nationalgrid

Stage 06: Final Modification Report

Grid Code

GC0099:

Modification Title: Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM).

What stage is this document at?

01	Modification Proposal
02	Workgroup Consultation
03	Workgroup Report
04	Code Admin Consultation
05	Draft Final Modification Report
06	**Final Modification Report**

Purpose of Modification: This Modification seeks to introduce the interconnector scheduled transfer process to the Grid Code in order to establish common timings which are compatible with both the EU single intraday market coupling processes, and GB and EU balancing processes. Capacity Allocation & Congestion Management (CACM) aims to promote effective competition in the generation, trading and supply of electricity and foresees the development of more liquid intraday markets which give parties the ability to balance their positions closer to real time and should help to integrate renewable energy sources into the Union electricity market.

This Final Modification Report has been prepared in accordance with the terms of the Grid Code. An electronic version of this document and all other GC0099 related documentation can be found on the National Grid website via the following link:
https://www.nationalgrid.com/uk/electricity/codes/grid-code/modifications/gc0099-establishing-common-approach-interconnector
At the Grid Code Panel meeting on 26 April 2018, the Panel members recommended, by majority that WACM2 was better than the baseline and that it should be implemented.
The purpose of this document is to assist the Authority in making its determination on whether to implement GC0099.

Published on: 9 May 2018

High Impact: Transmission system owners and operators most notably interconnector owners. This Modification is linked to TSO compliance with EU Regulation 2015/1222 (CACM).

Medium Impact: None

Low Impact: None

Contents

Timetable

Workgroup meeting 1	07 June 2017
Workgroup meeting 2	25 July 2017
Workgroup Consultation (15 working days)	09 October 2017
Workgroup meeting 3	7 November 2017
Workgroup meeting 3	24 January 2017
Workgroup Report presented to Panel	14 February 2018
Code Admin Consultation issued to industry (15 working days)	23 February 2018
Draft Final Modification Report presented to Panel	26 April 2018
Panel Recommendation Vote	26 April 2018
Final Modification Report published	9 May 2018

Any Questions?

Technical Secretary:
Taran Heir
Code Administrator

christine.brown1@nationalgrid.com

01926 65 3328

Proposer:
Robert Selbie
National Grid

Robert.Selbie@nationalgrid.com

07896727701

Authority Decision	13 June 2018
Implementation	28 June2018

About this document

This document is the Final Grid Code Modification Report document that contains the discussion of the Workgroup which formed in June 2017 to develop and assess the proposal, the responses to the Workgroup Consultation which closed on 30 October 2017, the voting of the Workgroup held on 24 January 2018. The Panel reviewed the Workgroup Report at their Grid Code Panel meeting on 23 February 2018 and agreed that the Workgroup had met its Terms of Reference and that the Workgroup could be discharged. This document also contains the responses received from the Code Administrator Consultation which closed on 16 March 2018.

GC0099 was proposed by National Grid Electricity Transmission and was submitted to the Grid Code Modifications Panel for its consideration on 22 May 2018. The Panel decided to send the Proposal to a Workgroup to be developed and assessed against the Grid Code Objectives.

GC0099 seeks to introduce the interconnector scheduled transfer process to the Grid Code in order to establish common timings which are compatible with both the EU single intraday market coupling processes, and GB and EU balancing processes. Capacity Allocation & Congestion Management (CACM) aims to promote effective competition in the generation, trading and supply of electricity and foresees the development of more liquid intraday markets which give parties the ability to balance their positions closer to real time and should help to integrate renewable energy sources into the Union electricity market.

The Workgroup consulted on this Modification and a total of seven responses were received. These responses can be views in Annex 2 of this Final Modification Report.

Workgroup Conclusions

The GC0099 Workgroup met on the 24 January 2018 to cast their Workgroup Vote. Two of the five Workgroup Members voted that the Original solution was the best option and the remaining three Workgroup Members voted that WACM 2 was the best option. The full voting can be found within section 4 of this Consultation.

Code Administrator Consultation Responses

Two responses were received to the Code Administrator Consultation. A summary of the responses can be found in Section four of this document. The respondents stated that the Proposal would better facilitate the Grid Code objectives.

National Grid View

National Grid are the Proposer of this modification so their view can be located in the Original Proposal.

Grid Code Panel View

At the Grid Code Panel meeting on 26 April 2018, the Panel voted on GC0099 against the Grid Code Objectives.

The Panel members voted, by majority, that WACM2 better facilitates the Grid Code objectives and recommended that it should be implemented.

This Final Modification Report has been prepared in accordance with the terms of the Grid Code. An electronic copy can be found on the National Grid Website, along with the Grid Code Modification Proposal Form.

http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/Grid-code/Modifications/GC0099/

Document Control

Version	Date	Author	Change Reference
0.1	30/08/2017	Workgroup	Draft Workgroup Consultation
0.2	09/10/2017	Workgroup	Workgroup Consultation
0.3	14/02/2018	Workgroup	Workgroup Report to Grid Code Panel
0.4	22/02/2018	Workgroup	Code Administrator Consultation
0.5	18/04/2018	Code Administrator	Draft Final Modification Report
0.6	27/04/18	Code Administrator	Post Panel Draft Final Modification Report
0.7	9/05/18	Code Administrator	Final Modification Report to the Authority

1 Summary

This Consultation outlines the Proposer's original Modification and Proposer's Solution, two Workgroup Alternative Code Modifications (WACMs) and their solutions and the corresponding Workgroup Discussions.

This Modification was proposed by National Grid Electricity Transmission and originally submitted to the Grid Code Review Panel for their consideration on 30 May 2017. The Panel decided to send the Proposal to Workgroup and then later approved a request for a Workgroup Consultation on 21 June 2017. The Panel stated that it would be beneficial for the Workgroup Consultation to specify that the Modification is for minimum necessary change only.

The Grid Code Review Panel detailed in the Terms of Reference the scope of work for the GC0099 Workgroup and the specific areas that the Workgroup should consider. This can be found in Annex 1.

The Workgroup, on the 24 January 2018, agreed that they had met the Terms of Reference set by the Panel.

Background

An Interconnector Scheduled Transfer (IST) gives notice to the Interconnector Administrator (IA) of a scheduled transfer in MW values (at the Transmission System Boundary) spot times at the start and end of that Settlement Period as well as various other spot times within the Settlement Period for the Interconnector for which they are the IA i.e. each Interconnector will have its own IST. A Physical Notification (PN) is a notification from a generator or a supplier of the amount of electricity that it intends to produce or consume in a given Settlement Period. PNs are submitted to NGET and can be updated at any point prior to Gate Closure. The prevailing PN at Gate Closure is the Final PN (FPN). It can be broken down for various points in the half-hour called a spot time. The values for the spot time show the actual amount that will be taken at that spot time. This allows NGET to be able to see how volumes will fluctuate within the Settlement Period.

What

This Modification seeks to establish a common approach within the Grid Code to scheduling across all GB interconnectors. Currently the IST process is not clearly set out within the Grid Code; however related processes such as PN submissions are included. The IST process is established within the relevant Interconnection Agreements, Operating protocols, and details are given within the BSC methodology statements for Determination of System-to-System Flow. As a result the arrangements are bespoke for each interconnector.

Why

The implementation of single intraday coupling as described in CACM will move the intraday cross zonal gate closure to at most one hour before the start of the relevant market time unit from the current 2-8 hours. This means that existing IST processes will need to be updated. Updating these arrangements requires careful consideration as the timings could impact the existing GB balancing arrangements, and/or increase the complexity of the implementation of the EU network guideline on balancing and have the potential to commercially affect interconnector parties.

How

This Modification proposes to include the BSC definition of the Interconnector Scheduled Transfer within the Grid Code, along with common timings to be applied on all GB interconnectors. This approach has been discussed through consultation with GB Interconnector Owners.

2 Panel Recommendation

The Proposer presented this Modification to the Panel on 30 May 2017 with a suggestion that this Modification should be considered to progress through the Self-Governance route.

However, the Grid Code Review Panel concluded that this Modification did not meet the Self-Governance criteria and required an Authority decision. Therefore the Panel recommended that this Modification should follow the Standard Modification route.

The Panel also recommended that the following items should be within the Workgroup's Terms of Reference:

1. Clarify the cross code implications, in particular the BSC
2. Consultation with Interconnectors to be shared and discussed
3. Clarify the implication on GB and EU balancing processes
4. Clarify the implementation timescale
5. PNs impact outside interconnectors

The above items can be found within the Workgroup Discussions section of this Report. The Workgroup took a specific action in relation to item 2 in order to bring this Modification to the attention of Interconnector Users. This in turn increased interest of Interconnector User's to join the Workgroup.

The Workgroup reported back to the Panel on 21 June 2017 seeking Panel approval for a Workgroup Consultation to be included within the Modification timetable in order to engage with Industry whether there would be any wider impacts on PNs.

The Panel approved the request whilst stating that it would be beneficial for the Workgroup Consultation to specify that the Modification is for minimum necessary change.

The Workgroup Report was submitted to the Panel and discussed on 22 February 2018. The Panel recommended the Report to be issued for Code Administrator Consultation.

See Section 11 for the Recommendation Vote as undertaken by the Grid Code Review Panel on 26 April 2018 following Code Administrator Consultation and as required ahead of submission to the Authority for a decision.

3 Workgroup Discussions

The first Workgroup Meeting was held on 7 June 2017. The Workgroup met to discuss the questions raised by the Grid Code Review Panel in relation to the Modification Proposal as set out in the Terms of Reference.

The second and third Workgroup Meetings were held as joint Workgroups for Grid Code Modification GC0099 and BSC Modification P356 ('Aligning the BSC with Grid Code Modification GC0099') at ELEXON's offices on 25 July 2017 and 7 November 2017. The Workgroup met to discuss the original Proposal and any issues surrounding it; which were then consulted on in the Workgroup Consultation. The Workgroup then progressed to review the responses and firm any potential Workgroup Alternative Code Modifications.

The fourth Workgroup Meeting was held for Grid Code Modification GC0099 on 24 January 2017. The Workgroup presented on and voted to formalise the Workgroup Alternative Code Modifications; then progressed to a Workgroup vote.

Cross code working and impact of P356

Following the Panel recommendation to consider cross code impacts the Workgroup determined that there was scope for a joint working arrangement with the BSC Modification to be raised and agreed the best way forward would be to co-ordinate joint Workgroup meetings and simultaneous Consultations.

Each code will follow its own governance processes so far as practicable, including having their own Chair, consultations and Panel approval processes. Where joint meeting groups occur, the Code hosting the meeting will be leading Chair. Consultations will be issued at the same time but for each Code. The questions will be the same as will the messaging. Respondents will be able to reply to either BSC or GC, who will then share with each other the responses for consideration (unless unable due to confidentiality). A slide pack will be shared with WG members explaining each code's governance applicable to these changes and where the cross overs lie.

ELEXON noted that an initial conclusion is that P356 specifically does not impact most Parties, but will impact the Interconnectors and the System Operator. At a high level this Modification is looking at how ISTs are updated and provided to the System Operator, P356 focuses on BSC Section R to include an additional circumstance for post-Gate Closure adjustments to ISTs and ETs. This will allow ISTs and therefore ETs and BM Unit Metered Volumes to be adjusted to reflect XBID trading.

Consultation with interconnectors to be shared and discussed

The Workgroup addressed the question about whether the discussion with Interconnectors was sufficiently adequate. As a result, the Workgroup Members took an action to write out to interconnectors individually and engage participation for a view on this Modification. In addition to this, the Workgroup put forward a recommendation to the Grid Code Review Panel that a Workgroup Consultation be issued in order to verify with Industry whether the assumption that changes to physical notifications (PN's) would not be required. The Grid Code Review Panel voted in favour and approved the recommendation.

Implication on GB and EU balancing process

The Workgroup discussed the impact of this Modification with the process set out by Project TERRE. The Interconnector parties highlighted that timescales would be critical to retrieving information and the current timescale would prove difficult.

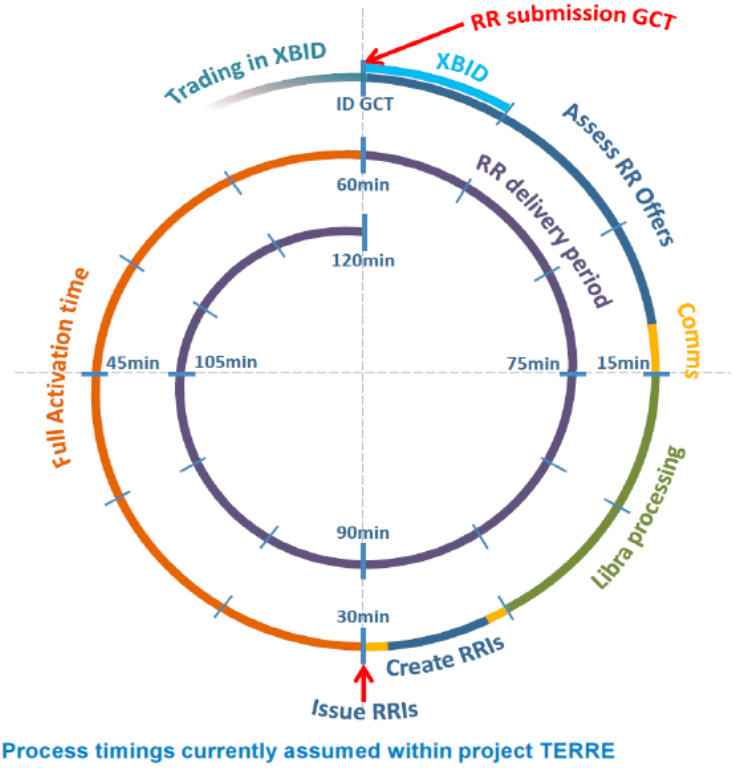


Figure 1

Ten Minute IST submission deadline post Gate Closure

The spiral diagram in figure 1 was talked through; the timings for which reflect the current proposal for the ongoing Modification Project TERRE. The timings being proposed have not all been finalised, however the deadline for receipt of information by the central platform (15 mins after gate closure), full activation time (30 minutes) and the delivery period (60 minutes) have been long established[1] within the TERRE project and National Grid understands that changing these times would represent a significant risk to the successful delivery of the project.

At the time of discussion, the European gate closure process had not yet been defined but work continued to be carried in order to do so. An updated Intraday Cross Zonal Gate Time (IDCZGT) proposal in accordance with CACM Article 35 was submitted to all National Regulatory Authorities in August 2018. The regulatory decision[2] in October 2018 requested the Agency for Cooperation of Energy Regulators to adopt a decision. A decision from the agency is due in April

[1] See the common opinion of the six National Regulatory Authorities (NRAs) of the TERRE region. See section 2.3 Timing and scheduling; https://www.ofgem.gov.uk/publications-and-updates/common-opinion-paper-terre-project-design

[2] Ofgem decision on the amended Intraday Cross Zonal Gate Timings proposal; https://www.ofgem.gov.uk/publications-and-updates/decision-amended-intraday-cross-zonal-gate-timings-proposal

2018. GB is looking for one hour gate closure with the TSOs that it shares an interconnector with. Anything less than a one hour gate closure could have potential impacts on the GB processes.

It was noted that the data required for Interconnector Owners to calculate IST files will not be available from the XBID system until 5 minutes after Gate Closure. In the case of the IFA interconnector; this data is extracted from XBID using one system, then transferred to another system where the IST is calculated, then transferred to NGET's system. It is expected that this process will take approximately an additional 5 minutes (after the data is available in XBID), however three of these systems are not yet implemented and hence an exact view of timings is not possible.

The original solution had a 5 minute deadline for ISTs, however nothing the points above and as NGET will receive IST forecasts earlier (from the previous hour), the workgroup agreed that a 10 minute deadline was more appropriate for IST file submission.

The Proposer put forward the view that the deadline for submitting IST's by 10 minutes post intraday cross-zonal gate closure is important for National Grid Electricity Transmission (NGET) as they require the results from XBID and the effect it will have on the Interconnectors, in order that it can determine its TERRE requirements for the forthcoming Settlement Period and submit orders to the LIBRA platform 15 minutes post Gate Closure. NGET has confirmed that it requires a minimum five minute period from 10 to 15 minutes post Gate Closure to prepare its TERRE submissions. This process could involve some manual input from NGET control engineers.

Respondents and Workgroup members with experience working with or for Interconnectors noted that there may be occasional circumstances outside their control; meaning that the preferred objective to update ISTs within 10 minutes may not always be achievable. The main reason would be failure in communications channels between the interfaces of the various IT systems that provide/extract/calculate/receive data which, when collated, is used to produce the IST. An example of an interface would be between the XBID platform and the Interconnectors' Regional Nomination Platform.

NB: *a question was raised in relation to the impact of different gate closure times for borders between GB and other interconnected countries. This point was discussed and the EU regulation Capacity Allocation & Congestion Management (CACM) allows this. NGET shared the latest information from the Transmission System Operator (TSO) drafting group which have agreed to maintain a 1 hour gate closure time for all GB borders. Parties had no further comment and were comfortable with the existing Governance process in place for a 1 hour intra-day gate closure in accordance with CACM.*

Workgroup Members with Interconnector experience were clear that Interconnectors aim to comply with the Grid Code at all times, and would do so if the new 10 minute deadline became absolutely necessary.

However, in order to mitigate the risk of an occasional failure in communications (that would technically mean a breach of the Grid Code), the Workgroup raised two WACMs to the GC0099 solution:

- **WACM1:** Amend the solution to introduce a percentage compliance rate of submitting ISTs by 10 minutes after intraday cross-zonal gate closure. For instance, updated ISTs to be received by NGET no later than 10 minutes after Gate Closure 96% of the time on a monthly basis.
- **WACM2:** Amend the solution to require that ISTs are received by NGET no later than 10 minutes post Gate Closure by using 'best endeavours'.

