reviewed and processed in the subsequent ten working days after the end of the reporting month;

iii. Historic Frequency Data to be published on the eleventh working day after each reporting month (in other words the report for January would be published on the eleventh working day of February, and so on).

 

## 4 Workgroup Discussions

The Workgroup convened nine times to discuss the issue, detail the scope of the proposed defect, assess the options for resolving the defect, assess the proposal in terms of the Grid Code Applicable Objectives and review the responses to the Workgroup Consultation. The discussions and views of the Workgroup are outlined below.

Commented [H(E4]: Includes the webex scheduled for 2 October 2019

**First and Second Workgroup meetings**

At the initial Workgroup meeting the Workgroup reviewed the reporting requirements that the Proposer had outlined in the Original Proposal[6].

The National Grid ESO representative stated that they would be able to provide the majority of the proposed information. 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, the National Grid ESO representative made representations about the scaling around fault reporting and specifically the proposed reporting threshold of 250MW in the Original Proposal. The National Grid ESO representative 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 National Grid ESO which includes a number of differences (see Annex 4).

***Notification Obligations***

The Proposer recognised the need for a pragmatic approach around how National Grid ESO 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 Code and Distribution Code to avoid the risk of duplication.

The Workgroup discussed the requirements of STCP 03-1 *Post Event Analysis and Reporting* which sets out how parties (namely National Grid ESO 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 System Operator Transmission Owner Code (STC) requiring each Transmission Operator to provide the System Operator (National Grid ESO) with the information it needs to produce the report. The Proposer stated that they did not want their Proposal to evolve to require consequential modifications having to be raised for other Codes. The Proposer noted that should any

[6] https://www.nationalgrid.com/sites/default/files/documents/GC0105%20Modification%20Proposal.pdf

 

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 by National Grid ESO in the report as such and should it be a reoccurring issue then another modification could be considered and raised in the future to address it.

***When***

The Workgroup were minded at this stage to specify 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 Workgroup discussed the forthcoming 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 six questions posed to industry and the Workgroup's deliberation on the answers provided back by industry can be found later in this section.

**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 ESO had produced a System Incidents report which covered ex-feed losses and in-feed losses. This report was discontinued in 2017. The Proposer had requested that the report was continued as it contained useful information to industry. However, National Grid ESO at that time decided not to continue with the report publication. Therefore, the Proposer raised this modification to compel National Grid ESO 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 National Grid ESO representative agreed that there was nothing in the Grid Code to compel National ESO Grid to produce a System Incidents report. The National Grid ESO representative stated that they will be raising a WAGCM (see Annex 4) in relation to the content of the proposed System Incident report as there is a disagreement, between National Grid ESO and others, about the content of the report. The areas of disagreement include:

i. The level of the loss of in-feed and ex feed reported: National Grid ESO believe this should be set to 600 Megawatts as their view is this is more proportionate than the current proposal of 250 Megawatts;

ii. The availability of the report: National Grid ESO believe this should be available to the GCRP and relevant parties rather than generally available due to security concerns; and

iii. Whether a System Incidents Report is required: National Grid ESO stated that the requirement of an annual report was historically more about regular assessment of the system incidents and therefore specifying an annual report within the Grid Code 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 no competition concerns. The National Grid ESO representative stated that further thought needed to be given to the publication of the report.

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 confirmed that in that situation, National Grid ESO would need to specify this in the report.

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

The National Grid ESO representative stated that they will incorporate as much of the Original Proposal / Proposer's Solution as possible into their WAGCM (See Annex 4) so that the differences between the options are minimal.

A Workgroup member stated that if the Proposer's Solution goes into the Grid Code, it will also require changes to be made to the System Operator Transmission Code (STC).

**Fourth Workgroup meeting**

Following the Workgroup Consultation, the Workgroup convened to discuss the consultation responses (set out in Annex 5) and whether the Proposer's Solution or National Grid ESO's WAGCM needed to be amended in light of the consultation responses.

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

Question 1: Do you believe that the Original Proposal[7] better facilitates the Grid Code Objectives?

