

Grid Code Administrator Consultation Response Proforma

GC0127 & GC0128 – EU Code Emergency & Restoration: Requirements resulting from System Restoration and Defence Plans

Industry parties are invited to respond to this Code Administrator 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 **5:00pm** on **18 November 2019** to grid.code@nationalgrideso.com. Please note that any responses received after the deadline or sent to a different email address may not be included within the Draft Final Modification Report to the Grid Code Review Panel.

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Respondent:	<i>Alan Creighton</i>
Company Name:	<i>Northern Powergrid</i>
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<ul style="list-style-type: none">(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and(e) To promote efficiency in the implementation and administration of the Grid Code arrangements

Code Administrator Consultation questions

Q	Question	Response
1	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p>The Original proposal addresses the necessary changes to the Grid Code, to implement ER NC taking into account NGESO's interpretation of the application flexibility in ER NC. We are of the view that Alternative 1 exceeds this requirement, potentially imposing additional cost on Generators. Alternative 2, whilst it has merits, seems to introduce additional technical risk and needs further consideration before being implemented, particularly as its application is retrospective.</p>
2	<p>Do you support the proposed implementation approach?</p>	<p>Yes, for the Original proposal.</p>
3	<p>Do you have any other comments in relation to GC0127 & GC0128?</p>	<p>Comments on the Proposers Grid Code text:</p> <p>OC5.5.4 Table. The proposed last row makes reference to a Network Operator, yet there are no Network Operator obligations in the associated DRSC11.7.</p> <p>OC5.7.1 (b) (iv) makes reference to a Quick Start Re-Synchronisation Test, whereas the defined term is a Quick Resynchronisation Unit Test</p> <p>OC5.7.4. In the 4 Sept 2019 G Code there is no section OC5.7.3 - is there a paragraph missing here?</p> <p>OC5.7.4 makes reference to a Quick Start Re-Synchronisation Test, whereas the defined term is a Quick Resynchronisation Unit Test.</p> <p>OC5.7.4 final paragraph makes reference to OC5.7.2.3 (a)-(e). In the 4 Sept 2019 G Code there is no section OC5.7.2.3 (a)-(e).</p> <p>Comments on the Workgroup Alternative Grid Code text:</p>

Q	Question	Response
		<p>We are concerned that the inclusion of Type A, B and C Power Generating Modules is over and above the minimum that which is required under the ER NC and that this would impose additional costs on Generators, given that the System Defence Plan (Version 2) relates only to those Generators with a CUSC contract.</p> <p>We are also concerned that the legal text for Alternatives 1 has not been fully developed. By way of example:</p> <ul style="list-style-type: none"> the proposed Grid Code definition of a 'GB Emergency Restoration Code Provider', is 'A party who is not a CUSC Party as defined in GERC.3.2 of the GB Emergency and Restoration Code (GERC)'. A party who is not a CUSC Party is not obligated to comply with the Grid Code, so would not need to comply with proposed GERC. Defining a Significant Grid User as 'an SGU in Article 2 of European Regulation (EU) 2017/2196', as discussed in the Consultation document is unhelpful to Users, and further clarity is required. <p>We recognise that Alternative 2 includes the requirement for Energy Storage Units to switch from import to export operation with falling frequency, but particularly as this requirement would be applied retrospectively to existing storage installation, if there is flexibility in the application of the ER NC, then it would seem reasonable to make sure that this functionality is properly considered before being implemented.</p>

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Respondent:	<i>Antony Johnson</i> <i>Telephone:- 01926 655466</i> <i>E-Mail:- Antony.Johnson@nationalgrideso.com</i>
Company Name:	NGESO
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<ul style="list-style-type: none">(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and

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Code Administrator Consultation questions