The two supporting Workgroup Members for WACM1 and WACM2 explained that at this moment in time communications are made via internet channels which, under normal circumstances, will be sufficient to meet a 10 minute deadline. However, as the IST file submission is required 24 times per day, 8,760 times per year, it is possible that there could be internet delays or issues delaying file transfers between systems. Therefore, to mitigate against this risk, there should be measures in place should the requirement not be met due to circumstances outside the Interconnectors' control.

It was highlighted that the cost for works to install dedicated lines for zero internet failure communications would be in the region of £300,000 with a running cost of £4,000 per system connection, with three system connections required per Interconnector Owner (XBID to RNP, RNP to the Dispatch System, Dispatch system to NGET system). The Workgroup Members expressed that this is a considerable investment which would eventually have to be recovered from consumers and therefore questioned the justification for implementing a hard 10 minute deadline at this time, when all the implementation facts are not yet known.

Further to this, the Workgroup Members who raised the alternatives highlighted the uncertainty surrounding the proposed original solution arising from the fact that there has been no experience of testing the process since the systems are still being designed. Most notably, the XBID has arrangements have not even yet been implemented. This means it is unclear how volatile the XBID data, and hence the subsequent IST files, will be from one submission to another. The point being made was whether, based on the uncertainty, it was sensible to implement a hard deadline which would mean Interconnector Owners would have to make significant additional financial investment in securing their communications to meet the proposed requirement.

Therefore, WACM1 suggested that by inserting a clause with a compliance rate of 96% per month would still be a requirement that would have to be met however it would save from high costs at such an early stage with the uncertainties mentioned above. Instead, it was recommended that the Workgroup wait for the systems to be updated and running in order for the data to be assessed and then to make an informed decision on timings.

Alternatively, WACM2 suggested inserting the wording 'best endeavours' to allow for a more pragmatic approach until we have more data and experience to make an informed decision on precisely what is needed and when. Further, how can

making the investment be justified now if we don't even know the rules of the XBID game, or even given Brexit, whether we are going to play in the game at all?

The Workgroup Members expressed that the main justification for the alternatives is that Interconnector Owners do not wish to be at risk of being in breach of the Grid Code because of a hard deadline that may be unnecessary. Also noting that at this early stage there is a lack of information to make a decision on whether investing in communication lines is absolutely necessary. Therefore a clause that makes the 10 minute objective clear, but which would provide some flexibility would be more suitable than the original Proposal at this time.

The Proposer queried whether the two WACMs took into account the future EU balancing processes, and whether the WACMs facilitated both the intraday and balancing processes. National Grid does not believe it will be feasible to receive the IST data after 10 minutes after the intraday gate closure time, and participate efficiently in the EU balancing markets. Receiving the IST data later than 10 minutes will introduce a greater level of complexity within NGET's systems and National Grid does not believe it is feasible for its system to manage this additional complexity.

The Proposer highlighted to the Workgroup that the Regional Nomination Platform (RNP) is a system currently being developed for a subset of GB interconnectors and it is not known whether all GB Interconnectors would use this system in the future. It was also noted that the design of interconnector dispatch systems can be different for each interconnector and therefore the cost estimates above may not be valid for all GB interconnectors.

RNP is a joint project between National Grid Interconnectors (NGIC), RTE, BritNed and Nemo Link. This will provide a cloud-based platform accessed via the internet or (if customers wish) it can integrate with customer's internal systems. The system will be used for market parties to nominate capacity, and will interface with XBID, the day-ahead systems and the Single Allocation Platform amongst other systems and TSOs.

The Interconnector Owner Workgroup Members were of the view that they were unclear whether adding dedicated lease lines for RNP and other systems would be of value. The general consensus of the Workgroup was that Interconnector Owners would ordinarily make investments and changes to systems when there is a reasonable degree of certainty that a value or benefit could be obtained. Interconnector Owners pointed out that until the systems are operational the investment in lease lines to provide IST files could not be shown to have a clear value or benefit and hence would not be efficient.

The Authority representative highlighted to the Workgroup that the suggested implementation approach would not introduce a step change for existing interconnector owners. New IST obligations would only start as and when each interconnector began to participate in XBID. This approach could be sufficient in dealing with the risks outlined in the justifications of the WACM's as the XBID systems would be in place before participation allowing analysis and real life testing to be carried out, regardless of the progression of this modification.

The two WACM's raised can be found within Annex 4 and 5 of this Consultation.

Changing Physical Notifications (PN) post gate closure

A Physical Notification (PN) is a notification from a generator or a supplier of the amount of electricity that it intends to produce or consume in a given Settlement Period. PNs are submitted to NGET and can be updated at any point prior to Gate Closure. The prevailing PN at Gate Closure is the Final PN (FPN).It can be broken down for various points in the half-hour called a spot time. The values for the spot time show the actual amount that will be taken at that spot time. This allows NGET to be able to see how volumes will fluctuate within the Settlement Period.

Imbalance is the difference between contracted position and metered volumes. In theory the FPN should be equal to the most up to date IST and should also equal the ECVN at Gate Closure.

The Interconnector Administrators aim to deliver their FPN one minute prior to Gate Closure albeit this is not a requirement and so there may be a disparity as the IST can be amended after Gate Closure in certain circumstances but not to reflect XBID. Not updating ISTs could result in discrepancies between Interconnector Users' (IUs') contracted and metered positions, potentially resulting in Imbalance Charges.

There is a risk that if a trade is accepted after the FPN is submitted to NGET, then the Interconnector Parties Energy Indebtedness (their proximity to their Credit limit) could be affected if there is a substantial difference, particularly if that trade had the effect of reversing the interconnector direction of flow, This may have the potential to affect the ability of interconnectors to trade in future Periods.

Credit related issues of receiving the Interconnector Scheduling Transfer (IST) data from the interconnector owners at a time later than the 10 minute deadline

As more relevant to the BSC P356 Modification, ELEXON investigated the credit calculation process.

The first credit calculation, Credit Assessment Energy Indebtedness (CEI), occurs for the first 5 Working Days (WDs) (before the Interim Information (II) Settlement Run occurs) and compares FPNs and Energy Contract Volume Notifications (ECVNs) and the Actual Energy Indebtedness (AEI) follows 29 calendar days after the Settlement Period

It was recognised it would be possible to submit the ECVN 60 minutes after Gate closure i.e. the start of the Settlement Period. In theory, this means that the final ECVN at Gate Closure +60 minutes will reflect the Final IST.

It was concluded that the credit issue is potentially complicated and there are two potential solutions that have been identified so far:

- Allow FPNs to be updated post Gate Closure; and
- Change the Credit calculations for Interconnectors.

However, there is no real precedence to assess and quantify the impact of XBID on the Energy Indebtedness of Trading Parties under the BSC until the provisions have become active.

National Grid Interconnectors noted XBID go-live was expected to be late Q1 2019. However, it was confirmed late January 2018 that GB Interconnector Owners are waiting for further clarity from the Brexit negotiations (regarding whether or not the UK will have access to market coupling once the UK leaves the EU) before starting work to implement XBID. This is not expected until late 2018 at the earliest, and implementation is expected to take up to 18 months from the start date. Therefore it is likely that XBID will not be implemented in GB before 2020

Given the potential complexities of either solution that would require further analysis and investigation, alongside the potential need for system changes to implement possible solutions, the Workgroup determined not to raise an alternative to P356. However, it was noted that if a BSC Party felt this should be investigated further, it could be raise a separate Modification and could initiate such discussions with ELEXON at any time.

Potential Balancing Costs for receiving the Interconnector Scheduling Transfer (IST) data from the interconnector owners at a time later than the 10 minute deadline

NGET took an action to use the Credit Assessment Price alongside scenarios previously provided by BritNed during the Workgroup Consultation response, to attempt to quantify the impact of receiving the Interconnector Scheduling Transfer (IST) data from the interconnector owners at a time later than the 10 minute deadline which could cause inefficient operation of EU and GB balancing markets.

The Credit Assessment Price (CAP) is a parameter set by the BSC Panel and subject to periodic review. The CAP is a notional value of 1 MWh of energy that is used in determining a Party's Energy Indebtedness and amount of Credit Cover required.

Three distinct potential costs associated with GC0099 were identified;

1) Costs to change NGET systems to receive IST files within 10 minutes.
2) Costs to change Interconnector Owner systems to deliver IST files within 10 minutes.
3) Additional balancing costs in circumstances where IST files are not received by the 10 minute deadline.

The following analysis is only looking at estimating potential cost 3), whereas costs 1) and 2) have been discussed elsewhere.

- Balancing decisions will be made based on the best available information to NGET at a point in time.
- If subsequent IST information is received later (closer to real time) these balancing decisions may be more costly compared to the scenario where all the information was available earlier.

Single interconnector, one hour
Scenario 1 – Change of power flow on one interconnector (BritNed chosen as analysis uses scenarios developed by BritNed)

Assumptions:

- Delivery period: MTU 14:00 - 15:00
- BritNed delivers IST data to NGET, reflecting 1000 MW NL-GB flow at GB reference point at 12:59.
- At 12:58 NL-GB flow decreases to 700 MW in XBID.
- BritNed delivers IST to NGET at 13:11, reflecting 700 MW for MTU 14-15h.
- Credit Assessment Price currently £55 / MWh

Outcomes:

- The difference between 1000 MW and 700 MW could result in inefficient balancing actions being taken with the exposure of:

  300MW x £55/MWh = £16,500.00

Assumption limitations

- As XBID does not yet operate, it is not possible to say whether 300MW volatility between gate closures is realistic

Single interconnector, one hour
Scenario 2 –Change of direction of power flow (BritNed chosen as analysis uses scenarios developed by BritNed).

Assumptions:

- Delivery period: MTU 16:00 - 17:00
- BritNed delivers IST data to NGET, reflecting 1000 MW import flow at GB reference point at 14:59.
- At 14:58 NL-GB flow changes entirely into opposite border direction so the resulting flow is 1032 MW at GB-NL at GB ref. point.
- BritNed delivers IST to NGET at 15:11, reflecting 1032 MW export for 16-17h.
- Credit Assessment Price currently £55 / MWh

Outcomes:

- The difference between 1000 MW import and 1032 MW export could result in inefficient balancing actions being taken with the exposure of:

  2032MW x £55/MWh = £ 111,760.00

Assumption limitations

- The likelihood of such an extreme scenario is unknown without experience of XBID.

All interconnectors over a year
Scenario 1 – Change of power flow

Assumptions:

- Working on an assumption that the IST data is 100% accurate 96% of the time (as per the NGIC WACM proposal), and 30% inaccurate (as in scenario 1) for the remaining 4% of the time.
- 30% inaccuracy over 4GW of interconnectors
  = 30% x 4000 MW = 1200MW
- 4% of all hours in a year = 4% x 365 x 24 = 350.4 hours
- Credit Assessment Price currently £55 / MWh

Outcomes:

- Therefore a delay in receiving the IST file 4% of the time could result in inefficient balancing actions being taken with the exposure of Therefore a delay in receiving the IST file 4% of the time could result in inefficient balancing actions being taken with the exposure of :

  1200MW x 350.4 hours x £55/MWh = £ 23,126,400 per year

All interconnectors over a year
Scenario 2 – Change of direction of power flow

Assumptions:

- Working on an assumption that the flows 100% accurate 96% of the time (as per NGIC WACM proposal), and 200% inaccurate (as in scenario 2) for the remaining 4% of the time.
- 200% inaccuracy over 4GW of interconnectors
  = 200% x 4000 MW = 8000MW
- 4% of all hours in a year = 4% x 365 x 24 = 350.4
- Credit Assessment Price currently £55 / MWh

Outcomes:

- Therefore a delay in receiving the IST file 4% of the time could result in inefficient balancing actions being taken with the exposure of:

  8000MW x 350.4 hours x £55/MWh = £ 154,176,000 per year

All interconnectors over a year – appendix 1 sensitivity to CAP

Assumptions:

- Working on an assumption that the IST data is 100% accurate 96% of the time (as per the NGIC WACM proposal), and 30% inaccurate (as in scenario 1) for the remaining 4% of the time.
- 30% inaccuracy over 4GW of interconnectors
  = 30% x 4000 MW = 1200MW
- 4% of all hours in a year = 4% x 365 x 24 = 350.4 hours
- Price range from £5.5 - £55 / MWh

Outcomes:

10% CAP (£5.50/MWh); = £ 2,312,640 per year
25% CAP (£13.75/MWh); = £ 5,781,600 per year
75% CAP (£41.25/MWh); = £ 17,344,800 per year
100% CAP (£55/MWh); = £ 23,126,400 per year

All interconnectors over a year – appendix 2 sensitivity to % inaccuracy

Assumptions:

- Working on an assumption that the IST data is 100% accurate 96% of the time (as per the NGIC WACM proposal)
- 2%-200% inaccurate for the remaining 4% of the time.
- 4% of all hours in a year = 4% x 365 x 24 = 350.4 hours
- Price range from £5.5 - £55 / MWh

Outcomes:

		CAP			
MW equivalent	% inaccuracy	£5.50	£13.75	£41.75	£55
80	2%	£154,176	£385,440	£1,170,336	£1,541,760
200	5%	£385,440	£963,600	£2,925,840	£3,854,400
400	10%	£770,880	£1,927,200	£5,851,680	£7,708,800
800	20%	£1,541,760	£3,854,400	£11,703,360	£15,417,600
1200	30%	£2,312,640	£5,781,600	£17,555,040	£23,126,400
2000	50%	£3,854,400	£9,636,000	£29,258,400	£38,544,000
4000	100%	£7,708,800	£19,272,000	£58,516,800	£77,088,000
8000	200%	£15,417,600	£38,544,000	£117,033,600	£154,176,000

The Workgroup members acknowledged NGET for taking the time to complete the above analysis and noted that it was useful in providing an estimate of the potential impacts.
One Workgroup member highlighted that the Interconnector owner costs associated with implementing the Original solution captured earlier on in the discussion were actual costs; in contrast to the analysis carried out by NGET which were estimates based on different scenarios. It was pointed out that there would be such a low probability of the worst case scenario actually occurring (a full swing of every interconnector every time the IST was delayed) that it was not able to be directly compared against the costs of installing dedicated lease lines for all systems. Indeed if National Grid was facing such an extreme exposure, it should be finding other mechanisms to obtain the data it needs rather than depending on multiple interconnector IS systems,

The NGET representative stated that the analysis was carried out based on scenarios which were provided by BritNed within a Workgroup Consultation response.

The NGET representative highlighted the requirement from CACM that when setting the Intraday Cross Zonal Gate Closure Time it; “provides TSOs and market participants with sufficient time for their scheduling and balancing processes in relation to network and operational security”.

An IST process which supports both the intraday and balancing processes is required to ensure compliance with the CACM and Balancing Guidelines.

4 Summary of Code Administrator Consultation Responses

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
EDF Energy	Yes. The prompt provision of Interconnector Scheduled Transfer information to National Grid should allow it to forecast system operation more effectively, so helping it to operate the system more efficiently. If the information is made available to market participants, it should assist them in forecasting future market conditions, so facilitating competition in the generation and supply of electricity. If not made available, this particular benefit would not apply. It is expected that the Intraday Cross-Zonal Gate Closure time will be 1 hour before each Market	Yes, but note comments below. Other impacts of the unavoidable delay in reporting potential intraday trades made just before BM gate closure should be considered.	Yes, see below.