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

The Workgroup discussed the National Grid ESO consultation response. A Workgroup member expressed that they did not believe the National Grid ESO response was legally robust, in terms of System Operator Guideline and Grid Code compliance, as the role of the System Operator is to enhance the transmission system operation and that transparency is one element of that. In response to the National Grid ESO position that they would provide the information related to system incidents voluntarily, the Workgroup member stated that codification is required due to the past actions of National Grid ESO in withdrawing the 'voluntary' publication of the System Incidents report (which brought about this GC0105 proposal).

[7] This is a standard question used within Workgroup consultations. The reference to the 'Original Proposal' here refers to the 'Proposer's Solution' as defined in this document.

 

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

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

The National Grid ESO 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 National Grid ESO has suggested alternative approaches to a code modification and has volunteered, following further consideration, to provide the requested information in the System Operability Framework, which would not necessarily need a code modification to deliver the requested information within the proposal.

A Workgroup member expressed concern that there would be a lack of certainty with this approach and whether National Grid ESO would stop preparing the System Incidents report again in the future (as they had done previously). Therefore, their view was that it was better to proceed with the modification to place an obligation on National Grid ESO to ensure transparency.

A Workgroup member queried the statement in National Grid ESO's consultation response about the reason for the historic System Incidents report. The National Grid ESO representative stated that this is detailed in their consultation response and that this links to the GC0035 modification, which may contain further information about why the original System Incidents report was produced.

Question 2: Do you support the proposed implementation approach?

The Workgroup noted that all four respondents provided a response to this question. All of the Workgroup consultation respondents agreed with the proposed 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 Proposer's Solution or 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 ESO had already raised a WAGCM. There were no other proposal requests 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 WAGCM suggests a threshold of 600 Megawatts rather than 250 Megawatts as stated in the Proposal and this would run counter to a whole system approach, which is being developed via the ENA's Open Networks initiative as in the WAGCM, events between 600 Megawatts and 250 Megawatts that occur would not be visible to stakeholders.

A Workgroup member expressed support for a 250 Megawatts threshold as in their view, incidents reported at this lower threshold could have an impact on the network, particularly over the summer period, when demand on the transmission system maybe low, such as a sunny Sunday morning where, for example, demand is largely being serviced via embedded generation like solar Photovoltaics. Thus, for example, a 600 Megawatt event on the transmission system with demand of 60 Gigawatts (winter peak) might be said to be the equivalent of a 250 Megawatt event on a transmission system with 15 Gigawatts (summer lull) of demand.

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

The Proposer stated that they have not been explicit regarding the exact details of the content of the System Incidents report so that National Grid ESO can decide the items to be included within the report.

A Workgroup member stated that they would like the minimum System Incidents report requirements codified so that what needs to be provided is clear and these can be updated through the code modification process at a later stage as required.

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 National Grid ESO 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 an additional Grid Code modification to amend the content, but that an alternative solution such as to publish the information in the System Operability Framework, would not need a modification to accommodate future changes.

A Workgroup member stated that the System Incidents report legal text should specify the minimum core requirements in the report and that National Grid ESO could provide additional information in the report if they so wished. The report will also provide

 

industry parties an opportunity to raise issues with National Grid ESO and Ofgem 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 the information in the System Incidents report was required to move to a low carbon economy and 'whole system' future.

The Proposer agreed and stated that they agreed with Drax's response as the transparency will provide an opportunity to link with 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 a different approach to this could be to place it in 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 the legal text changes to be applied.

**Fifth Workgroup meeting**

The National Grid ESO representative informed the Workgroup that following internal discussions, they had made changes to their legal text that would ensure that an STC change would not be required and that any costs associated with the implementation of the modification would be minimal. The National Grid ESO representative invited the Proposer to work with them to review the changes and see whether they were comfortable to incorporate these changes into the Proposer's Solution. It was agreed that the Proposer would consider the legal text amendments and confirm their position with the Workgroup.

**Sixth Workgroup meeting**

The Workgroup discussed some of the wording to be used to replace the term "for a given year" within the proposed solution. A Workgroup member stated that this had been raised in previous modifications and the National Grid ESO legal team had suggested some suitable wording. It was agreed that the National Grid ESO legal team should provide some suitable wording for this.

The Proposer stated that he was proposing to report on deviations from a target frequency range of between 49.9 – 50.1 Hz, as such occurrences, according to the Grid Code would be exceptional. The Workgroup supported this approach.