Q	Question	Response
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1	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p>In implementing elements of the European Emergency and Restoration Code, specifically any user facing changes associated with the System Defence and Restoration plans, any correct implementation of GC0127/8 enhances system security so fulfilling objective (c).</p> <p>Both of the original proposal and WAGCM 2 also fulfil objective (d) in efficiently discharging the obligations of European legislation.</p> <p>WAGCM 1 and 3, in extending the requirements to provide services to all those parties where NGESO is 'entitled' to seek these (as set out in various places in the E&R code), is not efficient and therefore has a negative effect on objective (d). Because of the difficulties in achieving these services contractually if approved it will also represent a barrier to entry, particularly for smaller embedded generators, and therefore negatively impacts objective (b). It is also based on an incorrect legal premise, and is therefore negative against objective (e).</p> <p>We believe that the implementation of GC0127 and GC0128 should adopt a practical and pragmatic approach. We also believe that there is flexibility in the European Emergency and Restoration Code and based on the legal advice received, presented to the workgroup and included in the report, we consider that the approach of making only those changes necessary is appropriate, while not precluding future development. Adopting a wider approach as in WAGCMs 1&3 would require input from smaller industry participants so that they understand the implications of any proposed changes, the costs to which they could be exposed and the time required to install any facilities. The ESO is fully committed to exploring these issues in the longer term but wishes to do this within the wider context of the development of the system and to be able to take a more holistic considered view which is not possible within the required compliance deadline for the elements of the E&R code within GC0127/8 of 18 Dec 2019.</p> <p>We support either of the original or WAGCM 2 in achieving a proportionate implementation of the</p>
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Q	Question	Response
		E&R requirements; however, as WAGCM 2 provides a better alignment with Article 15(3) of the Emergency and Restoration Code and provides sufficient flexibility to developers without being excessively prescriptive this is our preference to be taken forwards.
2	Do you support the proposed implementation approach?	Yes for the Original Yes for WAGCM 2 No for WAGCMs 1 and 3 – which would in any case be very difficult to achieve due to the lack of contractual relationships between NGESO and smaller embedded parties.
3	Do you have any other comments in relation to GC0127 & GC0128?	No

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Respondent:	<i>Andy Vaudin</i> <i>andrew.vaudin@edfenergy.com</i>
Company Name:	<i>EDF Energy</i>
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<p>(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity</p> <p>(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);</p> <p>(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;</p> <p>(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and</p>

	(e) To promote efficiency in the implementation and administration of the Grid Code arrangements
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Code Administrator Consultation questions

Q	Question	Response
1	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p>We agree that these modifications facilitate the Grid Code objective (d) above, subject to our comments on retrospective application of plant modifications included in 2 below.</p>

Q	Question	Response
2	Do you support the proposed implementation approach?	<ul style="list-style-type: none"> • We do not believe that the implementation approach of retrospective application to existing storage plant of the GC0127 Modification has been adequately justified. This modification will require storage plant to trip when in an import mode of operation and system frequency is low. • This could be a significant modification with cost implications for retrospective implementation for existing storage plant. • This retrospective application to existing plant is in direct contrast with the main storage GC0096 Grid Code modification, which will not be applicable to existing plant. It is this GC0096 Modification that will introduce technical requirements for new storage into the Grid Code. • The workgroup report states that “the updates proposed as part of these two Modifications are generally considered minor”, but provides no further detail. The report does not state that any workgroup discussions having been held with existing transmission connected storage owners concerning the implications of these modifications. • The workgroup report does not include consideration of how this modification would be implemented for existing storage plant operating in EFR mode. • There is no advice on the timescales that existing plant will have to follow to implement the modification.
3	Do you have any other comments in relation to GC0127 & GC0128?	None

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Respondent:	<i>Mike Kay</i>
Company Name:	<i>P2 Analysis Ltd</i>
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<p>(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity</p> <p>(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);</p> <p>(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;</p> <p>(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and</p> <p>(e) To promote efficiency in the implementation and administration of the Grid Code arrangements</p>

Commented [MK1]: What are these paragraphs?

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Code Administrator Consultation questions

Q	Question	M
1	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p>The original modification addresses the necessary changes to the Grid Code, recognizing the inherent flexibility of the ER NC.</p> <p>The three WAGCMs fail objective (d) in that (i) they go beyond what the ER NC actually asks for (although being consistent in what it does empower should the TSO extend the inclusion of service providers) and (ii) the legal drafting is unworkable -see comments below.</p>
2	<p>Do you support the proposed implementation approach?</p>	<p>Yes for the original.</p>