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	Trading Unit. Allowing 'last-minute' trades to be reflected as soon as is practical into the IST should: • better facilitate compliance with European Regulations, and • support efficient post-gate closure system balancing processes, including the future Trans-European Replacement Reserve Exchange (TERRE). However, there may be anomalies in balancing and imbalance because of the inability of participants to change the operation of physical plant subject to PN in order to deliver XBID volumes, as described in other comments below.		
	Additional comments: **<u>Comments on proposed pre-gate processes and BC1.4.7 legal text</u>** Note that interconnector Scheduled Transfer as defined in the BSC is a minute-by-minute profile of MW levels 'as established pursuant		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	to relevant interconnection agreements' (full text pasted at the end of these comments for reference). Its definition therefore ultimately lies within relevant interconnection agreements. The BSC obliges NGET to provide a gate closure version of it, and any subsequent revisions, to the Interconnector Administrator for each interconnector. GC0099 obliges interconnector owners to provide the IST to NGET, confirming the rather circular nature of the information flows in practice. It is not clear whether the information provided by interconnector owners to NGET is exactly the same as the BSC IST provided by NGET to the relevant Interconnector Administrator. 'single day-ahead coupling' is defined so should be capitalized following Grid Code convention. What is the deadline referred to in the second sentence? 1230? Do 'decoupling event' and 'day-ahead fallback arrangements' require definition? For BSC purposes: • Only the 'final' IST at gate closure for each half-hour and revisions after gate closure for that half-hour are currently explicitly required. • BSC proposal P356 considers changes to processes after gate closure to allow last-minute XBID trade volumes to be allowed for as metered volumes in BSC settlement. It does not consider the associated requirement for changes to BM Unit Physical Notifications after Gate Closure to allow all XBID trade volumes to be delivered. • The Market Time Unit will be an hour, so interaction between Intraday Gate Closure and existing BM Gate Closure should only		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	be an issue every other half-hour. • (Expected interconnector transfer capacity is required well in advance, but is not the same as IST). The proposed Grid Code changes create additional requirements on IST information well in advance of, and not directly linked to, Gate Closure. This is more than currently required by the BSC. However, it is not clear what span of time should be covered at any given time. It seems rational that the IST reported just after the Single Day-Ahead Coupling should cover the whole period from 'now' until the end of the latest 24 hour period day-ahead traded period, or perhaps until the end of the next operational day like other data obligations. Updates should reflect explicit nominations, coupled intraday transactions, capacity restrictions etc for any time during that notification period. Practical issues of whether only changes are notified, or the whole schedule is repeated for any change, will need to be addressed. Interconnector Scheduled Transfer is relevant market information for market participants. Is it part of EU data transparency 'Explicit Allocations - Use of the Transfer Capacity [12.1.A] (intraday)' and/or 'Commercial Schedules [12.1.F]'? How will market participants know the scheduled transfers? Note that under the BSC: • The outturn IST must equal the sum of outturn expected transfers for individual users, which are converted to individual interconnector user BM Unit metered volumes (BSC R7.1.4) for settlement purposes. • For most interconnector users, the 'expected transfer' will be a fixed level across each Market Time Unit (MTU) corresponding to		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	its trade nominations. More complicated profiling of scheduled transfer and expected transfer is required to accommodate interconnector and interconnected system operational limitations and requirements. • The BSC obligation to provide an IST to the Interconnector Administrator lies with NGET. GC0099 re-inforces a rather convoluted set of obligations: o GC0099: Interconnector owner to deliver IST to NGET o BSC: NGET to provide IST to Interconnector Administrator, including changes arising from balancing actions; from interconnector capacity changes, and from 'events occurring in relation to an external system'. Does NGET determine all these changes itself, or get them all from the interconnector owner? For NGET system actions, does the information really go from NGET to the interconnector owner back to NGET in the form of an IST revision, back to the Interconnector Administrator? TERRE will further complicate this. o BSC: Interconnector Administrator determines the 'expected transfer' of individual users (including NGET for its interconnection flows) taking into consideration the IST and changes to it referred to above. o The interconnector owner and interconnector administrator may or may not be the same organisation. o Do GC0099 and the BSC reflect efficient flows of information from the ultimate source of information to the functions using it? **Comments on proposed post-gate processes and BC2.13 legal text** The requirement for information to be 'logged into NGET's computer systems' requires NGET's systems to be working. How can providers of data ensure this?		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	See comments below on the proposal and workgroup alternatives. For the BSC, under related modification proposal P356, the timing of receipt of updated XBID cross-border intraday volume information after gate closure is relevant to party credit calculations which use interconnector user FPN data, but does not appear critical for operation of core BSC central settlement processes. It is desirable for market reporting purposes and for party credit calculations, but the allocation of interconnector scheduled transfer as expected transfers for individual users only actually needs to be completed before the first settlement runs (in the same way that other metered volumes becomes known for settlement). Interconnector BMU FPN is used for party credit calculations, but neither P356 nor GC0099 propose changes to allow these FPNs to be changed to reflect 'last minute' XBID trades. For the purposes of forecasting imbalance, and particularly for determining balancing 'need' in the European TERRE arrangements (see BSC P344 and GC0097), the IST is important, and efficient balancing will be better achieved by knowing the IST as soon as possible after gate closure. With GC0097 TERRE, the IST will need to be adjusted for the results of the hourly post-gate central Replacement Reserve auction for each 15 minute TERRE period. The minute-by-minute profile of the out-turn IST may become more volatile than currently. As we understand it, the net interconnector volume adjustments arising from TERRE will be allocated to NGET's relevant interconnector BM Units. The GB BM Units delivering the volume will be allocated volumes according to BSC P344.		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	Proposal and Workgroup Alternatives The consultation discusses the capability of interconnector owners to make IST data available within 10 minutes of (every other) gate closure, and associated cost. The reliability of NGET being able to accept and process the data is also relevant. The proposal simply sets out an obligation 'within 10 minutes'; WACM1 proposes a 96% performance rate per month; WACM2 proposes 'best endeavours'. WACM1 has the advantage of being measurable. However, without any clear indication of the consequences of failure to meet the Grid Code requirement, whichever it is, there seems little difference between the proposals. **Other issues** Neither GC0099 nor related BSC proposal P356 consider the impact of last-minute trading on: • The balancing and imbalance positions of BSC Trading Parties, particularly those with BM Units where Grid Code obligation not to deviate from Physical Notifications at Gate Closure (FPN) apply and are enforced. • The system imbalance that can arise because some BM Units cannot move from FPN to deliver last minute XBID acceptances. Further Grid Code and BSC changes may be required to allow changes to Physical Notification for all BM Units after Gate Closure, in order to allow all XBID volumes to be delivered. For example: 1. Consider a party with a generator subject to Grid Code Physical Notification obligations wishing to offer energy from it into XBID. Commit first, or trade first? a. If it commits energy with a positive PN at Gate Closure in the expectation or hope of obtaining an XBID acceptance, then		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	failure to get an XBID acceptance will result in spill imbalance (and a long system, because the uncontracted generation will remain in GB); or b. If it doesn't commit energy, submitting zero PN (not having a confirmed XBID acceptance at Gate Closure), then if a trade is accepted at the last minute, it can't deliver volume to satisfy it because of the FPN, resulting in shortfall imbalance (and a short system, because the interconnector will flow out regardless). c. If there is a last-minute XBID acceptance in case (a), the generator output would match the XBID sale (which will result in an adjustment to its interconnector volume), and the party (and system) will be balanced. If there is no last-minute XBID acceptance in case (b), the party (and system) would again be balanced. But these outcomes aren't known in advance, and uncertainty will reduce the effectiveness of the balancing arrangements. d. If the generator could submit a PN taking into consideration the outcome of the last-minute XBID trades, the uncertainty would be removed. e. These issues also exist for current GB exchange trading, but the volumes could be larger with hourly XBID. 2. Withdrawal of XBID offers in the period just before each Intraday Cross-Zonal Gate Closure time to avoid this dilemma is impractical, and not consistent with the intention of the CACM regulations. 3. Note that BM Units which are not subject to Grid Code PN obligations, or are not held to them, would not have these issues, and therefore have a discriminatory advantage, creating distortions for competition. Ideally, a method is required to allow PNs to be changed after Gate Closure, initially in the 5-10 minutes after current Gate Closure, so that participants can manage their imbalance and amend any balancing bids (BM and/or TERRE) to reflect the new reference operating		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	level. In the longer term, consideration should be given to allowing more time for revision to PNs, perhaps until such time as a balancing offer is accepted at which point the PN profile from that time on would have obligations associated with it. This might also help address issues with BM Units that have difficulty accurately forecasting their flow even at gate closure, and 'beyond the wall' issues. **Some references:** BSC Section R: 7.1.3 *"For the purposes of this paragraph 7:* *(a) the "Interconnector Scheduled Transfer" for each Interconnector in relation to a Settlement Period is the Active Energy flow, scheduled for all Interconnector Users (and not exceeding the physical capability of the Interconnector as from time to time determined under the relevant Interconnection Agreements), across the Interconnector (as a whole), as established pursuant to the relevant Interconnection Agreements between the interconnected System Operator and the Externally Interconnected System Operator, stated as at the Transmission System Boundary, in the form of a schedule expressed as MW values for the spot times at the start and end of, and other spot times within, the Settlement Period;"* *"7.2 Expected Transfer at Gate Closure* *7.2.1 The Interconnected System Operator shall send or procure that there is sent to the Interconnector Administrator the Interconnector Scheduled Transfer prevailing at Gate Closure."*		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	"Section X-1 *"Interconnected System Operator": means, in relation to an Interconnector, the Transmission Company or Distribution System Operator (as the case may be) to whose System such interconnector is connected;"* ie. NGET provides IST, and revisions to it, to the Interconnector Administrator. GC0099 makes this rather circular.		
National Grid Electricity Transmission (NGET)	The three proposals (Original, WACM1 and WACM2) all facilitate the EU single intraday market coupling process and therefore all improve arrangements against the baseline for that purpose. **AGCO (i);** All proposals positively impact this objective as establishing common scheduling processes on all GB interconnectors delivers a more coordinated operation of the transmission system. **AGCO (ii);** As above all three facilitate the EU intraday market coupling process, therefore are positive compared to the baseline. As the Original also considers the balancing market it is the	Yes	No

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	preferred option. **AGCO (iii);** From the scenario analysis performed by National Grid it is clear that significant additional costs could accrue which would ultimately influence the prices charged to consumers. For this reason WACM 1 and WACM 2 fail the test Applicable Grid Code Objective (iii) in that neither "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". **AGCO (iv); AGCO (ii);** As above all three facilitate the EU intraday market coupling process, therefore are positive compared to the baseline. As the Original also considers the balancing processes it is the preferred option. The Original Proposal is preferred as it provides a stronger incentive on parties to invest appropriately in their IT systems and processes to		

Response From	Do you believe that GC0099 or its alternative better facilitates the Grid Code objectives? please include your reasoning	Do you support the proposed implementation approach?	Do you have any other comments?
	meet the grid code requirements. The original Proposal enables alteration of interconnector data up to 10 minutes after gate closure and this should be complied with. This will ensure that both the intraday and balancing markets can be implemented, and therefore deliver compliance with both CACM and Balancing EU Guidelines. Any additional relief afforded by WACM 1 or WACM 2 will introduce additional risk of non-compliance and additional costs for GB consumers. Page | 19 The original Proposal provides an additional ten minutes of processing time for Interconnector parties and this should be sufficient for Interconnector processes to complete efficiently.		

5 Workgroup Vote

The GC0099 Workgroup met on the 24 January 2018 to cast their Workgroup Vote. Two of the five workgroup members voted that the Original solution was the best option.

Vote recording guidelines:
"Y" = *Yes*
"N" = *No*
"-" = *Neutral*

<u>Vote 1</u> – *does the original or WACM facilitate the objectives better than the Baseline?*

Workgroup Member	Better facilitates AGCO (i)	Better facilitates AGCO (ii)?	Better facilitates AGCO (iii)?	Better facilitates AGCO (iv)?	Better facilitates AGCO (v)?	Overall (Y/N)
Nick Pittarello						
Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	Y	Y	-	Y
WACM2	Y	Y	Y	Y	-	Y
Voting Statement: Given the absence of a significant number of facts regarding: TERRE requirements; and timing of GB XBID entry and its potential volatility; and Brexit; and RNP performance in terms of processing data files and communications; It seems less than an economically efficient approach to force Interconnector Owners to invest in expensive direct communication lines that would be a consequence of the original Proposal. If it becomes necessary, then Interconnector Owners will make the investment; however at this time it is not clear that given the uncertainties above, it will be required. WACM2 gives interconnector owners an objective to aim for, which guides the system design parameters, without creating excessive breach positions. If, following XBID and TERRE operation, the Original becomes necessary, then the Grid Code text can be revisited to reflect the Original, but the evidence for the need for such a clause does not exist today.						
Robert Selbie						
Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	N	Y	-	Y
WACM2	Y	Y	N	Y	-	Y
Voting Statement: The three proposals (Original, WACM1 and WACM2) all facilitate the EU single intraday market coupling process and therefore all improve arrangements against the baseline for that purpose.						

AGCO (i); All proposals positively impact this objective as establishing common scheduling processes on all GB interconnectors delivers a more coordinated operation of the transmission system.
AGCO (ii); As above all three facilitate the EU intraday market coupling process, therefore are positive compared to the baseline. As the Original also considers the balancing market it is the preferred option.
AGCO (iii); From the scenario analysis performed by National Grid it is clear that significant additional costs could accrue which would ultimately influence the prices charged to consumers. For this reason WACM 1 and WACM 2 fail the test Applicable Grid Code Objective (iii) in that neither "*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".*
AGCO (iv); AGCO (ii); As above all three facilitate the EU intraday market coupling process, therefore are positive compared to the baseline. As the Original also considers the balancing processes it is the preferred option.

The Original Proposal is preferred as it provides a stronger incentive on parties to invest appropriately in their IT systems and processes to meet the grid code requirements. The original Proposal enables alteration of interconnector data up to 10 minutes after gate closure and this should be complied with. This will ensure that *both* the intraday and balancing markets can be implemented, and therefore deliver compliance with both CACM and Balancing EU Guidelines. Any additional relief afforded by WACM 1 or WACM 2 will introduce additional risk of non-compliance and additional costs for GB consumers.

The original Proposal provides an additional ten minutes of processing time for Interconnector parties and this should be sufficient for Interconnector processes to complete efficiently.

Paul Youngman

Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	N	Y	-	Y
WACM2	Y	Y	N	Y	-	Y

Voting Statement:

The three proposals facilitate the EU single intraday market coupling process and therefore all improve arrangements against the baseline for that purpose. The Original Proposal is preferred as it provides a stronger incentive on parties to invest appropriately in their IT systems and processes to meet the grid code requirements. The original Proposal enables alteration of interconnector data up to 10 minutes after gate closure and this should be complied with. Any additional relief afforded by WACM 1 or WACM 2 will introduce additional risk of non-compliance and cost. From the scenario analysis performed by National Grid it is clear that significant additional cost could accrue which would ultimately influence the prices charged to consumers. For this reason WACM 1 and WACM 2 fail the test Applicable Grid Code Objective (iii) in that neither "*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".*

The original Proposal provides an additional ten minutes of processing time for Interconnector parties and this should be sufficient for Interconnector processes to complete efficiently.

Alex Roberts

Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	Y	Y	-	Y
WACM2	Y	Y	Y	Y	-	Y

Voting Statement:

The original Proposal imposes significant costs on interconnector operators to achieve an objective which, at the time of consideration, is not certain to materialise. WACM2 removes these costs at this time and allows existing or planned systems to be utilised and is therefore the preferred approach. There is time to implement a solution to meet any requirements at a later date once there is greater certainty on the benefit of the costs to interconnector parties, following the development of the XBID system and interfaces. This approach is particularly appropriate considering new interconnector projects are under development, which have already entered into contracts on the basis of existing arrangements, and changing requirements at this stage would impose additional costs. We reiterate that we believe any risks to the supply of information can be mitigated at a later date, once there is greater clarity on the necessity and benefits of outlaying the costs to deliver an independent and non-internet based solution.

Caroline Kluyver

Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	Y	Y	-	Y
WACM2	Y	Y	Y	Y	-	Y

Voting Statement:

In the Original, Interconnector Owners risk being in breach of the Grid Code on occasions when IST files have not been received by NGET within 10 minutes of intraday cross-zonal gate closure. WACM2 is preferred as it allows for rare occasions where circumstances outside of the Interconnector Owners control may affect their ability to submit IST files. Until there is any actual data available from XBID showing how large the variations in hourly flows may be, it is impossible to determine whether it is most economically efficient for Interconnector Owners to invest in expensive technology to reduce IST submission time, or for NGET to make balancing requirement decisions based on the IST submitted the previous hour. Hence WACM2 is the optimal at this time. Alternatively the panel could consider delaying any modification to the Grid Code until the impacts of Brexit have been clarified, rather than add a modification that may later have to be removed.

Vote 2 – *Which option is the best?*

Workgroup Member	BEST Option?
Nick Pittarello	**WACM2**
Rob Selbie	**Original**
Alex Roberts	**WACM2**
Paul Youngman	**Original**
Caroline Kluyver	**WACM2**

6 Solution

It is proposed that the BSC definition of the “Interconnector Scheduled Transfer” (IST) is included within the Grid Code, and new requirements are introduced on interconnector owners to send copies of the IST to NGET by specified deadlines. This will be achieved through three changes to the Grid Code;

1. Introduction of the Interconnector Scheduled Transfer, intraday cross-zonal gate closure time, and intraday cross-zonal gate opening time definitions within the glossary & definitions section.
2. It is proposed to outline the Pre Gate Closure IST process within section BC1 of the Grid Code. It is proposed that the IST is sent to NGET following the day ahead market coupling processes, and that this IST is updated to represent the latest market position at least every hour up until the cross zonal intraday gate closure. A fall-back solution is also specified.
3. It is proposed to outline an aspect of the Post Gate Closure IST process within section BC2 of the Grid Code. Following Gate Closure and until 10 minutes past the Gate Closure the Interconnector Owner shall update the IST to reflect those intraday trades which may have been matched shortly before the intraday cross zonal gate closure.

7 Impacts and Other Considerations

Who

This impacts interconnector owners, interconnector users, Interconnector Administrator, parties associated with Interconnector BM Units, NGET, BSC Section R and External System Operators.

As a minimum, changes will be required to BSC Section R to allow the Interconnector Scheduled Transfer to be amended after Gate Closure to reflect the results of the single intraday market coupling. Other changes may be desirable (e.g. to the timing of data submissions and calculations performed by the Interconnector Administrator), and this should be considered under BSC governance (in parallel with the progression of this Grid Code Modification).

Which

The IST processes in BSC section 7, including the BSC Methodology Statements for Determination of System-to-System Flow, and corresponding processes described in the relevant Interconnection Agreements.

Systems impacted

NGET BM system
NGET EBS system
NGIC, RTE, Nemo Link & BritNed Regional Nomination Platform (RNP) which will be used for the first implementation of XBID within GB
Other Interconnector Owner systems

Does this Modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

No

Consumer Impacts

This change should facilitate the implementation of both the EU single intraday market coupling processes and EU balancing processes. These changes are expected to deliver significant benefit to the end consumer by facilitating a more liquid pan-EU intraday and balancing market.

Costs

Code administration costs	
Resource costs	**£7,260** - 4 Workgroup meetings **£291** - Catering
Total Code Administrator costs	**£7,551**

Industry costs (Standard GC)	
Resource costs	**£ 43,560** - 4 Workgroup meetings **£ 8,168**– 2 Consultations • 4 - Workgroup meetings • 12 - Workgroup members • 1.5 man days effort per meeting • 1.5 man days effort per consultation response • 4.5 consultation respondents (average over two consultations)
Total Code Administrator costs	**£7,551**
Total Industry Costs	**£59,279**

8 Relevant Objectives

Impact of the Modification on the Relevant Objectives:	
Relevant Objective	**Identified impact**
To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity	Positive
To facilitate 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
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
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	Positive
To promote efficiency in the implementation and administration of the Grid Code arrangements	Neutral

9 Implementation

Implementation should be in line with the earliest implementation of a continuous cross border intraday market on each GB interconnector. NGETs current understanding is that IFA and BritNed planned XBID go-live is 2020.