The Proposer informed the Workgroup that they had considered the National Grid ESO suggested changes to the Proposer's Solution and decided not to incorporate then into their solution. The Proposer clarified that there seemed to be a misunderstanding of the intention of his modification by National Grid ESO in relation to fault reporting.

 

National Grid ESO re-iterated that part of the Proposer's solution would require a STC change. This would be raised at some point in the future should the Authority make a decision to implement the Proposer's Solution. The Workgroup discussed the implications of this and the National Grid ESO representative stated that the affected part of the report would be omitted until the required code changes were made. The Workgroup were content with that approach.

**Seventh Workgroup Meeting**

The Proposer stated that the first System Incidents report would include the data since the last report was published up to the date of the report. It was agreed that this needed to be reflected in the legal text for the modification.

The Workgroup discussed the Workgroup report and suggested some amendments. The Workgroup agreed that it would be helpful to see the report with all of the annexes inserted prior to the vote.

The National Grid ESO representative had previously raised with the Workgroup that the Proposer's Solution in its current form would require an STC change. The National Grid ESO representative stated that the approach taken by the Authority recently had been to require all code changes to be submitted to it at the same time so that it could look at the changes holistically.

The National Grid ESO representative stated that their WAGCM would replicate what was previously provided by National Grid ESO and his view was that the Proposer's Solution would require additional data that was not in the System Incidents report that was historically produced.

The Workgroup discussed the draft legal text. The Proposer provided some changes to the legal text to ensure it reflected the intent of the Proposer's Solution. The National Grid ESO representative confirmed that they were content to use the same terminology in their WAGCM, where appropriate.

**Eighth Workgroup Meeting**

The Proposer highlighted two areas of his solution that he was considering amending. These were as follows:

1. To amend the proposed reporting frequency from annually to monthly; and
2. To amend the target frequency, which would result in an incident being reported from 50.00 +/- 0.05Hz and exceptionally 49.90 to 50.10.

<u>Frequency of Reporting the System Incident Report</u>

The Proposer stated that amending the reporting frequency would help the reporting systems at National Grid ESO, the Transmission Owners and the Distribution Network Operators improve more quickly by having monthly repetition. In addition, it would be helpful to users, National Grid ESO and Ofgem as it will enable detection warnings or danger signals to be highlighted earlier and therefore action can be taken sooner. The Proposer stated that he was minded to amend the legal text to report within 2 days of the month end.

 

A Workgroup member suggested that the Proposer may wish to consider the date of the GCRP and whether the report should be timed to coincide with the GCRP papers day to enable the monthly report to be presented in a timely manner as the current proposal does not align with the papers day.

The ESO representative confirmed that their WAGCM will retain an annual reporting obligation on the ESO rather than monthly as suggested by the Proposer.

A Workgroup member stated that they would like something straight after the event if it is significant, such as the recent black out on 9 August 2019, which is what has happened in this case with a standalone report being produced.

Having considered the Workgroup's discussion, the Proposer confirmed that he was going to change the frequency of reporting to monthly (within 2 days of month end). He stated that he understands that there will be potentially a month delay between the data being available and the report being considered by the GCRP but that this is an improvement as this modification proposal was to originally to replace an annual report.

Target Frequency

The Proposer confirmed that the legal text will specify the frequency range rather than change the definition of Target Frequency within the Grid Code following advice form the Code Administrator that amending the Target Frequency definition was outside the scope of the identified defect.

The Workgroup discussed the range of target frequency suggested by the Proposer. The National Grid ESO representative stated that the closer you move in terms of +/- 0.05, the fewer incidents will be reported. The Workgroup agreed that it would like to consider the data in relation to how many incidents would be caught by different values. The National Grid ESO representative agreed that they would look at this and report back to the Workgroup.

A Workgroup member highlighted that the biggest difference between the Proposer's solution and the WAGCM was the MW frequency. It was queried whether the National Grid ESO representative would consider aligning the MW in their alternative to match the Proposer's solution. The National Grid ESO representative stated that once the final figures had been finalised by the Proposer, they would consider whether they wished to align this.

Blackout – 9 August 2019

The Workgroup discussed the blackout that occurred on 9 August 2019 and the implications and relevance of that event in relation to this modification.