Q	Question	M
3	<p>Do you have any other comments in relation to GC0127 & GC0128?</p>	<p>The automatic extension beyond below Type C, as provided for in the WAGCMs, is over and above what Articles 2.1 and 11.4 require – ie that the TSO's defence plan defines the SGUs that are not Type C or D.</p> <p>The drafting of the WAGCMs does not work. Consider WAGCM1 – the definition of “GB Emergency Code Provider” is a non-cusc party. The Grid Code does not apply to non-cusc parties – so what is the point of drafting requirements for them if they cannot be applied through the Grid Code? To implement the intent here, the obligation would have to be put on DNOs, who would then have to implement the requirements via the D Code.</p> <p>The definition of “Restoration Service Provider” is effectively circular – it is inappropriate to define it by reference to the ER NC because the ER NC defines it as what the TSO includes in its System Restoration Plan.</p> <p>Similarly GERC.3.2(ii) is an inappropriate circular reference to ER NC.</p>

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Respondent:	<i>Graeme Vincent</i> <i>graeme.vincent@spenergynetworks.co.uk</i>
Company Name:	<i>SP EnergyNetworks</i>
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<ul style="list-style-type: none">(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and(e) To promote efficiency in the implementation and administration of the Grid Code arrangements

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1	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p>Whilst recognising the intent of the alternatives, it is not possible currently to see how these can be extended to non-CUSC parties through only amendments to the Grid codes. To extend fully below Type C will require an obligation on DNOs and consequential modifications to the Distribution Code to enable these requirements to be passed through to distribution connected customers. Currently therefore the original would better facilitate the objectives, notwithstanding the comments below.</p>
2	<p>Do you support the proposed implementation approach?</p>	<p>As the System Defence and System Restoration Plans have yet to be finalised, it may be difficult to fulfil the implementation especially if additional requirements or parties are identified following any changes to these documents and in particular the proposed criteria for inclusion within the SGU or High priority SGU list.</p>

Q	Question	Response
3	<p>Do you have any other comments in relation to GC0127 & GC0128?</p>	<p>The purpose of the modification states “The European Emergency and Restoration Network Code (“E&R NC”) requires the publication of a System Defence Plan and a System Restoration Plan. This Modification seeks to incorporate the obligations on GB Parties arising from the System Defence Plan and the System Restoration Plan into the GB Grid Code that need to be implemented by 18 December 2019.</p> <p>We have concerns that the solutions which have been developed by the working have not kept pace with the amendments being requested by Ofgem. Indeed, the most recent request for amendments was made after the Code Administration Consultation was issued. It is therefore difficult to see how the modification can be completed when the parties to which it applies has yet to be fully determined.</p> <p>Comments on legal text below;</p> <p>Alternative 1: GB Emergency and Restoration Code (GERC) There are two paragraphs which are identified as GERC.3.2. The latter paragraph should be referenced as GERC.3.3.</p> <p>GERC.3.2(vi) makes reference to GERC3.2(viii), which doesn’t exist. If reference is to another paragraph it should start GERC.3.2 (....</p> <p>GERC.4.2 and 4.3. What is the purpose of adding (GB) in front of Defence Service Providers, System Defence Plan, Restoration Service providers and System Restoration Plan? Adding GB doesn’t create another class of User or is it being used to signify a different (undefined) user?</p> <p>Alternative 2: PC.A.5.5.4 – is this retrospective on all electricity storage modules?</p>

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Respondent:	<i>Richard Wilson</i> <i>Richard.wilson@ukpowernetworks.co.uk</i>
Company Name:	<i>UK Power Networks</i>
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<ul style="list-style-type: none">(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and

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1	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p>The original modification addresses the necessary changes to the Grid Code, recognizing the inherent flexibility of the ER NC.</p> <p>The three WAGCMs fail objective (d) in that (i) they go beyond what the ER NC actually asks for (although being consistent in what it does empower should the TSO extend the inclusion of service providers) and (ii) the legal drafting is unworkable -see comments below.</p>
2	<p>Do you support the proposed implementation approach?</p>	<p>Yes for the original.</p>