The implementation approach put forward by the Workgroup was that only interconnectors who have implemented XBID would be caught by these obligations. This would avoid a step change for interconnector owners. It was agreed that this approach would be achieved by referencing the single intraday coupling within the legal text.

10 Legal Text – Original proposal

GLOSSARY & DEFINITIONS

(GD)

GD.1 In the Grid Code the following words and expressions shall, unless the subject matter or context otherwise requires or is inconsistent therewith, bear the following meanings:

…

Interconnector Owner	*Has the meaning given to the term in the **Connection and Use of System Code**.*
Interconnector Scheduled Transfer	*Has the meaning set out in the **BSC**.*
Interconnector User	*Has the meaning set out in the **BSC**.*

…

Intraday Cross-Zonal Gate Closure time	*Has the meaning set out in the **Regulation (EU) 2015/1222**.*
Intraday Cross-Zonal Gate Opening Time	*Has the meaning set out in the **Regulation (EU) 2015/1222***
Single Intraday Coupling	*Has the meaning set out in the **Regulation (EU) 2015/1222***

…

BC1.4.7 Special Provisions Relating To Interconnector Owners

(a) Calculate the Interconnector Scheduled Transfer

i) **Interconnector Owners** shall deliver an **Interconnector Scheduled Transfer** to **NGET** by 1230 each day which reflects the results of the single day-ahead coupling. In the event of a delay to the single day-ahead coupling the **Interconnector Scheduled Transfer** should be submitted within one hour of the deadline. If the delay results in a decoupling event triggering day-ahead fallback arrangements on a border then the relevant **Interconnector Scheduled Transfers** should be submitted either within one hour of the deadline without day-ahead coupling results or within two hours of the deadline if the **Interconnector Scheduled Transfer** incorporates day-ahead fallback results.

ii) Updates to the **Interconnector Scheduled Transfer** shall be delivered to **NGET** at least every hour between the **Intraday Cross-Zonal Gate Opening Time** and the **Intraday Cross-Zonal Gate Closure Time**.

…

BC2.13 LIAISON WITH INTERCONNECTOR OWNERS

(a) Calculate the Interconnector Scheduled Transfer

i) **Interconnector Owners** shall deliver an updated **Interconnector Scheduled Transfer** to **NGET** by 10 minutes after each **Intraday Cross-Zonal Gate Closure Time**.

ii) The updated **Interconnector Scheduled Transfer** shall fully reflect the results of the **Single Intraday Coupling**.

iii) **Interconnector Owners** must ensure that the updated

Interconnector Scheduled Transfer is received in its entirety and logged into **NGET's** computer systems by the time of 10 minutes after each **Intraday Cross-zonal Gate Closure Time**.

…

Text Commentary

The intention is that Interconnector Owners submit to NGET an Interconnector Scheduled Transfer representing the anticipated active energy flow across the interconnector that is updated from day ahead through until 10 minutes after the cross zonal intraday gate closure so as to fully represent the market results; including long term allocations, single day ahead and single intraday coupling.

Please note the legal text for WACM1 and WACM2 can be located in Annex 4 and Annex 5 within the Alternative Proposal forms.

11 Grid Code Panel Recommendation

On 26 April 2018 and following the closure of the Code Administrator Consultation on 15 March 2018, the Panel reviewed the Original Proposal, WACM1 and WACM2 against the Grid Code Objectives (see Section 8).

Seven Panel members were present at the meeting to undertake their Recommendation Vote. Panel members agreed by majority that each solution better facilitates the applicable Grid Code Objectives than the current baseline. Five of the seven Panel members recommended WACM2 as the best option. Two Panel members considered the original as the best option.

Robert Longden and Steve Cox were not in attendance at this meeting and did not appoint an alternate for the Recommendation Vote.

The Panel Recommendation vote is detailed below:

Panel Member	Better facilitates AGCO (i)	Better facilitates AGCO (ii)?	Better facilitates AGCO (iii)?	Better facilitates AGCO (iv)?	Better facilitates AGCO (v)?	Overall (Y/N)
Guy Nicolson						
Original	Y	Y	Y	Y	-	Y
WACM 1	Y	Y	Y	Y	-	Y
WACM 2	Y	Y	Y	Y	-	Y
Voting Statement: I represent renewable generators and support increased renewable energy generation and threrefore interconnection as this allows export of surplus renewables and import of remote renewables. I declare that my Employer Element Power has 2 GB interconnector projects in development, Greenlink and Maali. From reviewing the report this is a complex matter of risk allocation with terms (e.g. XBID) which are not in the Grid Code and are not explained in the report. I am making recommendations at the Grid Code Panel meeting regarding the report. I have therefore followed the Workgroup Members where interconnector work group representatives have supported WACM2 and reflected their responses in my vote.						

Damien Jackman						
Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	N	Y	-	Y
WACM2	Y	Y	N	Y	-	Y
Voting Statement: We support the original proposal which we feel best meets the objectives of the grid code						
Alastair Frew						
Original	Y	Y	Y	Y	-	Y
WACM 1	Y	Y	Y	Y	-	Y
WACM 2	Y	Y	Y	Y	-	Y
Voting Statement: It seem unreasonable to force Interconnector's to guarantee that the must provide data which is being based on data provided by other via communication link by 10 minute past the hour to ensure the submission of the data to the TERRE platform whilst the current proposals for TERRE currently includes legal text dealing with communication failures and computer system failures, hence WACM 2 appears most appropriate.						
Graeme Vincent						
Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	Y	Y	-	Y
WACM2	Y	Y	Y	Y	-	Y
Voting Statement: All three allow implementation of the EU Code requirements so are better than the baseline. The deciding factor is the additional costs and the uncertainties which exist with the overall process and therefore WACM 2 is preferable.						
Alan Creighton						
Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	Y	Y	-	Y
WACM2	Y	Y	Y	Y	-	Y
Voting Statement: The difference between the proposals relates to the resilience of communication links and the implications for the SO if notifications are received outside the 10min window. The WG did not seem to favour WACM1, preferring the Original or WACM2. WACM2 described the potential costs that would be incurred by Industry if the Original were implemented. NGET presented scenarios illustrating the potential financial implications of delayed notifications, however there does seem to be uncertainties here. Hence it seems reasonable to adopt a 'best endeavours' approach now and review the GCode requirements in the future if this proves to be inadequate.						
Kate Dooley						
Original	Y	Y	Y	Y	-	Y
WACM1	Y	Y	Y	Y	-	Y
WACM2	Y	Y	Y	Y	-	Y
Voting Statement:						
Kyla Berry (Rob Wilson alternate at Panel meeting)						
Original	Y	Y	Y	Y	Y	Y

WACM1	Y	Y	N	Y	Y	Y
WACM2	Y	Y	N	Y	Y	Y

Voting Statement:
"The original proposal and each of the alternatives, in implementing elements of a European Network Code, are each better than the baseline.
From the scenario analysis set out in the report, it is clear that significant additional costs could accrue which would ultimately influence the prices charged to consumers if later submissions of information were allowed as in WACM 1 and WACM 2 and for this reason they do not optimally fulfil GCO (iii) in that neither “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”.
For this reason the original proposal is preferred as it provides a stronger incentive on parties to invest appropriately in their IT systems and processes to meet the grid code requirements in limiting the alteration of interconnector data to up to 10 minutes after gate closure."

Vote 2 – *Which option is the best?*

Panel Member	BEST Option?
Guy Nicolson	**WACM2**
Robert Longden	Not present at Panel meeting
Damien Jackman	**Original**
Alastair Frew	**WACM 2**
Graeme Vincent	**WACM2**
Steve Cox	Not present at Panel meeting
Alan Creighton	**WACM2**
Kate Dooley	**WACM 2**
Kyla Berry(Rob Wilson alternate at Panel meeting)	**Original**

Annex 1 – Terms of Reference

nationalgrid

Workgroup Terms of Reference and Membership

TERMS OF REFERENCE FOR GC0099 WORKGROUP

This modification seeks to introduce the interconnector scheduled transfer process to the Grid Code in order to establish common timings which are compatible with both the EU single intraday market coupling processes, and GB and EU balancing processes. CACM aims to promote effective competition in the generation, trading and supply of electricity and foresees the development of more liquid intraday markets which give parties the ability to balance their positions closer to real time should help to integrate renewable energy sources into the Union electricity market.

Responsibilities

1. The Workgroup is responsible for assisting the Grid Code Review Panel in the evaluation of Grid Code Modification Proposal **GC0099,** tabled by Robert Selbie at the Grid Code Review Panel meeting on 30 May 2017.

2. The proposal must be evaluated to consider whether it better facilitates achievement of the Grid Code Objectives. These can be summarised as follows:

   (i) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;

   (ii) To facilitate 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);

   (iii) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national; and

   (iv) 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. In conducting its business, the Workgroup will at all times endeavour to operate in a manner that is consistent with the Code Administration Code of Practice principles.

Scope

3. The Workgroup must consider the issues raised by the Modification Proposal and consider if the proposal identified better facilitates achievement of the Grid Code Objectives.

4. In addition to the overriding requirement of point 3 above, the Workgroup shall consider and report on the following specific issues:

   a) Clarify the cross code implications, in particular the BSC
   b) Consultation with interconnectors to be shared and discussed
   c) Clarify the implication on GB and EU balancing processes
   d) Clarify the implementation timescale
   e) Physical Notifications impact outside interconnectors

f) Implementation;
g) Review draft legal text should it have been provided. If legal text is not submitted within the Grid Code Modification Proposal the Workgroup should be instructed to assist in the developing of the legal text; and
h) Consider whether any further Industry experts or stakeholders should be invited to participate within the Workgroup to ensure that all potentially affected stakeholders have the opportunity to be represented in the Workgroup.

5. As per Grid Code GR20.8 (a) and (b) the Workgroup should seek clarification and guidance from the Grid Code Review Panel when appropriate and required.

6. The Workgroup is responsible for the formulation and evaluation of any Workgroup Alternative Grid Code Modifications arising from Group discussions which would, as compared with the Modification Proposal or the current version of the Grid Code, better facilitate achieving the Grid Code Objectives in relation to the issue or defect identified.

7. The Workgroup should become conversant with the definition of Workgroup Alternative Grid Code Modification which appears in the Governance Rules of the Grid Code. The definition entitles the Group and/or an individual member of the Workgroup to put forward a Workgroup Alternative Code Modification proposal if the member(s) genuinely believes the alternative proposal compared with the Modification Proposal or the current version of the Grid Code better facilitates the Grid Code objectives The extent of the support for the Modification Proposal or any Workgroup Alternative Modification (WACM) proposal WACM arising from the Workgroup's discussions should be clearly described in the final Workgroup Report to the Grid Code Review Panel.

8. Workgroup members should be mindful of efficiency and propose the fewest number of WACM proposals as possible. All new alternative proposals need to be proposed using the Alternative request Proposal form ensuring a reliable source of information for the Workgroup, Panel, Industry participants and the Authority.

9. All WACM proposals should include the Proposer(s)'s details within the final Workgroup report, for the avoidance of doubt this includes WACM proposals which are proposed by the entire Workgroup or subset of members.

10. There is an option for the Workgroup to undertake a period of Consultation in accordance with Grid Code GR. 20.11, if defined within the timetable agreed by the Grid Code Panel. Should the Workgroup determine that they see the benefit in a Workgroup Consultation being issued they can recommend this to the Grid Code Review Panel to consider.

11. Following the Consultation period the Workgroup is required to consider all responses including any Workgroup Consultation Alternative Requests. In undertaking an assessment of any Workgroup Consultation Alternative Request, the Workgroup should consider whether it better facilitates the Grid Code Objectives than the current version of the Grid Code.

12. As appropriate, the Workgroup will be required to undertake any further analysis and update the appropriate sections of the original Modification Proposal and/or WACM proposals (Workgroup members cannot amend the original text submitted by the Proposer of the modification) All responses including any Workgroup Consultation Alternative Requests shall be included within the final report including a summary of the Workgroup's deliberations and conclusions. The report should make it clear where and why the Workgroup chairman has exercised their right under the Grid Code to progress a Workgroup Consultation Alternative Request or a WACM proposal against the majority views of Workgroup members. It should also be explicitly stated where, under these circumstances, the Workgroup chairman is employed by the same organisation who submitted the Workgroup Consultation Alternative Request.

13. The Workgroup is to submit its final report to the Modifications Panel Secretary on 15 March 2018 for circulation to Panel Members. The final report conclusions will be presented to the Grid Code Review Panel meeting on 22 March 2018.

Membership

It is recommended that the Workgroup has the following members:

Role	Name	Representing (User nominated)
Chair	Chrissie Brown	Code Administrator
Technical Secretary	Taran Heir	Code Administrator
National Grid Representative/Proposer*	Robert Selbie	National Grid Electricity Transmission
Industry Representative*	Michael Carrington	Eirgrid
Industry Representative*	Alastair Frew	Scottish Power
Industry Representative*	Christopher Smith	National Grid Ventures
Industry Representative*	Jennifer McCartney	National Grid Ventures
Industry Representative*	Caroline Kluyver	National Grid Interconnectors
Industry Representative*	Peter Bolitho	Waterswye
Industry Representative*	Nicholas Rubin	ELEXON
Industry Representative*	John Gleadow	North Connect KS
Industry Representative*	Nick Pittarello	National Grid Interconnectors
Industry Representative*	Paul Youngman	DRAX Power
Industry Representative*	Alex Roberts	Eleclink
Authority Representative	Thomas Jones	Ofgem

14. A Workgroup must comprise at least 5 members (who may be Panel Members). The roles identified with an asterisk(*) in the table above contribute toward the required quorum, determined in accordance with paragraph 15 below.

15. The Grid Code Review Panel must agree a number that will be quorum for each Workgroup meeting. The agreed figure for GC0099 is that at least 5 Workgroup members must participate in a meeting for quorum to be met.

16. A vote is to take place by all eligible Workgroup members on the Modification Proposal and each WACM proposal and Workgroup Consultation Alternative Request based on their assessment of the Proposal(s) against the Grid Code objectives when compared against the current Grid Code baseline.

    - Do you support the Original or any of the alternative Proposals?
    - Which of the Proposals best facilitates the Grid Code Objectives?

    The Workgroup chairman shall not have a vote, casting or otherwise.

    The results from the vote and the reasons for such voting shall be recorded in the Workgroup report in as much detail as practicable.

17. It is expected that Workgroup members would only abstain from voting under limited circumstances, for example where a member feels that a proposal has been insufficiently developed. Where a member has such concerns, they should raise these with the Workgroup chairman at the earliest possible opportunity and certainly before the Workgroup vote takes place. Where abstention occurs, the reason should be recorded in the Workgroup report.

18. Workgroup members or their appointed alternate are required to attend a minimum of 50% of the Workgroup meetings to be eligible to participate in the Workgroup vote.

19. The Technical Secretary shall keep an Attendance Record for the Workgroup meetings and circulate the Attendance Record with the Action Notes after each meeting. This will be attached to the final Workgroup report.

20. The Workgroup membership can be amended from time to time by the Grid Code Review Panel and the Chairman of the Workgroup.

Annex 2 – Workgroup Consultation responses

Review of Consultation responses

There were seven respondents for both consultations in total. In principle, most respondents were supportive of the proposed solutions for P356 and GC0099 but suggested some key potential changes.

Common themes in the responses were:

- A view that the ten minute window for submitting Interconnector Scheduled Transfers (ISTs) post intraday cross-zonal gate closure could be problematic;
- Not updating Physical Notifications (PNs) after Gate Closure to reflect the outcomes of the cross border intra-day trading (XBID) has the potential to cause last minute volatility in credit requirements; and
- The Implementation Date for both P356 and GC0099 should align with XBID go-live.

Elexon

BritNed Development Limited

P.O. Box 718
NL-6800 AS Arnhem
Utrechtseweg 310, Building M01
NL-6812 AR Arnhem
The Netherlands

Telephone: +31 26 202 01 30
Fax: +31 26 202 01 39
Website: www.britned.com

Date 30 October 2017
Your reference
Our reference BN 17-034
Enclosure(s)
Subject GC0099 Establishing a common approach to interconnectors

Dear Sir / Madam,

BritNed Development Limited (BritNed) welcomes this opportunity to response to the consultation on GC0099 Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM). BritNed is the owner and operator of the High Voltage Direct Current (HVDC) Interconnector between Great Britain (GB) and The Netherlands (NL). It is a 50:50 joint venture of National Grid International Limited (GB) and NLink International B.V. (NL), and is funded and operated on a commercial basis, independent of the regulated businesses.

In this consultation response BritNed identifies what it believes to be the business and systems points of view before identifying the actual issue. To materialize the issue we have provided some example scenarios that highlight the calculated Credit Limit exposure. Lastly, BritNed states its concerns.

Identified Issue

Business point of view:
Delivery of FPN is expected by National Grid Electricity Transmission (NGET) prior to the actual Intraday Cross-Zonal Gate Closure Time (IDCZGCT) in Cross Border Intraday (XBID) Market, which is 60 minutes before delivery.
This implies the XBID results can be changed after the FPN data flow is accepted and acknowledged by NGET.

Systems point of view:
To be able to nominate flows via FPN before IDCZGCT, the Interconnector (IC) operator will need to download results also before the Gate Closure (GC) for FPN purposes and process the FPN submission.