The National Grid ESO representative stated that he did not believe there were direct links between the events of 9 August 2019 and this modification as the causes were a unique set of circumstances. A Workgroup member disagreed and stated that they believe that this modification is directly relevant to the blackout and that the report may have helped.

The Proposer stated that in reading the information released in relation to the blackout event, there was reference to 1 second data that National Grid ESO produce. The Proposer stated that they would like to consider inclusion of this data within the System Incident Report in the event that the requirement for this data is not already codified

 

within the Grid Code. The National Grid ESO representative agreed to look at how the 1 second data is reported and whether this is contained within the Grid Code as a requirement.

## 5 Comparison between the Proposer's Solution and the Workgroup Alternative Grid Code Modification

The following sets out the main differences between the Proposer's solution and the WAGCM raised by National Grid ESO:

| Section | Subject | Proposer's Solution | WAGCM |
|---|---|---|---|
| OC3.1.1 | High level report content | Incident Report and frequency data report | Incident Report only |
| OC3.4.1 | Reporting frequency | Monthly | Annually |
| OC3.4.1 (a) (i) | Loss reporting | a loss of infeed or exfeed (import or export including generation, Demand and interconnection) of =>250MW; | a loss of Demand =>250MW, or a loss of either generation or interconnection of =>600MW; |
| OC3.4.1 (a) (ii) | Frequency excursions | a frequency excursion outside the limits 49.75-50.25Hz; | a frequency excursion reportable in accordance with The Electricity Safety, Quality and Continuity Regulations 2002 |
| OC3.4.1 (a) (iii) A | Faults | a fault on the National Electricity Transmission System which could be linked to the known or reported tripping of 250MW or more | Not Applicable |
| OC3.4.1 (b) (iii) | Significant event frequency record interval | <=1 second | 1 second |
| OC3.4.1 (c) | Event & data reporting additional detail | an outline of progress towards reporting events and associated data on the National Electricity Transmission System including: | Not Applicable |

 

| | | | |
|---|---|---|---|
| | | (i) three phase faults;<br>(ii) three phase to earth faults;<br>(iii) phase to phase faults;<br>(iv) phase to earth faults;<br>(v) the associated voltage dips – durations and spreads;<br>(vi) over-voltages;<br>(vii) under-voltages;<br>(viii) voltage dips of >50%;<br>(ix) lightning strikes. | |
| OC3.4.2 | Communication of reporting, additional detail | notify all Electricity Distribution Licence holders and Network Operators of every Significant Event and request information to fulfil its duties in OC3.4.1. | Not Applicable |
| OC3.4.3 | Monthly reporting timelines | (a) a data cut-off date of the end of each month for that reporting month;<br>(b) data is collated, reviewed and processed in the subsequent two months for a reporting month;<br>(c) System Incidents Report to be published at latest on the last working day of the second month after each reporting month (in other words the report for January would be published on the last working day of March, and so on) and submitted to the next regular Grid Code Review Panel. For the avoidance of doubt, if there are no incidents arising under OC3.4.1 (a)-(c) a System Incidents Report would, nevertheless, still be published stating that 'No | Not Applicable – annual report specified:<br>The Company shall prepare and publish the System Incidents Report annually. The report will published and submitted to the Grid Code Review Panel in the November following a given year and included as part of the System Operability Framework (SOF) report |

 

| | | | |
|---|---|---|---|
| | | System Incident occurred in month [X]'. | |
| OC3.4.4 | New section for frequency reporting | The Company shall prepare and publish on the Website the "Historic Frequency Data" monthly, in a spreadsheet form, recording system frequency data at a maximum of one second intervals for the whole month in accordance with the following timescales:<br>(a) a data cut-off date of the end of each month for that reporting month;<br>(b) data is collated, reviewed and processed in the subsequent ten working days after the end of the reporting month;<br>(c) Historic Frequency Data to be published on the eleventh working day after each reporting month (in other words the report for January would be published on the eleventh working day of February, and so on). | Not Applicable |

## 6 Workgroup Vote

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

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

The Workgroup met on x xxxx 2019 and voted against the Grid Code objectives for the Original Proposal and the WAGCM. The Workgroup voted and [x] Workgroup members concluded that the Proposer's Solution 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 [Proposer's Solution] [WAGCM] as the best option.