Q	Question	M
3	<p>Do you have any other comments in relation to GC0127 & GC0128?</p>	<p>The automatic extension beyond below Type C, as provided for in the WAGCMs, is over and above what Articles 2.1 and 11.4 require – ie that the TSO's defence plan defines the SGUs that are not Type C or D.</p> <p>The drafting of the WAGCMs does not work. Consider WAGCM1 – the definition of “GB Emergency Code Provider” is a non-cusc party. The Grid Code does not apply to non-cusc parties – so what is the point of drafting requirements for them if they cannot be applied through the Grid Code? To implement the intent here, the obligation would have to be put on DNOs, who would then have to implement the requirements via the D Code.</p> <p>The definition of “Restoration Service Provider” is effectively circular – it is inappropriate to define it by reference to the ER NC because the ER NC defines it as what the TSO includes in its System Restoration Plan.</p> <p>Similarly GERC.3.2(ii) is an inappropriate circular reference to ER NC.</p>

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Respondent:	<i>Garth Graham (garth.graham@sse.com)</i>
Company Name:	<i>SSE Generation Ltd.,</i>
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<ul style="list-style-type: none">(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and(e) To promote efficiency in the implementation and administration of the Grid Code arrangements

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<p>1</p>	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p><u>GC0127 Original</u></p> <p>The proposal fails to better achieve Applicable Objective (d) as it does <u>not</u> implement:</p> <ul style="list-style-type: none"> (i) the ‘Significant Grid User’ legal arrangements set out in Article 2 of the Emergency & Restoration Network Code on all GB parties; be they ‘CUSC Parties’ or ‘non-CUSC Parties’; or (ii) the Article 15(3) obligations in respect of storage units (the importance of which, in terms of changing their mode of operation ahead of LFDD activation, was so clearly demonstrated, in terms of GB, by the 9th August 2019 event). <p>In terms of (i) the GC0127 (and GC0128) Original proposal (as detailed in the Proposer’s Solution in Section 3 of the consultation document) limits the obligations arising from GC0127 to ‘CUSC Parties’ only.</p> <p>Therefore, within the GC0127 (and GC0128) Original, no account has been taken of ‘non-CUSC Parties’.</p> <p>This is evidenced in Ofgem’s 21st October 2019 letter ¹ where the NRA specifically requires that account is taken, by the TSO, of non-CUSC parties:</p> <p>“We [Ofgem] request the ESO to review its submission to ensure that it includes all parties who are within scope of these codes, <u>including non-CUSC parties, in its list of SGUs.</u>” [emphasis added]</p> <p>“Amend the list of SGUs to include all SGUs who are subject to the mandatory requirements of the RfG, DCC and HVDC codes are, <u>including non-CUSC parties</u>” [emphasis added]</p> <p>At the 12th November 2019 JESG meeting a further issue arose in respect of the proposed ‘Significant Grid User’ arrangements arising from GC0127 (and GC0128) Original.</p> <p>The proposer of GC0127 (and GC0128) Original had based their use of ‘CUSC Parties’ on the</p>
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¹ https://www.ofgem.gov.uk/system/files/docs/2019/10/rfa2_ncer_proposals_tcs_sgu_list_hp_sgu_list.pdf

		<p>premise that all those parties were bound by the commensurate Grid Code obligations (by virtue of being a 'CUSC Party').</p> <p>This is shown, for example, in a number of places within Table B1 (pages 21-30 in the consultation document) in the following terms:</p> <p><i>“As the Generator has a CUSC contract and obliged to satisfy the requirements of the Grid Code, then such parties would be within the scope of EU NCER.”</i></p> <p>However, it was pointed out to the Proposer of GC0127 (and GC0128) Original at the JESG November meeting that there are in fact two types of 'CUSC Party': (1) those with TEC and (2) those without TEC; and that those CUSC Parties without TEC did not have to comply with the Grid Code in the way that the Proposer had assumed with GC0127 (and GC0128) Original.</p> <p>During the JESG discussions it was clear that the Proposer of GC0127 (and GC0128) Original had not appreciated that obliging 'CUSC Parties without TEC' to comply with the Grid Code in the way that the Proposer had assumed with GC0127 (and GC0128) Original would have wider implications on those parties (and, furthermore, this effect, on those 'CUSC Parties without TEC', had <u>not</u> been assessed by with GC0127/GC1028 Workgroup).</p> <p>In terms of (ii) the GC0127 Original proposal (as detailed in the Proposer's Solution in Section 3 of the consultation document) does not address the GB application of the Article 15(3) obligations on storage units in terms of their operating mode(s) and LFDD activation.</p> <p>Given the above, as GC0127 Original does not “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” (as regards (i) SGUs and (ii) storage units) therefore this would also be detrimental in terms of Applicable Objective (a), (b) and (c) (it is neutral in terms of (e)).</p>
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This is because it would be detrimental to system security to not apply the emergency and restoration requirements that have been determined (as set out in the Recitals of Regulation 2017/2196) as being beneficial to system security and, therefore, this would also be detrimental in terms of competition in the generation and supply of electricity not least because by having a limited number of GB parties ('CUSC Parties' only) who could provide system defence services or system restoration services (as set out in the Emergency & Restoration Network Code) this restricts 'non-CUSC Parties' from providing system defence services and/or system restoration services which, therefore, reduces competition in the provision of those services.