Both are technically feasible:
Submission times in Shipping Module in XBID are configurable in that way so Regional Nomination Platform (RNP) can pull down results before and after the GC.
RNP will aim to have FPN acknowledged 1 minute before FPN gate closure. That implies submission will be scheduled to 2 minutes before FPN GC.
Limitation: Enrichment of data is scheduled in 5 minutes intervals in XBID Shipping Module, i.e. „latest" data are available at HH:55 and HH:00.

The Actual Issue

Delivered FPN data will represent only "best estimates" and will not be based on finalized XBID results. XBID results can be changed after HH:55 and before the XBID GC. The probability for change of flow is within continuous trading very high.
This issue can occur every hour, i.e. 24 times every day.

The actual issue is the mismatch between FPN data and power flow (represented by ICRP and DMV data flows) as these will be based on different (finalized) XBID results. It is expected that the mismatch between FPN and ICRP will result in immediate imbalances which are covered by the credit limit. It is also expected that the imbalance is corrected once Deemed Metered Volume (DMV) data are compared with metered data during settlement 5 days after delivery.

Example Scenarios of Credit Limit Exposure
BritNed has assembled some example scenarios to try to materialize the issue of a potential Credit Limit exposure and BritNed kindly asks for confirmation of the outcomes from the following examples.

Scenario 1 – Change of power flow

Assumptions:
- Delivery period: MTU 14:00 - 15:00
- BritNed delivers FPN data to NGET, reflecting 1000 MW NL-GB flow at GB reference point at 12:59.
- At 12:58 NL-GB flow decreases to 700 MW in XBID.
- BritNed delivers ICRP to NGET at 13:09, reflecting 700 MW for MTU 14-15h.
- System price is £38.66 / MWh (realistic average).

Outcomes:
- The difference between 1000 MW and 700 MW is covered by Credit Limit with the exposure of:
  300 x 38.66 = £ 11.598,-
- The imbalance is cumulative so the Credit Limit is being spent until the settlement process runs at D+5.

Scenario 2 – Change of direction of power flow

Assumptions:
- Delivery period: MTU 16:00 - 17:00
- BritNed delivers FPN data to NGET, reflecting 1000 MW import flow at GB reference point at 14:59.
- At 14:58 NL-GB flow changes entirely into opposite border direction so the resulting flow is 1032 MW at GB-NL at GB ref. point.
- BritNed delivers ICRP to NGET at 15:09, reflecting 1032 MW export for 16-17h.
- System price spikes up to £100 / MWh

Outcomes:
- The difference between 1000 MW import and 1032 MW export is covered by Credit Limit with the exposure of:
  2032 x 100 = £ 203.200,-
- The imbalance is cumulative so the Credit Limit is being spent until the settlement process runs at D+5.

Concerns
It is our belief that there is no experience with continuous trading with 1 hour lead time, but we can assume that there will regularly be matched orders also within the last 5 minutes of trading before IDCZGCT stops the allocation. Also the risk for the issue repeats every single hour as XBID Market is continuous.

Yours faithfully,

BRITNED DEVELOPMENT LIMITED

Jan Hoogstraaten
Regulatory Manager

Assessment Procedure Consultation Questions

P356 'Aligning the BSC with Grid Code Modification GC0099 "Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM)"'

ELEXON

Phase

- Initial Written Assessment
- Definition Procedure
- Assessment Procedure
- Report Phase
- Implementation

Response Form

We welcome your views and responses to the questions set out in this response form. To help us understand your response, please provide supporting reasons for your answers where possible. We also encourage you to provide financial information showing any costs and/or benefits of this change to your business.

ELEXON can treat any information provided as confidential if you request this, although we will provide all information to the Authority.

Your Details

Respondent	
Name	Paul Youngman
Organisation	Drax Power Limited
Contact telephone number	07738802266

Parties Represented				
Names of BSC Parties	Drax Power Limited			
Names of non-Parties	Insert list of non-Parties represented here			
BSC Party role(s) represented (mark all that apply)	X	Generator		Supplier
		Distributor		Interconnector User
		Int. Administrator		Int. Error Admin.
		Non Physical Trader		Transmission Co.
Non-Party role(s) represented (mark all that apply)		ECVNA		MVRNA
		Supplier Agent: please state		Other: please state

Confidentiality	
Does this response contain confidential information?	No If 'Yes', please clearly mark the confidential parts

Your response

We invite you to respond to the questions in this form.

How to return your response

Please send responses, entitled 'P356 Assessment Consultation', to **bsc.change@elexon.co.uk** by **5pm** on **Friday 27 October 2017**.

P356 Assessment Procedure Consultation Questions

Question 1	
Do you agree with the Workgroup's initial unanimous view that P356 does better facilitate the Applicable BSC Objectives than the current baseline, and so should be approved?	**Yes**
If 'No', please provide justification for your answer.	
We agree that the modification has merit and better facilitates BSC Applicable Objectives. In particular objective C and E in promoting effective competition whilst facilitating greater harmonisation of arrangements in line with the Third Package and specific Network Codes. In our view the Mod achieves this in the most efficient way which satisfies BSC Objectives A and B.	

Question 2	
Do you agree with the Workgroup that the draft legal text in Attachment A delivers the intention of P356?	**Yes**
Please provide your rationale with reference to the Applicable BSC Objectives.	
The legal text delivers an appropriate solution that delivers the intent of P356. In this context it fulfils BSC objective A Efficient discharge by NGET of obligations imposed by the Transmission Licence and B - Efficient, economic and co-ordinated operation of the Transmission System	

Question 3	
Do you agree that there are no other potential Alternative Modifications within the scope of P356 that would better facilitate the Applicable BSC Objectives compared to the Proposed Modification?	**Yes**
If 'No', please provide justification for your answer. We would also welcome your thoughts on a new Modification being raised to allow Physical Notifications to be updated post-Gate Closure and what the effects would be for your organisation if Physical Notifications are not updated post-Gate Closure (including any analysis of potential impacts on Credit cover).	
Our assessment is that a Mod to amend PN's is not necessary to achieve effective implementation.	

Question 4	
Will the implementation of P356 or GC0099 impact your organisation?	**No**
If 'Yes', please provide a description of the impact(s) and any activities which you will need to undertake between the Authority's approval of P356 and GC0099 and the P356 and GC0099 Implementation Dates (including any necessary changes to your systems, documents and processes). If possible, we would welcome you differentiating between P356 and GC0099.	
N/A	

Question 5	
Will your organisation incur any costs in implementing P356 or GC0099?	**No**
If 'Yes', please provide details of these costs (If possible, we would welcome you differentiating between P356 and GC0099.), how they arise, an indication of magnitude, and whether they are one-off or on-going costs. Please also state whether it makes any difference to these costs whether P356 is implemented as part of or outside of a normal BSC Systems Release.	
From the workgroup and internal meetings we do not believe there will be any material cost for our organisation	

Question 6	
How long (from the point of Authority approval) would you need to implement P356 and GC0099?	**Yes/No**
Please provide an explanation of your required lead time for each of P356 and GC0099, and which of the activities listed in your answer to Question 5 are the key drivers behind the timescale. Please also state whether it makes any difference to this lead time whether P356 is implemented as part of or outside of a normal BSC Systems Release.	
N/A	

Question 7	
Do you agree with the Workgroup's proposed Implementation Date?	**Yes**
If 'No', please provide your rationale.	
N/A	

Question 8	
Do you have any further comments on P356?	**No**
If 'Yes', please provide your comments.	
N/A	

GC0099 Questions

Question 1	
Do you believe that GC0099 Original proposal better facilitate the Applicable Grid Code Objectives?	**Yes**
If 'No', please provide your comments.	
We agree that GC0099 better facilitates the following Grid code relevant objectives (ii) to facilitate competition in the generation and supply of electricity, and (iv) to efficiently discharge the obligations imposed upon the licensee to comply with the Electricity Regulation. Enabling a common approach to interconnector scheduling should ensure the CACM rules can be effectively implemented which could lead to more liquid intraday markets.	

Question 2	
Do you support the proposed implementation approach?	**Yes**
If 'No', please provide your comments.	
N/A	

Question 3
Do you have any other comments on GC0099?
No

Question 4	
Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?	**No**
If 'Yes', please provide your comments.	
N/A	

Question 5	
Would you support an alternate solution to allow Physical Notifications to be updated post-gate closure?	**No**
If 'Yes', please provide your comments.	
Our initial assessment is that changing PN's post gate closure is not necessary	

Further Information

To help us process your response, please:

- Email your completed response form to **bsc.change@elexon.co.uk**, entering "P356 Assessment Consultation" in the subject line
- Clearly indicate any confidential parts of your response
- Respond by **5pm** on **27 October 2017** (the Workgroup may not be able to consider late responses)

The Workgroup will consider your consultation response at its next meeting. Once it has completed its assessment of P356, it will draft the Assessment Report, and present it to the Panel at its meeting on 14 December 2017.

Applicable BSC Objectives

The Applicable BSC Objectives are:

(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

(b) The efficient, economic and co-ordinated operation of the National Transmission System

(c) Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

(d) Promoting efficiency in the implementation and administration of the balancing and settlement arrangements

(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]

(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

Assessment Procedure Consultation Questions

P356 'Aligning the BSC with Grid Code Modification GC0099 "Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM)"'

ELEXON

Phase

- Initial Written Assessment
- Definition Procedure
- Assessment Procedure
- Report Phase
- Implementation

Response Form

We welcome your views and responses to the questions set out in this response form. To help us understand your response, please provide supporting reasons for your answers where possible. We also encourage you to provide financial information showing any costs and/or benefits of this change to your business.

ELEXON can treat any information provided as confidential if you request this, although we will provide all information to the Authority.

Your Details

Respondent	
Name	Alex Roberts
Organisation	ElecLink Limited
Contact telephone number	02039344429

Parties Represented				
Names of BSC Parties				
Names of non-Parties	ElecLink Limited			
BSC Party role(s) represented (mark all that apply)		Generator		Supplier
		Distributor		Interconnector User
		Int. Administrator		Int. Error Admin.
		Non Physical Trader		Transmission Co.
Non-Party role(s) represented (mark all that apply)		ECVNA		MVRNA
		Supplier Agent: please state	x	Other: Prospective IA/IEA

Confidentiality	
Does this response contain confidential information?	NO

Your response

We invite you to respond to the questions in this form.

How to return your response

Please send responses, entitled 'P356 Assessment Consultation', to **bsc.change@elexon.co.uk** by **5pm** on **Friday 27 October 2017**.

P356 Assessment Procedure Consultation Questions

Question 1	
Do you agree with the Workgroup's initial unanimous view that P356 does better facilitate the Applicable BSC Objectives than the current baseline, and so should be approved?	**Yes**
If 'No', please provide justification for your answer.	
Insert rationale here	

Question 2	
Do you agree with the Workgroup that the draft legal text in Attachment A delivers the intention of P356?	**Yes**
Please provide your rationale with reference to the Applicable BSC Objectives.	
Insert rationale here	

Question 3	
Do you agree that there are no other potential Alternative Modifications within the scope of P356 that would better facilitate the Applicable BSC Objectives compared to the Proposed Modification?	**Yes/No**
If 'No', please provide justification for your answer. We would also welcome your thoughts on a new Modification being raised to allow Physical Notifications to be updated post-Gate Closure and what the effects would be for your organisation if Physical Notifications are not updated post-Gate Closure (including any analysis of potential impacts on Credit cover).	
Please see our further comments under Q8.	

Question 4	
Will the implementation of P356 or GC0099 impact your organisation?	**Yes**
If 'Yes', please provide a description of the impact(s) and any activities which you will need to undertake between the Authority's approval of P356 and GC0099 and the P356 and GC0099 Implementation Dates (including any necessary changes to your systems, documents and processes). If possible, we would welcome you differentiating between P356 and GC0099.	
We will soon accede to the BSC as an Interconnector Administrator and Interconnector Error Administrator and will therefore have responsibilities under the code relating to the sending/receiving of files mentioned in this consultation. The final decision on this consultation will have implications for our systems, but as a developing project we will have time to procure/design systems which meet the new requirements of the BSC post-consultation decision.	

Question 5	
Will your organisation incur any costs in implementing P356 or GC0099?	**Yes**
If 'Yes', please provide details of these costs (If possible, we would welcome you differentiating between P356 and GC0099.), how they arise, an indication of magnitude, and whether they are one-off or on-going costs. Please also state whether it makes any difference to these costs whether P356 is implemented as part of or outside of a normal BSC Systems Release.	
We do not envisage any substantial costs arising from implementation given we will be able to anticipate the changes caused by P356 or GC0099 in our procurement phase. However, as noted in our response to Q8, there may be costs associated with building fallback communications interfaces and dealing with any indebtedness caused due to system faults/delays in results.	

Question 6	
How long (from the point of Authority approval) would you need to implement P356 and GC0099?	
As a developing project we will consider any changes made by this proposal during the phase of systems procurement to ensure those systems meet the new requirements. Therefore, we will implement this change as part of our normal go-live process.	

Question 7	
Do you agree with the Workgroup's proposed Implementation Date?	**Yes**
If 'No', please provide your rationale.	
Insert rationale here	

Question 8	
Do you have any further comments on P356?	**Yes**

We would like to reiterate the importance of allowing enough time for the calculation and communication processes prescribed by the various codes and guidelines to be completed. (The target intraday model envisages the RNP to generate schedules from XBID results, to be forwarded to the TC and subsequently Interconnector Administrators, who will account for the results as an adjustment to Expected Transfers.) Whilst these processes may be automated, at least 10 minutes will be required to facilitate them. However, we highlight that it has been estimated that XBID results will be available 5 minutes after the hour, thus this proposal leaves a further five minutes for calculation and communication. It is therefore likely that proposed 10 minute deadline will be missed in practice. For this reason, we believe the deadline should be phrased as a 'best practice', not as a hard deadline. We also believe it is important that expectations regarding fall-back processes should be agreed and defined since these could have implications for imbalance settlement, for example where a previous reference programme is run by the Interconnector due to a delay in results delivery or another system failure.

The fact that interconnectors will be required to submit data for 24 periods each day, and with that data provision being dependent on the ID results process running smoothly we believe should be reflected in the legal drafting, such that delivery of the IST within 10 minutes is, we reiterate, best practice and not a hard deadline with associated penalties/consequences. This will ensure the XBID results filter through and interconnectors can react appropriately to dispatch the most up-to-date, correct programme. Where a hard deadline is incorporated and XBID results are not fully incorporated in Expected Transfers then there will be settlement implications for the Interconnector Error Administrator accounts, in addition to the issues highlighted for BM Units in the consultation.

With regard to imbalance settlement, we acknowledge that ECVNs and FPNs may be submitted up to gate closure, and post Nov-17 by submitting ECVNs up until the start of the delivery period, market parties may reduce any Actual Energy Indebtedness caused by day-ahead to intraday position changes. We understand that FPNs represent a 'best estimate' at the time of gate closure, however, given that differences in FPNs and ETs may cause CEI for parties, we would support a move to allow FPNs to be updated post gate-closure for those parties involved in the intraday market. We acknowledge that these changes may be administratively burdensome but on the other hand will ensure the system utilises the most accurate information available in the future and reduces the risk of inflating energy indebtedness for parties.

GC0099 Questions

Question 1	
Do you believe that GC0099 Original proposal better facilitate the Applicable Grid Code Objectives?	**Yes**
If 'No', please provide your comments.	
Insert comments here	

Question 2	
Do you support the proposed implementation approach?	**Yes**
If 'No', please provide your comments.	
Insert comments here	

Question 3
Do you have any other comments on GC0099?
Insert comments here

Question 4	
Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?	**No**
If 'Yes', please provide your comments.	
Our current status does not allow us to raise this type of request.	

Question 5	
Would you support an alternate solution to allow Physical Notifications to be updated post-gate closure?	**Yes**
If 'Yes', please provide your comments.	
Please see our response to Question 8 (P356) above.	

Further Information

To help us process your response, please:

- Email your completed response form to **bsc.change@elexon.co.uk**, entering "P356 Assessment Consultation" in the subject line
- Clearly indicate any confidential parts of your response
- Respond by **5pm** on **27 October 2017** (the Workgroup may not be able to consider late responses)

The Workgroup will consider your consultation response at its next meeting. Once it has completed its assessment of P356, it will draft the Assessment Report, and present it to the Panel at its meeting on 14 December 2017.

Applicable BSC Objectives

The Applicable BSC Objectives are:

(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

(b) The efficient, economic and co-ordinated operation of the National Transmission System

(c) Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

(d) Promoting efficiency in the implementation and administration of the balancing and settlement arrangements

(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]

(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

Grid Code Workgroup Consultation Response Proforma

GC0099: Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM).

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **17:00** on **06 October 2017** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Caroline Kluyver* *caroline.kluyver@nationalgrid.com*
Company Name:	*National Grid Interconnectors*
Please express your views regarding the Code Administrator Consultation, including rationale. **(Please include any issues, suggestions or queries)**	NGIC feel that, while IST files can in most instances be delivered to NGET within 10 minutes, it would not be efficient (objective v.) to set a fixed time limit for file submission when the file requires submission 24 times per day on intraday timescales and relies on three systems and the internet for communications. A best endeavours clause should be added to protect Interconnector Owners against external issues such as internet delays which they are not able to reasonably control. Additionally NGIC would like to note that the process for submitting IST files is currently held up by slow technical acknowledgement responses from NGET. These responses would need to be significantly sped up to enable ISTs to be finalised within 10 minutes.