 

The voting record is detailed below:

**<u>Vote 1</u> – *does the Proposer's Solution or WACM facilitate the objectives better than the Baseline?***

***<u>Vote recording guidelines:</u>***

"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 | | | | | | |
| Proposer's Solution | | | | | | |
| WAGCM | | | | | | |
| Voting Statement:<br><br>xx | | | | | | |
| Simon Sheridan | | | | | | |
| Proposer's Solution | | | | | | |
| WAGCM | | | | | | |
| **Voting Statement:**<br><br>Xx | | | | | | |
| Garth Graham | | | | | | |
| Proposer's Solution | | | | | | |
| WAGCM | | | | | | |
| **Voting Statement:**<br><br>Xx | | | | | | |

 

| | | | | | | |
|---|---|---|---|---|---|---|
| Alan Creighton | | | | | | |
| Proposer's Solution | | | | | | |
| WAGCM | | | | | | |
| **Voting Statement:**<br><br>xx | | | | | | |
| Isaac Gutierrez | | | | | | |
| Proposer's Solution | | | | | | |
| WAGCM | | | | | | |
| **Voting Statement:**<br><br>xx | | | | | | |
| **Fernando Morales** – Not eligible to vote as attendance is less than 50% as set out on the Workgroup's Terms of Reference | | | | | | |
| Proposer's Solution | N/A | N/A | N/A | N/A | N/A | N/A |
| WAGCM | N/A | N/A | N/A | N/A | N/A | N/A |
| **Voting Statement:**<br><br>N/A | | | | | | |

**Vote 2 – *Which option is the best? (Baseline, Proposer's Solution or WAGCM)***

| Workgroup Member | BEST Option? |
|---|---|
| Guy Nicholson | |
| Simon Sheridan | |
| Garth Graham | |
| Alan Creighton | |
| Isaac Gutierrez | |
| Fernando Morales | **N/A** |

 

## 7 GC0105: Relevant Grid Code Objectives

The assessment below is the Proposer's view of how GC0105 meets the 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 electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole; | Positive – because security is threatened if events are not 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 Incidents 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.

## 8 Implementation

The Proposer's view is that the costs of producing a System Incidents report 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 proposal is that the requirement to produce a System Incidents report should be implemented as soon as practicable as National Grid ESO 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 Grid ESO[8], its publications on National Grid ESO's website and then its presentation to the GCRP, this will be done annually on or around the 14 November. To ensure openness and transparency for stakeholders, all system incidents for the period prior to[9] the implementation of this proposal will be reported in the first report.

## 9 Legal Text

The Legal text for the Proposer's Solution is contained in Annex 7 of this report.

The Legal Text to support the WAGCM is contained in Annex 8 of this report.

[8] 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.

[9] 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 National Grid ESO, this was subsequently voted upon by the Workgroup – see in particular Section 4 of this report for further details.

 

## Annex 5: Workgroup Consultation Responses

 

## Annex 6: 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 | 01/02/19 | 18/02/19 | 13/03/19 | 16/05/19 | 02/09/19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Guy Nicholson | Statkraft | Proposer | Attended | Attended | Attended | Attended | Attended | Attended | Attended | Attended | |
| Rob Wilson (22/02/17 – 16/03/17)<br>Simon Sheridan (16/03/17 – 18/02/17)<br>Greg Heavens (13/03/19) | National Grid System Operator Representative | Workgroup Member | Attended | Attended | Attended | Attended | Attended | Attended | Attended | Attended | |
| Garth Graham | SSE | Workgroup Member | Attended | Attended | Attended | Attended | Attended | Attended | Attended | Attended | |
| Alan Creighton | Northern Powergrid | Workgroup Member | Attended | Attended | Attended | Attended | Attended | Attended | Attended | Attended | |
| Isaac Gutierrez | Scottish Power | Workgroup Member | Attended | Attended | Attended | Attended | Attended | Absent | Absent | Absent | |
| Fernando Morales | Highview Power | Workgroup Member<br><br>NB joined the Workgroup ahead of the meeting on 16/09/19. | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Attended | |

## Annex 7: Proposer's Solution Legal Text

 

## Annex 8: WAGCM Legal Text

 