GC0128

As noted under our comments above in respect of GC0127 Original, the GC0128 Original proposal relies upon a flawed application of the Emergency & Restoration Network Code obligations to SGUs in GB. For the sake of brevity we do not repeat the points made under GC0127 Original above here – however, they should be read as to also being relevant and applicable in terms of GC0128 Original.

Therefore, like GC0127 Original, the GC0128 Original proposal does not better meet Applicable Objectives (d), (a), (b) and (c) (it is neutral in terms of (e)) for the reasons we have detailed under GC0127 Original above.

GC0127 WACM1

As noted on page 50 of the consultation, WACM 1 is:

"The same as the Original, plus: "That the scope of GB parties who are required, according to GC0127 and GC0128, to act in the event of a System Defence or System Restoration situation is as broad as the scope of E&R NC as set out in Article 2. The Original, for example, does not extend to Type B generators (Article 2(2)(b)) and re-dispatchers of power generating modules and demand facilities (Article 2(2)(e))"

As such GC0127 WACM1 addresses the scope aspects of the Emergency & Restoration Network Code Article 2 that are, as noted under GC0127 Original (i) above, missing within the GC0127 Original proposal.

As such this is better at meeting the Applicable Objectives (d), (a), (b) and (c) (it is neutral in terms of (e)) when compared with the GC0127 Original or the current Grid Code baseline.

GC0127 WACM2

As noted on page 50 of the consultation, WACM 2 is:

“The same as the Original, plus: “That the role that existing and new energy storage, in accordance with Article 2(5), can perform ahead of LFDD activation, as set out in Article 15(3) of E&R NC, is reflected in the GC0127 solution”.”

As such GC0127 WACM2 addresses the storage mode operation ahead of LFDD activation aspects of the Emergency & Restoration Network Code Article 15(3) that are, as noted under GC0127 Original (ii) above, missing within the GC0127 Original proposal.

As such this is better at meeting the Applicable Objectives (d), (a), (b) and (c) (it is neutral in terms of (e)) when compared with the GC0127 Original or the current Grid Code baseline.

GC0127 WACM3

As noted on page 50 of the consultation, WACM 2 is:

“The same as the Original, plus: “That the scope of GB parties who are required, according to GC0127 and GC0128, to act in the event of a System Defence or System Restoration situation is as broad as the scope of E&R NC as set out in Article 2. The Original, for example, does not extend to Type B generators (Article 2(2)(b)) and re-dispatchers of power generating modules and demand facilities (Article 2(2)(e)); and