GC0099 Workgroup Consultation questions

Q	Question	Response
1	**Do you believe that GC0099 Original proposal better facilitate the Applicable Grid Code Objectives?**	Not as the legal text currently stands, though we appreciate the need for the amendment. It would not be efficient (objective v.) to set a fixed time limit for file submission when the file requires submission 24 times per day on intraday timescales and relies on three systems and the internet for communications, which Interconnector Owners are not able to reasonably control. We suggest that either a best endeavours clause is added to the intraday submission deadline, or that NGET considers obtaining information directly from XBID. (see answer to Q4).
2	**Do you support the**	We agree that implementation should be when

	proposed implementation approach? If not, please provide reasoning why.	interconnectors have gone live with XBID. This is no longer expected to be Q3 2018 though and will be 2019/2020, if at all (Brexit may exclude GB interconnectors from XBID).
3	**Do you have any other comments on GC0099?**	We question whether this modification should be added to the Grid Code at this point in time, as Brexit may cause the modification to be redundant (if the UK does not join TERRE and/or XBID).
4	**Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?**	Option 1: We suggest adding a best endeavours clause in the currently proposed legal wording (see text in red, below). BC2.13 LIAISON WITH INTERCONNECTOR OWNERS "(a) Calculate the Inter connector Scheduled Transfer (IST) Interconnector Owners shall use their best endeavours to deliver an updated IST to NGET by 10 minutes after each intraday gate cross-zonal gate closure time." This gives a clear time for Interconnector Owners to aim for in their system and process design, whilst also providing for occasions where external factors cause IST submission to not be possible within the time limit. Hence this approach will protect Interconnector Owners from being in breach of the Grid Code as a result of factors which they cannot reasonably control. In these rare situations, NGET could use FPNs/MNNNs(aggregated nominations), or propose an alternative fall-back solution, as a back-up for TERRE calculations, and Interconnector Owners will deliver the IST file as soon as practicable. Option 2: Alternatively, if time is very critical, NGET could consider establishing a direct data connection to the XBID capacity management module to get earlier visibility of the shipping data and allow processing of the information to start before ISTs are received.
5	**Would you support an alternate solution to allow Physical Notifications to be updated post-gate closure?**	Yes. It is essential that this process is amended, in case FPNs are submitted for ID shippers by the Interconnector Owners as the shipping results (which are needed to generate final physical notifications) will not be available until 4mins 45seconds after intraday gate closure. Therefore it is not physically possible to submit final physical notifications before gate closure. ECVNs should also should also be updated after gate closure, for consistency.

P356 Workgroup Consultation questions

Q	Question	Response
1	**Do you agree with the**	Not as the text currently stands. It would not be efficient

	Workgroup's initial unanimous view that P356 does better facilitate the Applicable BSC Objectives than the current baseline, and so should be approved?	(objective d) to set a fixed time limit for file submission when the file requires submission 24 times per day on intraday timescale and relies on three systems and the internet for communication. A best endeavours clause should be added to protect Interconnector Owners against external issues such as internet delays which they are not able to reasonably control. Also the legal text incorrectly states the deadline as 5 minutes, whereas the Grid Code states 10 minutes.
2	**Do you agree that there are no other potential Alternative Modifications within the scope of P356 that would better facilitate the Applicable BSC Objectives compared to the Proposed Modification?**	Option 1: We suggest adding a best endeavours clause in the currently proposed legal wording (see text in red, below). BC2.13 LIAISON WITH INTERCONNECTOR OWNERS "(a) Calculate the Inter connector Scheduled Transfer (IST) Interconnector Owners shall use their best endeavours to deliver an updated IST to NGET by 10 minutes after each intraday gate cross-zonal gate closure time." This gives a clear time for Interconnector Owners to aim for in their system and process design, whilst also providing for occasions where external factors cause IST submission to not be possible within the time limit. Hence this approach will protect Interconnector Owners from being in breach of the Grid Code as a result of factors which they cannot reasonably control. In these rare situations, NGET could use FPNs/MNNNs(aggregated nominations), or propose an alternative fall-back option, as a back-up for TERRE calculations, and Interconnector Owners will deliver the IST file as soon as practicable. Option 2: Alternatively, if time is very critical, NGET could consider establishing a direct data connection to the XBID capacity management module to get earlier visibility of the shipping data and allow processing of the information to start before ISTs are received.
3	**Will the implementation of P356 or GC0099 impact your organisation?**	Yes. NGIC will need to amend processes and systems to enable ISTs to be submitted within 10 minutes. If the text is not amended to add a best endeavours clause, NGIC has a risk of being non-compliant with the Grid Code as we will not be able to guarantee that intraday ISTs will be within the time limit 24 times per day every single day. This would have a significant impact on NGIC as non-compliance with the Grid Code could ultimately mean our Transmission license is revoked.
4	**Will your organisation incur any costs in**	Yes. Assuming there are no changes to the communication channel and the suggested modifications by NGIC is

	implementing P356 or GC0099?	accepted, we expect the cost of change will be in the range of £50-100k.
5	**How long (from the point of Authority approval) would you need to implement P356 and GC0099?**	The target systems are currently under various stages of implementation and it is expected the required change will be implemented only once the systems are stabilised. We expect at least 6 months for implementation, assuming other partner systems from RTE and NGET are also ready.
6	**Do you agree with the Workgroup's proposed Implementation Date?**	We agree that implementation should be when interconnectors have gone live with XBID. This is no longer expected to be Q3 2018 though and will be 2019/2020, if at all (Brexit may exclude GB interconnectors from XBID).
7	**Do you have any further comments on P356?**	No.

Grid Code Workgroup Consultation Response Proforma

GC0099: Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM).

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **17:00** on **06 October 2017** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

Respondent:	*Nick Pittarello* *Nick.Pittarello@nemolink.co.uk*
Company Name:	*Nemo Link*
Please express your views regarding the Code Administrator Consultation, including rationale. **(Please include any issues, suggestions or queries)**	*For reference, the Grid Code objectives are:* i. To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity ii. To facilitate 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) iii. 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 iv. 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 v. To promote efficiency in the implementation and administration of the Grid Code arrangements *For reference, the Applicable BSC objectives are:* (a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence (b) The efficient, economic and co-ordinated operation of the National Electricity Transmission System (c) Promoting effective competition in the generation and supply

	of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity (d) Promoting efficiency in the implementation of the balancing and settlement arrangements (e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators] (f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

GC0099 Workgroup Consultation questions

Q	Question	Response
1	**Do you believe that GC0099 Original proposal better facilitate the Applicable Grid Code Objectives?**	In general, yes where due consideration has been taken account of interconnector system capabilities. We note NGET's change to the modification which originally proposed a 5 minute deadline within which Interconnectors were to deliver updated IST files to 10 minutes. Given that interconnectors will not receive XBID data until, at the earliest, 4 minutes and 15 seconds after Gate Closure, this was never a realistic original proposal. Whilst the move to 10 minutes is welcome, and Nemo Link expects to be able to deliver ISTs within this timescale for the vast majority of the time, there is potential that given the number of internal and external systems involved, and the dependence on the internet for data transmission, that delivery of the IST file within 10 minutes will not always be achievable for reasons that are outside the interconnector's control. Keen to avoid any interconnector breach of the Grid Code, we believe that there are a number of simple alternative options available to address this. The first option is that if the XBID intraday results are highly critical to NGET operational decisions, it should consider receiving a direct data feed from the XBID systems itself. This would avoid NGET having to wait for data to process through a number of interconnector IS systems, and the internet before receiving the relevant information. The data would enable NGET to take an earlier view of the impact of intraday results on interconnector flows before the IST files arrive and reduce the reliance on receiving IST files within 10 minutes.

		Separately, or in conjunction with the above another option may be to extend the deadline for receipt of IST files to 15 minutes. NGET has articulated that this would be too late, and we have some sympathy with this position, however we believe that on the vast majority of occasions, IST files will arrive within 10 minutes, the 15 minute deadline would capture the occasional late file, without the interconnector facing a breach of the Grid Code, which clearly any responsible party would take very seriously and would wish to avoid. The final option would be to retain the 10 minute deadline in the legal text, but to include a "best endeavours" provision. This would give interconnectors the clear aim of 10 minute delivery, around which to design their systems, but take into account the rare occasion where delivery of the IST file is not possible for reasons outside the control of the interconnector.
2	**Do you support the proposed implementation approach? If not, please provide reasoning why.**	Yes
3	**Do you have any other comments on GC0099?**	Yes, it remains unclear from the working group report how PNs and ISTs are used in interconnector settlement.
4	**Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?**	Yes. We propose the following amended wording to the legal text: BC2.13 LIAISON WITH INTERCONNECTOR OWNERS (a) Calculate the Interconnector Scheduled Transfer (IST) Interconnector Owners shall use best endeavours to deliver an updated IST to NGET by 10 minutes after each intraday cross-zonal gate closure time. The updated IST shall fully reflect the results of the single intraday coupling.
5	**Would you support an alternate solution to allow Physical Notifications to be updated post-gate closure?**	Yes because it would be a more efficient solution.

P356 Workgroup Consultation questions

Q	Question	Response
1	**Do you agree with the Workgroup's initial unanimous view that P356 does better facilitate the**	We agree clarification of desirable operational requirements should be defined in the codes, but due consideration should be given to interconnector system risks and interconnector parties shouldn't be put in a position where

	Applicable BSC Objectives than the current baseline, and so should be approved?	they face being in breach of codes for circumstances outside their control.
2	**Do you agree that there are no other potential Alternative Modifications within the scope of P356 that would better facilitate the Applicable BSC Objectives compared to the Proposed Modification?**	No, see answer to GC00099 question 1 above. We believe the inclusion of "best endeavours" in the legal text would be a fair and appropriate change. This has the effect of providing interconnectors with clarified requirements but does not expose interconnectors to breach of codes and licence where the requirement is not met for reasons outside their control.
3	**Will the implementation of P356 or GC0099 impact your organisation?**	Yes, it is unlikely that an interconnector can guarantee an IST will always be delivered within 10 minutes of Gate Closure. Therefore, if the proposal remains unmodified, interconnector parties risk occasionally being in breach of the Grid Code and BSC, as the requirement is likely to be unachievable 100% of the time.
4	**Will your organisation incur any costs in implementing P356 or GC0099?**	No
5	**How long (from the point of Authority approval) would you need to implement P356 and GC0099?**	Nemo Link does not propose making any changes to its systems as a consequence of this modification.
6	**Do you agree with the Workgroup's proposed Implementation Date?**	Yes
7	**Do you have any further comments on P356?**	Yes, it remains unclear from the working group report how PNs and ISTs are used in interconnector settlement.

Assessment Procedure Consultation Questions

P356 'Aligning the BSC with Grid Code Modification GC0099 "Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM)"'

ELEXON

Phase

- Initial Written Assessment
- Definition Procedure
- Assessment Procedure
- Report Phase
- Implementation

Response Form

We welcome your views and responses to the questions set out in this response form. To help us understand your response, please provide supporting reasons for your answers where possible. We also encourage you to provide financial information showing any costs and/or benefits of this change to your business.

ELEXON can treat any information provided as confidential if you request this, although we will provide all information to the Authority.

Your Details

Respondent	
Name	Robert Selbie
Organisation	National Grid Electricity Transmission Plc. (NGET)
Contact telephone number	+44 (0)7896 727701

Parties Represented				
Names of BSC Parties	National Grid Electricity Transmission Plc.			
Names of non-Parties	None			
BSC Party role(s) represented (mark all that apply)		Generator		Supplier
		Distributor		Interconnector User
		Int. Administrator		Int. Error Admin.
		Non Physical Trader	X	Transmission Co.
Non-Party role(s) represented (mark all that apply)		ECVNA		MVRNA
		Supplier Agent: please state		Other: please state

Confidentiality	
Does this response contain confidential information?	No If 'Yes', please clearly mark the confidential parts

Your response

We invite you to respond to the questions in this form.

How to return your response

Please send responses, entitled 'P356 Assessment Consultation', to **bsc.change@elexon.co.uk** by **5pm** on **Friday 27 October 2017**.

P356 Assessment Procedure Consultation Questions

Question 1	
Do you agree with the Workgroup's initial unanimous view that P356 does better facilitate the Applicable BSC Objectives than the current baseline, and so should be approved?	**Yes**
If 'No', please provide justification for your answer.	
No further comments in addition to those set out in the Assessment Procedure consultation report.	

Question 2	
Do you agree with the Workgroup that the draft legal text in Attachment A delivers the intention of P356?	**Yes**
Please provide your rationale with reference to the Applicable BSC Objectives.	
It is NGET's view that the draft legal text delivers the intention of P356. NGET's views on the impact of this change on the Applicable BSC Objectives are as set out in the Assessment Procedure consultation report.	

Question 3	
Do you agree that there are no other potential Alternative Modifications within the scope of P356 that would better facilitate the Applicable BSC Objectives compared to the Proposed Modification?	**Yes**
If 'No', please provide justification for your answer. We would also welcome your thoughts on a new Modification being raised to allow Physical Notifications to be updated post-Gate Closure and what the effects would be for your organisation if Physical Notifications are not updated post-Gate Closure (including any analysis of potential impacts on Credit cover).	
As set out in the assessment consultation report, a new modification to allow post Gate Closure changes to Physical Notifications would introduce a substantial change to the current GB balancing market. NGET has concerns as to whether such a substantial change could be delivered within the implementation timescales of this modification.	

Question 4	
Will the implementation of P356 or GC0099 impact your organisation?	**Yes**
If 'Yes', please provide a description of the impact(s) and any activities which you will need to undertake between the Authority's approval of P356 and GC0099 and the P356 and GC0099 Implementation Dates (including any necessary changes to your systems, documents and processes). If possible, we would welcome you differentiating between P356 and GC0099.	
Following the Authority's approval of P356 and GC0099 NGET will need to undertake changes to the current Interconnector Scheduling Transfer processes. This will require NGET system changes including changes to the Electricity Balancing System (EBS). Changes will be required to agreements between NGET, Interconnector Owners and the connecting TSOs. It is not possible to differentiate the impacts between P356 and GC0099.	

Question 5	
Will your organisation incur any costs in implementing P356 or GC0099?	**Yes**
If 'Yes', please provide details of these costs (If possible, we would welcome you differentiating between P356 and GC0099.), how they arise, an indication of magnitude, and whether they are one-off or on-going costs. Please also state whether it makes any difference to these costs whether P356 is implemented as part of or outside of a normal BSC Systems Release.	
Changes to NGET systems resulting from changes to the existing Interconnector Scheduling Transfer processes. These costs are expected to be one-off costs. It is not anticipated that it will make any difference to these costs whether P356 is implemented as part of or outside of a normal BSC Systems Release. These costs are estimated to be in the range of £150k - £250k.	

Question 6	
How long (from the point of Authority approval) would you need to implement P356 and GC0099?	**Yes/No**
Please provide an explanation of your required lead time for each of P356 and GC0099, and which of the activities listed in your answer to Question 5 are the key drivers behind the timescale. Please also state whether it makes any difference to this lead time whether P356 is implemented as part of or outside of a normal BSC Systems Release.	
NGET has started to work on scoping the required system changes, and is planning to make changes to systems in line with the earliest implementation of XBID within GB. It is not anticipated that it will make any difference to this lead time whether P356 is implemented as part of or outside of a normal BSC Systems Release.	

Question 7	
Do you agree with the Workgroup's proposed Implementation Date?	**Yes**
If 'No', please provide your rationale.	
The NGET system changes will only be required after the first go-live of XBID on a GB interconnector. This will be after the implementation date of P356 and GC0099.	

Question 8	
Do you have any further comments on P356?	**No**
If 'Yes', please provide your comments.	
No further comments.	

GC0099 Questions

Question 1	
Do you believe that GC0099 Original proposal better facilitate the Applicable Grid Code Objectives?	**Yes**
If 'No', please provide your comments.	
As the proposer of the modification NGET's view on the impact Applicable Grid Code Objectives was set out in the modification proposal.	

Question 2	
Do you support the proposed implementation approach?	**Yes**
If 'No', please provide your comments.	
The NGET system changes will only be required after the first go-live of XBID on a GB interconnector. This will be after the implementation date of P356 and GC0099.	

Question 3
Do you have any other comments on GC0099?
Regarding the post meeting note that within in Section 4 – Solution, where it is stated; *"Post meeting note: A Workgroup Member highlighted that the proposal in point 3 above is currently not possible and that further analysis as well as discussion with RTE is required for NGIC to be able to define a specific time for IST to be available. It has been identified that this is a valid point and will be discussed post consultation in the next Workgroup meeting."* NGET would like to reiterate the importance of identifying a consistent solution for both the intraday and balancing processes. The interaction between the intraday and balancing markets has been highlighted within the Assessment Procedure Consultation report. The 10 minute deadline in GC0099 and P356 was proposed considering two aspects: 1) NGET will be required to submit the GB balancing needs to the central TERRE platform, LIBRA, by 15 minutes after the intraday cross zonal gate time (IDCZGCT). 2) Interconnector owners may not receive the results from XBID central systems until 5 minutes after the IDZGCT. The current proposal leaves NGET 5 minutes to assess the information before the TERRE submission deadline. Any further delay in receiving the IST would impact on the TERRE processes.

Question 4	
Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?	**No**
If 'Yes', please provide your comments.	
-	

Question 5	
Would you support an alternate solution to allow Physical Notifications to be updated post-gate closure?	**No**
If 'Yes', please provide your comments.	
As set out in the assessment consultation report, a new modification post Gate-Closure changes to Physical Notifications would introduce a substantial change to the current GB balancing market. NGET has concerns as to whether such a substantial change could be delivered within the implementation timescales of this modification.	

Further Information

To help us process your response, please:

- Email your completed response form to **bsc.change@elexon.co.uk**, entering "P356 Assessment Consultation" in the subject line
- Clearly indicate any confidential parts of your response
- Respond by **5pm** on **27 October 2017** (the Workgroup may not be able to consider late responses)

The Workgroup will consider your consultation response at its next meeting. Once it has completed its assessment of P356, it will draft the Assessment Report, and present it to the Panel at its meeting on 14 December 2017.

Applicable BSC Objectives

The Applicable BSC Objectives are:

(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

(b) The efficient, economic and co-ordinated operation of the National Transmission System

(c) Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

(d) Promoting efficiency in the implementation and administration of the balancing and settlement arrangements

(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]

(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

Assessment Procedure Consultation Questions

P356 'Aligning the BSC with Grid Code Modification GC0099 "Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM)"'

ELEXON

Phase

- Initial Written Assessment
- Definition Procedure
- Assessment Procedure
- Report Phase
- Implementation

Response Form

We welcome your views and responses to the questions set out in this response form. To help us understand your response, please provide supporting reasons for your answers where possible. We also encourage you to provide financial information showing any costs and/or benefits of this change to your business.

ELEXON can treat any information provided as confidential if you request this, although we will provide all information to the Authority.

Your Details

Respondent	
Name	James Anderson
Organisation	ScottishPower
Contact telephone number	0141 614 3006

Parties Represented				
Names of BSC Parties	ScottishPower Energy Management Limited			
Names of non-Parties	Insert list of non-Parties represented here			
BSC Party role(s) represented (mark all that apply)	√	Generator		Supplier
		Distributor	√	Interconnector User
		Int. Administrator		Int. Error Admin.
		Non Physical Trader		Transmission Co.
Non-Party role(s) represented (mark all that apply)	√	ECVNA	√	MVRNA
		Supplier Agent: please state		Other: please state

Confidentiality	
Does this response contain confidential information?	No If 'Yes', please clearly mark the confidential parts

Your response

We invite you to respond to the questions in this form.

How to return your response

Please send responses, entitled 'P356 Assessment Consultation', to **bsc.change@elexon.co.uk** by **5pm** on **Friday 27 October 2017**.

P356 Assessment Procedure Consultation Questions

Question 1	
Do you agree with the Workgroup's initial unanimous view that P356 does better facilitate the Applicable BSC Objectives than the current baseline, and so should be approved?	**Yes**
If 'No', please provide justification for your answer.	
P356 will better facilitate Applicable Objective E by ensuring Compliance with the Electricity Regulation. By helping facilitate cross-border trade, P356 will better facilitate competition – Applicable Objective C. By aligning the BSC with CACM, P356 will better enable NGET to comply with its obligations under its Transmission Licence – Objective A.	

Question 2	
Do you agree with the Workgroup that the draft legal text in Attachment A delivers the intention of P356?	**Yes**
Please provide your rationale with reference to the Applicable BSC Objectives.	
We agree that the draft legal text will deliver the intention of P356.	

Question 3	
Do you agree that there are no other potential Alternative Modifications within the scope of P356 that would better facilitate the Applicable BSC Objectives compared to the Proposed Modification?	**Yes**
If 'No', please provide justification for your answer. We would also welcome your thoughts on a new Modification being raised to allow Physical Notifications to be updated post-Gate Closure and what the effects would be for your organisation if Physical Notifications are not updated post-Gate Closure (including any analysis of potential impacts on Credit cover).	
Given the implementation deadlines, we believe that there are no other practicable alternatives to the proposed solution.	

Question 4	
Will the implementation of P356 or GC0099 impact your organisation?	**No**
If 'Yes', please provide a description of the impact(s) and any activities which you will need to undertake between the Authority's approval of P356 and GC0099 and the P356 and GC0099 Implementation Dates (including any necessary changes to your systems, documents and processes). If possible, we would welcome you differentiating between P356 and GC0099.	
We do not believe that either P356 or GC0099 will significantly impact our organisation.	

Question 5	
Will your organisation incur any costs in implementing P356 or GC0099?	**No**
If 'Yes', please provide details of these costs (If possible, we would welcome you differentiating between P356 and GC0099.), how they arise, an indication of magnitude, and whether they are one-off or on-going costs. Please also state whether it makes any difference to these costs whether P356 is implemented as part of or outside of a normal BSC Systems Release.	
We do not believe that we will incur any material costs as a result of the implementation of either P356 or GC0099.	

Question 6	
How long (from the point of Authority approval) would you need to implement P356 and GC0099?	**No**
Please provide an explanation of your required lead time for each of P356 and GC0099, and which of the activities listed in your answer to Question 5 are the key drivers behind the timescale. Please also state whether it makes any difference to this lead time whether P356 is implemented as part of or outside of a normal BSC Systems Release.	
Our organisation would not require any significant time period to implement of P356.	

Question 7	
Do you agree with the Workgroup's proposed Implementation Date?	**Yes**
If 'No', please provide your rationale.	
P356 should be implemented as proposed consistent with the commencement of XBID trading on 1 July 2018.	

Question 8	
Do you have any further comments on P356?	**No**
If 'Yes', please provide your comments.	
Insert comments here	

GC0099 Questions

Question 1	
Do you believe that GC0099 Original proposal better facilitate the Applicable Grid Code Objectives?	**Yes**
If 'No', please provide your comments.	
Insert comments here	

Question 2	
Do you support the proposed implementation approach?	**Yes**
If 'No', please provide your comments.	
GC0099 should be implemented as proposed consistent with the commencement of XBID trading on 1 July 2018.	

Question 3
Do you have any other comments on GC0099?
Insert comments here

Question 4	
Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?	**No**
If 'Yes', please provide your comments.	
Insert comments here	

Question 5	
Would you support an alternate solution to allow Physical Notifications to be updated post-gate closure?	**No**
If 'Yes', please provide your comments.	
Given the implementation deadlines, we believe that there is insufficient time to develop an alternative solution to allow PNs to be updated post-gate closure. However, this could be addressed in a future modification.	

Further Information

To help us process your response, please:

- Email your completed response form to **bsc.change@elexon.co.uk**, entering "P356 Assessment Consultation" in the subject line
- Clearly indicate any confidential parts of your response
- Respond by **5pm** on **27 October 2017** (the Workgroup may not be able to consider late responses)

The Workgroup will consider your consultation response at its next meeting. Once it has completed its assessment of P356, it will draft the Assessment Report, and present it to the Panel at its meeting on 14 December 2017.

Applicable BSC Objectives

The Applicable BSC Objectives are:

(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

(b) The efficient, economic and co-ordinated operation of the National Transmission System

(c) Promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

(d) Promoting efficiency in the implementation and administration of the balancing and settlement arrangements

(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]

(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

Annex 3 – Code Administrator Consultation responses

Grid Code Administrator Consultation Response Proforma

GC0099: Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation EU 2015 1222 CACM

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **15 March 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Report to the Authority which is drafted by National Grid and submitted to the Authority for a decision.

Respondent:	*Martin Mate* *martin.mate@edf-energy.com*
Company Name:	*EDF Energy*
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(ii) to facilitate 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);* *(iii) 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;* *(iv) 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*

	(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.
1. Do you believe GC0099 or its alternative solution(s) better facilitates the Applicable Grid Code Objectives? Please include your reasoning	Yes. The prompt provision of Interconnector Scheduled Transfer information to National Grid should allow it to forecast system operation more effectively, so helping it to operate the system more efficiently. If the information is made available to market participants, it should assist them in forecasting future market conditions, so facilitating competition in the generation and supply of electricity. If not made available, this particular benefit would not apply. It is expected that the Intraday Cross-Zonal Gate Closure time will be 1 hour before each Market Trading Unit. Allowing 'last-minute' trades to be reflected as soon as is practical into the IST should: • better facilitate compliance with European Regulations, and • support efficient post-gate closure system balancing processes, including the future Trans-European Replacement Reserve Exchange (TERRE). However, there may be anomalies in balancing and imbalance because of the inability of participants to change the operation of physical plant subject to PN in order to deliver XBID volumes, as described in other comments below.
2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Yes, but note comments below. Other impacts of the unavoidable delay in reporting potential intraday trades made just before BM gate closure should be considered.
3. Do you have any other comments?	Yes, see below.

Comments on proposed pre-gate processes and BC1.4.7 legal text

Note that interconnector Scheduled Transfer as defined in the BSC is a minute-by-minute profile of MW levels 'as established pursuant to relevant interconnection agreements' (full text pasted at the end of these comments for reference). Its definition therefore ultimately lies within relevant interconnection agreements. The BSC obliges NGET to provide a gate

closure version of it, and any subsequent revisions, to the Interconnector Administrator for each interconnector. GC0099 obliges interconnector owners to provide the IST to NGET, confirming the rather circular nature of the information flows in practice. It is not clear whether the information provided by interconnector owners to NGET is exactly the same as the BSC IST provided by NGET to the relevant Interconnector Administrator.

'single day-ahead coupling' is defined so should be capitalized following Grid Code convention.

What is the deadline referred to in the second sentence? 1230?

Do 'decoupling event' and 'day-ahead fallback arrangements' require definition?

For BSC purposes:

- Only the 'final' IST at gate closure for each half-hour and revisions after gate closure for that half-hour are currently explicitly required.
- BSC proposal P356 considers changes to processes after gate closure to allow last-minute XBID trade volumes to be allowed for as metered volumes in BSC settlement. It does not consider the associated requirement for changes to BM Unit Physical Notifications after Gate Closure to allow all XBID trade volumes to be delivered.
- The Market Time Unit will be an hour, so interaction between Intraday Gate Closure and existing BM Gate Closure should only be an issue every other half-hour.
- (Expected interconnector transfer capacity is required well in advance, but is not the same as IST).

The proposed Grid Code changes create additional requirements on IST information well in advance of, and not directly linked to, Gate Closure. This is more than currently required by the BSC. However, it is not clear what span of time should be covered at any given time. It seems rational that the IST reported just after the Single Day-Ahead Coupling should cover the whole period from 'now' until the end of the latest 24 hour period day-ahead traded period, or perhaps until the end of the next operational day like other data obligations. Updates should reflect explicit nominations, coupled intraday transactions, capacity restrictions etc for any time during that notification period. Practical issues of whether only changes are notified, or the whole schedule is repeated for any change, will need to be addressed.

Interconnector Scheduled Transfer is relevant market information for market participants. Is it part of EU data transparency 'Explicit Allocations - Use of the Transfer Capacity [12.1.A] (intraday)' and/or 'Commercial Schedules [12.1.F]'? How will market participants know the scheduled transfers?

Note that under the BSC:

- The outturn IST must equal the sum of outturn expected transfers for individual users, which are converted to individual interconnector user BM Unit metered volumes (BSC R7.1.4) for settlement purposes.
- For most interconnector users, the 'expected transfer' will be a fixed level across each Market Time Unit (MTU) corresponding to its trade nominations. More complicated profiling of scheduled transfer and expected transfer is required to accommodate interconnector and interconnected system operational limitations and requirements.

- The BSC obligation to provide an IST to the Interconnector Administrator lies with NGET. GC0099 re-inforces a rather convoluted set of obligations:
    - GC0099: Interconnector owner to deliver IST to NGET
    - BSC: NGET to provide IST to Interconnector Administrator, including changes arising from balancing actions; from interconnector capacity changes, and from 'events occurring in relation to an external system'. Does NGET determine all these changes itself, or get them all from the interconnector owner? For NGET system actions, does the information really go from NGET to the interconnector owner back to NGET in the form of an IST revision, back to the Interconnector Administrator? TERRE will further complicate this.
    - BSC: Interconnector Administrator determines the 'expected transfer' of individual users (including NGET for its interconnection flows) taking into consideration the IST and changes to it referred to above.
    - The interconnector owner and interconnector administrator may or may not be the same organisation.
    - Do GC0099 and the BSC reflect efficient flows of information from the ultimate source of information to the functions using it?

Comments on proposed post-gate processes and BC2.13 legal text

The requirement for information to be 'logged into NGET's computer systems' requires NGET's systems to be working. How can providers of data ensure this?

See comments below on the proposal and workgroup alternatives.

For the BSC, under related modification proposal P356, the timing of receipt of updated XBID cross-border intraday volume information after gate closure is relevant to party credit calculations which use interconnector user FPN data, but does not appear critical for operation of core BSC central settlement processes. It is desirable for market reporting purposes and for party credit calculations, but the allocation of interconnector scheduled transfer as expected transfers for individual users only actually needs to be completed before the first settlement runs (in the same way that other metered volumes becomes known for settlement). Interconnector BMU FPN is used for party credit calculations, but neither P356 nor GC0099 propose changes to allow these FPNs to be changed to reflect 'last minute' XBID trades.

For the purposes of forecasting imbalance, and particularly for determining balancing 'need' in the European TERRE arrangements (see BSC P344 and GC0097), the IST is important, and efficient balancing will be better achieved by knowing the IST as soon as possible after gate closure.

With GC0097 TERRE, the IST will need to be adjusted for the results of the hourly post-gate central Replacement Reserve auction for each 15 minute TERRE period. The minute-by-minute profile of the out-turn IST may become more volatile than currently. As we understand it, the net interconnector volume adjustments arising from TERRE will be allocated to NGET's relevant interconnector BM Units. The GB BM Units delivering the volume will be allocated volumes according to BSC P344.

Proposal and Workgroup Alternatives

The consultation discusses the capability of interconnector owners to make IST data available within 10 minutes of (every other) gate closure, and associated cost. The reliability of NGET being able to accept and process the data is also relevant. The proposal simply sets out an obligation 'within 10 minutes'; WACM1 proposes a 96% performance rate per month; WACM2 proposes 'best endeavours'. WACM1 has the advantage of being measurable. However, without any clear indication of the consequences of failure to meet the Grid Code requirement, whichever it is, there seems little difference between the proposals.

Other issues

Neither GC0099 nor related BSC proposal P356 consider the impact of last-minute trading on:

- The balancing and imbalance positions of BSC Trading Parties, particularly those with BM Units where Grid Code obligation not to deviate from Physical Notifications at Gate Closure (FPN) apply and are enforced.
- The system imbalance that can arise because some BM Units cannot move from FPN to deliver last minute XBID acceptances.

Further Grid Code and BSC changes may be required to allow changes to Physical Notification for all BM Units after Gate Closure, in order to allow all XBID volumes to be delivered. For example:

1. Consider a party with a generator subject to Grid Code Physical Notification obligations wishing to offer energy from it into XBID. Commit first, or trade first?
    a. If it commits energy with a positive PN at Gate Closure in the expectation or hope of obtaining an XBID acceptance, then failure to get an XBID acceptance will result in spill imbalance (and a long system, because the uncontracted generation will remain in GB); or
    b. If it doesn't commit energy, submitting zero PN (not having a confirmed XBID acceptance at Gate Closure), then if a trade is accepted at the last minute, it can't deliver volume to satisfy it because of the FPN, resulting in shortfall imbalance (and a short system, because the interconnector will flow out regardless).
    c. If there is a last-minute XBID acceptance in case (a), the generator output would match the XBID sale (which will result in an adjustment to its interconnector volume), and the party (and system) will be balanced. If there is no last-minute XBID acceptance in case (b), the party (and system) would again be balanced. But these outcomes aren't known in advance, and uncertainty will reduce the effectiveness of the balancing arrangements.
    d. If the generator could submit a PN taking into consideration the outcome of the last-minute XBID trades, the uncertainty would be removed.
    e. These issues also exist for current GB exchange trading, but the volumes could be larger with hourly XBID.
2. Withdrawal of XBID offers in the period just before each Intraday Cross-Zonal Gate Closure time to avoid this dilemma is impractical, and not consistent with the intention of the CACM regulations.
3. Note that BM Units which are not subject to Grid Code PN obligations, or are not held to them, would not have these issues, and therefore have a discriminatory advantage, creating distortions for competition.

Ideally, a method is required to allow PNs to be changed after Gate Closure, initially in the 5-10 minutes after current Gate Closure, so that participants can manage their imbalance and amend any balancing bids (BM and/or TERRE) to reflect the new reference operating level.

In the longer term, consideration should be given to allowing more time for revision to PNs, perhaps until such time as a balancing offer is accepted at which point the PN profile from that time on would have obligations associated with it. This might also help address issues with BM Units that have difficulty accurately forecasting their flow even at gate closure, and 'beyond the wall' issues.

Some references:

BSC Section R: 7.1.3

"For the purposes of this paragraph 7:
(a) the "Interconnector Scheduled Transfer" for each Interconnector in relation to a Settlement Period is the Active Energy flow, scheduled for all Interconnector Users (and not exceeding the physical capability of the Interconnector as from time to time determined under the relevant Interconnection Agreements), across the Interconnector (as a whole), as established pursuant to the relevant Interconnection Agreements between the interconnected System Operator and the Externally Interconnected System Operator, stated as at the Transmission System Boundary, in the form of a schedule expressed as MW values for the spot times at the start and end of, and other spot times within, the Settlement Period;"

"7.2 Expected Transfer at Gate Closure
7.2.1 The Interconnected System Operator shall send or procure that there is sent to the Interconnector Administrator the Interconnector Scheduled Transfer prevailing at Gate Closure."

"Section X-1
"Interconnected System Operator": means, in relation to an Interconnector, the Transmission Company or Distribution System Operator (as the case may be) to whose System such interconnector is connected;"
ie. NGET provides IST, and revisions to it, to the Interconnector Administrator. GC0099 makes this rather circular.

Grid Code Administrator Consultation Response Proforma

GC0099: Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation EU 2015 1222 CACM

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **15 March 2018** to Grid.Code@nationalgrid.com. Please note that any responses received after the deadline or sent to a different email address may not receive due consideration.

These responses will be included in the Report to the Authority which is drafted by National Grid and submitted to the Authority for a decision.

Respondent:	*Robert Selbie* *Robert.selbie@nationalgrid.com*
Company Name:	*National Grid*
	For reference the applicable Grid Code objectives are: *(i) to permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;* *(ii) to facilitate 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);* *(iii) 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;* *(iv) 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*

	(v) To promote efficiency in the implementation and administration of the Grid Code arrangements.
1. Do you believe GC099 or its alternative solution better facilitates the Applicable Grid Code Objectives? Please include your reasoning	The three proposals (Original, WACM1 and WACM2) all facilitate the EU single intraday market coupling process and therefore all improve arrangements against the baseline for that purpose. **AGCO (i)**; All proposals positively impact this objective as establishing common scheduling processes on all GB interconnectors delivers a more coordinated operation of the transmission system. **AGCO (ii)**; As above all three facilitate the EU intraday market coupling process, therefore are positive compared to the baseline. As the Original also considers the balancing market it is the preferred option. **AGCO (iii)**; From the scenario analysis performed by National Grid it is clear that significant additional costs could accrue which would ultimately influence the prices charged to consumers. For this reason WACM 1 and WACM 2 fail the test Applicable Grid Code Objective (iii) in that neither "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". **AGCO (iv); AGCO (ii)**; As above all three facilitate the EU intraday market coupling process, therefore are positive compared to the baseline. As the Original also considers the balancing processes it is the preferred option. The Original Proposal is preferred as it provides a stronger incentive on parties to invest appropriately in their IT systems and processes to meet the grid code requirements. The original Proposal enables alteration of interconnector data up to 10 minutes after gate closure and this should be complied with. This will ensure that both the intraday and balancing markets can be implemented, and therefore deliver compliance with both CACM and Balancing EU Guidelines. Any additional relief afforded by WACM 1 or WACM 2 will introduce additional risk of non-compliance and additional costs for GB consumers. Page | 19 The original Proposal provides an additional ten minutes of processing time for Interconnector parties and this should be sufficient for Interconnector processes to complete efficiently.

2. Do you support the proposed implementation approach? If not, please provide reasoning why.	Yes
3. Do you have any other comments?	No

Annex 4 – WACM1

Alternative request Proposal form

Grid Code

What stage is this document at?

01	Proposed alternative
02	Formal alternative

GC0099 WACM1

Mod Title: Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM)

Purpose of alternative Proposal:
This alternative proposes a short amendment to the Original GC0099 modification proposal to introduce a performance level to the legal text. The amendment, whilst retaining the over-arching principles of the Original, would reduce the risk of external factors causing Interconnector Owners to miss the deadline and face potential severe penalties as a result.

Date submitted to Code Administrator: 30th November 2017

You are: A Workgroup member

Workgroup vote outcome: Formal alternative

Contents

Any Questions?

Contact:
Christine Brown
Code Administrator
christine.brown1@nationalgrid.com
01926 65 3328

Alternative Proposer(s):
Caroline Kluyver
National Grid Interconnectors
Caroline.Kluyver@nationalgrid.com
07771 938552

1 Alternative proposed solution for workgroup review

This modification is the same as the original, other than the addition of a performance level for meeting the 10 minute deadline to submit ISTs.

The text would read:

BC2.13 LIAISON WITH INTERCONNECTOR OWNERS

(a) Calculate the Interconnector Scheduled Transfer (IST)

Interconnector Owners shall deliver an updated IST to NGET by 10 minutes after each intraday cross-zonal gate closure time, at least 96% of the time per calendar month. The updated IST shall fully reflect the results of the single intraday market coupling.

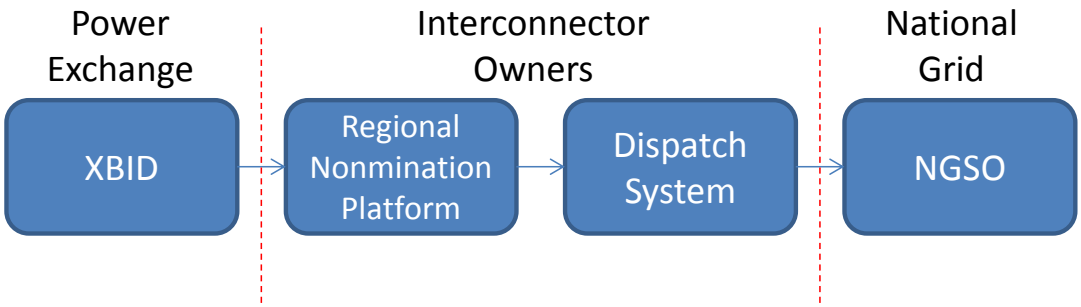
2 Difference between this proposal and Original

In the Original, Interconnector Owners risk being in breach of the Grid Code on occasions when IST files have not been received by NGET within 10 minutes of intraday cross-zonal gate closure.

Interconnector Owners expect that the overwhelming majority of IST files will indeed be delivered to NGSO within the 10 minute deadline leaving enough time for NGSO to provide its reserve requirement to TERRE within the 15 minute deadline.
The Interconnector Owner Systems will receive the Intraday information from XBID only after 4 minutes and 45 seconds of the gate closure but the systems are designed to complete the processing under 10 minutes to meet the strict TERRE timescales for NGSO. However, the systems currently being built by interconnectors to accommodate CACM and FCA Guidelines rely on the use of the internet as a communication medium between sender and receiver. Therefore, Interconnector Owners are unable to absolutely guarantee NGET will receive the files within 10 minutes where there are internet disruptions that are outside the control of Interconnector Owners. Clearly, Interconnector Owners wish to avoid being in breach of the Grid Code.

3 Justification for alternative proposal against Grid Code objectives

The only way for Interconnector Owners to reduce the risk of reliability of Internet based delivery of IST files within 10 minutes is to install dedicated telecommunication lines that avoid using the internet. The costs of such an undertaking would be substantial especially due to the number of systems involved in the creation of IST files, with an ongoing overhead, costs which would ultimately be borne by consumers.



The diagram above shows that each Interconnector Owner would be required to install at least 3 dedicated communication lines. Estimates suggest each line would cost about £300k to install with a £40k pa running cost for each individual Interconnector Owner. With 10 interconnectors in existence or expected to come online within the next few years, the costs could exceed £9m for installation and £1.2m per year in fees. It is unclear whether this level of financial commitment would be an efficient investment at this point even though some synergies could be envisaged.

Clearly, failure to receive IST files within the required time also has consequences for NGSO. On the expected rare occasion where files are not received on time, the NGSO will be facing an incomplete picture of interconnector flows, which may lead to NGSO being forced to take a more conservative approach to reserve procurement. This could also have a cost to consumers.

Faced with the above trade-off, it would make more sense at this time to take a pragmatic approach because there are a number of significant uncertainties that mean we simply don't know what the best path will be:

1. The systems are designed to meet the timescales required for TERRE. However all the systems are currently under development and end to end business process involving these new systems are not yet proven; and
2. The ongoing Brexit debate means that we do not yet know whether GB will retain access to the IEM and if or when GB will participate in XBID or TERRE; and
3. TERRE is not yet operational and the absolute requirement to submit reserve requirements within 15 minutes is not guaranteed. It is possible that a slightly later time would be workable.
4. Interconnector Owners will be submitting the IST files every hour. In case of a failure and in order to reduce the risk of not able to participate in TERRE a reasonable estimate could be derived from the last hour IST file and the latest submitted FPNs.

This amendment proposal recognises that the Grid Code should include a clear technical and objective standard around which Interconnector Owners should design their systems. But this amendment is also pragmatic. Once the IS systems, and political/ regulatory uncertainty related to Brexit, the IEM, TERRE, and XBID are known, NGSO and Interconnector Owners will be in a far better position to provide robust evidence on the timings for file submissions.

Meeting the 10 minute deadline on 95% of occasions remains a high hurdle for Interconnector Owners and will drive system and process changes, but avoids potentially unnecessary, excessive, and inefficient costs at this time. Once all the

systems are operational and it proves that Interconnector Owners are unable to meet these SLAs in future, the Grid Code can be justifiably tightened to meet the requirement. That evidence does not exist today.

The Original amendment notes that it is "neutral" to the 5th objective of promoting efficiency in the implementation of Grid Code arrangements. Because this alternative amendment is also pragmatic, it can be considered to be positive against this objective as well as remaining positive against the other objectives.

Impact of the modification on the Relevant Objectives:	
Relevant Objective	**Identified impact**
To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity	**Positive**
To facilitate 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**
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**
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	**Positive**
To promote efficiency in the implementation and administration of the Grid Code arrangements	**Positive**

…

4 Impacts and Other Considerations

As per the Original

5 Implementation

As per the Original

6 Legal Text

BC1.4.7 Special Provisions Relating To Interconnector Owners

(a) Calculate the Interconnector Scheduled Transfer (IST)

Interconnector Owners shall deliver an IST to NGET by 1230 each day which reflects the results of the single day ahead market coupling. Updates to the IST shall be delivered to NGET at least every hour between the intraday cross-zonal gate opening time and the intraday cross-zonal gate closure time.

…

BC2.13 LIAISON WITH INTERCONNECTOR OWNERS

(a) Calculate the Interconnector Scheduled Transfer (IST)

Interconnector Owners shall deliver an updated IST to NGET by 10 minutes after each intraday cross-zonal gate closure time, at least 96% of the time per calendar month. The updated IST shall fully reflect the results of the single intraday market coupling.

Annex 5 – WACM2

What stage is this document at?

01 Proposed alternative

02 Formal alternative

GC0099 WACM2

Establishing a common approach to interconnector scheduling consistent with the single intraday market coupling processes set out within Regulation (EU) 2015/1222 (CACM)

Purpose of alternative Proposal:

This alternative proposes a short amendment to the Original GC0099 modification proposal to introduce “best endeavours” wording to the legal text. The amendment, whilst retaining the over-arching principles of the Original, would avoid an overly onerous compliance requirement at a time when it remains unclear whether such a hard-coded 10 minute IST file delivery deadline is actually required.

Date submitted to Code Administrator: 14th November 2017

You are: A Workgroup member or member

Workgroup vote outcome: Formal alternative

Contents

Any Questions?

Contact:
Christine Brown
Code Administrator

christine.brown1@nationalgrid.com

01926 65 3328

Alternative Proposer(s):
Nick Pittarello
National Grid Interconnectors

Nick.Pittarello@nationalgrid.com

07825 725879

1 Alternative proposed solution for workgroup review

This alternative seeks to amend the Original legal text in section BC2.13 Liaison with Interconnector Owners to include the words "*use best endeavours to*". The text would read:

BC2.13 LIAISON WITH INTERCONNECTOR OWNERS

(a) Calculate the Interconnector Scheduled Transfer (IST)

Interconnector Owners shall use best endeavours to deliver an updated IST to NGET by 10 minutes after each intraday cross-zonal gate closure time. The updated IST shall fully reflect the results of the single intraday market coupling.

…

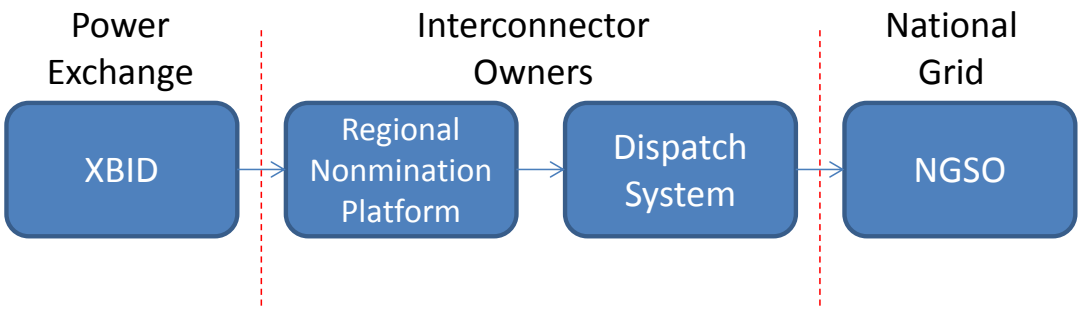
2 Difference between this proposal and Original

In the Original, Interconnector Owners risk being in breach of the Grid Code where IST files fail to be received by NGET within 10 minutes of intraday cross-zonal gate closure.

Interconnector Owners expect that the overwhelming majority of IST files will indeed be delivered to NGSO within the 10 minute deadline leaving enough time for NGSO to provide its reserve requirement to TERRE within the 15 minute deadline. However, the systems currently being built by interconnectors to accommodate CACM and FCA Guidelines rely on the use of the internet as a communication medium between sender and receiver. Therefore, Interconnector Owners are unable to absolutely guarantee NGET will receive the files within 10 minutes where there are internet disruptions that are outside the control of Interconnector Owners. Clearly, Interconnector Owners wish to avoid being in breach of the Grid Code.

3 Justification for alternative proposal against Grid Code objectives

The only way for Interconnector Owners to absolutely guarantee delivery of IST files within 10 minutes is to install dedicated telecommunication lines that avoid using the internet. The costs of such an undertaking would be substantial, with an ongoing overhead, costs which would ultimately be borne by consumers.



The diagram above shows that each Interconnector Owner would be required to install at least 3 dedicated communication lines. Estimates suggest each line would cost about £300k to install with a £40k pa running cost for each individual Interconnector Owner. With 10 interconnectors in existence or expected to come online within the next few years, the costs could exceed £9m for installation and £1.2m per year in fees. It is unclear whether this level of financial commitment would be an efficient investment at this point.

Clearly, failure to receive IST files within the required time also has consequences for NGSO. On the expected rare occasion where files are not received on time, the NGSO will be facing an incomplete picture of interconnector flows, which may lead to NGSO being forced to take a more conservative approach to reserve procurement. This could also have a cost to consumers.

Faced with the above trade-off, it would make more sense at this time to take a pragmatic approach because there are a number of significant uncertainties that mean we simply don't know what the best path will be:

1. The systems are not yet in place and we do not yet understand how fast they will be; and
2. The ongoing Brexit debate means that we do not yet know whether GB will retain access to the IEM and if or when GB will participate in XBID or TERRE; and
3. TERRE is not yet operational and the absolute requirement to submit reserve requirements within 15 minutes is not guaranteed. It is possible that a slightly later time would be workable.

This amendment proposal recognises that the Grid Code should include a clear technical and objective standard around which Interconnector Owners should design their systems. But this amendment is also pragmatic. Once the IS systems, and political/ regulatory uncertainty related to Brexit, the IEM, TERRE, and XBID are known, NGSO and Interconnector Owners will be in a far better position to provide robust evidence on the timings for file submissions.

"Best endeavours" remain a high hurdle for Interconnector Owners, but avoids potentially unnecessary, excessive, and inefficient costs at this time. If this proposed amendment is implemented and proves to be unsatisfactory in future, the Grid Code can be justifiably tightened to meet the requirement. That evidence does not exist today.

The Original amendment notes that it is "neutral" to the 5th objective of promoting efficiency in the implementation of Grid Code arrangements. Because this alternative amendment is also pragmatic, it can be considered to be positive against this objective as well as remaining positive against the other objectives.

Impact of the modification on the Relevant Objectives:	
Relevant Objective	**Identified impact**
To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity	**Positive**
To facilitate 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**
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**
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	**Positive**
To promote efficiency in the implementation and administration of the Grid Code arrangements	**Positive**

4 Impacts and Other Considerations

As per the Original

5 Implementation

As per the Original

6 Legal Text

BC1.4.7 Special Provisions Relating To Interconnector Owners

(a) Calculate the Interconnector Scheduled Transfer (IST)

Interconnector Owners shall deliver an IST to NGET by 1230 each day which reflects the results of the single day ahead market coupling. Updates to the IST shall be delivered to NGET at least every hour between the intraday cross-zonal gate opening time and the intraday cross-zonal gate closure time.

…

BC2.13 LIAISON WITH INTERCONNECTOR OWNERS

(a) Calculate the Interconnector Scheduled Transfer (IST)

Interconnector Owners shall use best endeavours to deliver an updated IST to NGET by 10 minutes after each intraday cross-zonal gate closure time. The updated IST shall fully reflect the results of the single intraday market coupling.

Annex 6 – Attendance Register

A – Attended
X – Absent
D – Dial-in

Members with an * joined the Workgroup following the action to reach out to other User's for the purpose of this Modification.

Name	Organisation	Role	07/06/2017	25/07/2017	07/11/2017	24/01/2018
Chrissie Brown	National Grid	Chair	X	X	X	A
John Martin	National Grid	Chair	A	X	X	X
Taran Heir	National Grid	Technical Secretary	A	A	X	A
Heena Chauhan	National Grid	Technical Secretary	X	X	A	X
Robert Selbie	National Grid (Proposer)	NG Representative	A	A	A	A
Elliott Hall	ELEXON	Chair	X	A	A	X
Chris Wood	ELEXON	Lead Analyst	X	A	A	A
Michael Carrington	Eirgrid	Workgroup Member	A	X	D	X
Alastair Frew	Scottish Power	Workgroup Member	A	X	X	X
Alex Roberts*	Eleclink	Workgroup Member	X	A	A	A
Christopher Smith	National Grid Ventures	Workgroup Member	X	X	X	X
Jennifer McCartney	National Grid Ventures	Workgroup Member	X	X	X	X
Caroline	National Grid	Workgroup	A	A	A	D

Kluyver	Interconnectors	Member representing Interconnectors				
Peter Bolitho	Waterswye – (nominated by Calon Energy Limited)	Workgroup Member	A	A	D	X
Nicholas Rubin	ELEXON	Workgroup Member	A	A	A	X
John Gleadow	North Connect KS	Workgroup Member	A	X	X	X
Nick Pittarello*	National Grid Interconnectors	Workgroup Member representing Interconnectors	X	A	A	A
Paul Youngman	DRAX Power	Workgroup Member	X	A	A	A
Thomas Jones	Ofgem	Authority Representative	X	A	X	A
Jakub Pilecky	Britned	Observer	X	A	X	X