		<p><i>That the role that existing and new energy storage, in accordance with Article 2(5), can perform ahead of LFDD activation, as set out in Article 15(3) of E&R NC, is reflected in the <u>GC0127</u> solution”.</i></p> <p>As such GC0127 WACM3 addresses both the scope aspects and the storage operation mode /LFDD activation aspects of the Emergency & Restoration Network Code, within Article 2 and Article 15(3) respectively, that are, as noted under GC0127 Original (i) and (ii) above, missing within the GC0127 Original proposal.</p> <p>As such this is better at meeting the Applicable Objectives (d), (a), (b) and (c) (it is neutral in terms of (e)) when compared with the GC0127 Original or the current Grid Code baseline.</p> <p><u>GC0128 WACM1</u></p> <p>As noted on page 50 of the consultation, WACM 1 is:</p> <p><i>“The same as the Original, plus: “That the scope of GB parties who are required, according to GC0127 and <u>GC0128</u>, to act in the event of a System Defence or System Restoration situation is as broad as the scope of E&R NC as set out in Article 2. The Original, for example, does not extend to Type B generators (Article 2(2)(b)) and re-dispatchers of power generating modules and demand facilities (Article 2(2)(e))””</i></p> <p>As such GC0128 WACM1 addresses the scope aspects of the Emergency & Restoration Network Code Article 2 that are, as noted under GC0127 Original (i) above, missing within the GC0128 Original proposal.</p> <p>As such this is better at meeting the Applicable Objectives (d), (a), (b) and (c) (it is neutral in terms of (e)) when compared with the GC0128 Original or the current Grid Code baseline.</p> <p><u>[GC0128 ‘WACM2’</u></p> <p><i>For the avoidance of doubt, and as noted on page 50 of the consultation document, the ‘WACM2’ relates only to the treatment of storage prior to LFDD activation in the context of the system</i></p>
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Q	Question	Response
		<p><i>defence arrangements and, as such, this only applies to GC0127 and not GC0128.]</i></p> <p><u>GC0128 WACM3</u></p> <p>As noted on page 50 of the consultation, WACM 2 is:</p> <p><i>“The same as the Original, plus: “That the scope of GB parties who are required, according to GC0127 and <u>GC0128</u>, to act in the event of a System Defence or System Restoration situation is as broad as the scope of E&R NC as set out in Article 2. The Original, for example, does not extend to Type B generators (Article 2(2)(b)) and re-dispatchers of power generating modules and demand facilities (Article 2(2)(e)); and That the role that existing and new energy storage, in accordance with Article 2(5), can perform ahead of LFDD activation, as set out in Article 15(3) of E&R NC, is reflected in the GC0127 solution”.”</i></p> <p>As such GC0128 WACM3 addresses the scope aspects of the Emergency & Restoration Network Code Article 15(3) that are, as noted under GC0127 Original (i) above, missing within the GC0128 Original proposal.</p> <p>As such this is better at meeting the Applicable Objectives (d), (a), (b) and (c) (it is neutral in terms of (e)) when compared with the GC0128 Original or the current Grid Code baseline.</p>
2	<p>Do you support the proposed implementation approach?</p>	<p>In light of Ofgem’s 21st October 2019 letter and that as at today date (18th November 2019) there has been, for example, no revised proposal for the terms and conditions for system defence providers and / or system restoration providers issued by the TSO for a one calendar month public consultation (as required by Article 7(1) of the Emergency & Restoration Network Code) we are not certain that it is possible to now legally meet the 17th December 2019 deadline suggested here for the implementation date for GC0127 and GC0128.</p>

Q	Question	Response
3	<p>Do you have any other comments in relation to GC0127 & GC0128?</p>	<p>We note the statement at footnote 3 on page 18 of the consultation document:</p> <p><i>“3 National Grid ESO outlined to the Workgroup that they were intending to issue these notifications over the summer of 2019.”</i></p> <p>Firstly, we are mindful that the legal obligation (“By 18 December 201<u>8</u> each TSO <u>shall</u> notify the...”) on the TSO (and possibly DSOs) to notify SGUs was set as 18th December 201<u>8</u> within the Emergency & Restoration Network Code (see, for example, Article 12(2) and (3) as well as Article 24(2) and (3)) and this obligation was <u>not</u> met within GB.</p> <p>Secondly, in respect of the suggested timing in footnote 3 itself, we note that to the best of our knowledge this notification has, to date, still <u>not</u> been issued by the TSO (and possibly DSOs) to all the SGUs in GB that fall within the scope of the Emergency & Restoration Network Code (as set out in Article 2).</p>

Grid Code Administrator Consultation Response Proforma

GC0127 & GC0128 – EU Code Emergency & Restoration: Requirements resulting from System Restoration and Defence Plans

Industry parties are invited to respond to this Code Administrator 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 **5:00pm** on **18 November 2019** to grid.code@nationalgrideso.com. Please note that any responses received after the deadline or sent to a different email address may not be included within the Draft Final Modification Report to the Grid Code Review Panel.

These responses will be included within the Final Modification Report which is submitted to the Grid Code Review Panel.

Respondent:	Alastair Frew
Company Name:	Drax Generation Enterprise Ltd
Please express your views regarding the Code Administrator Consultation, including rationale. (Please include any issues, suggestions or queries)	<ul style="list-style-type: none">(a) To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity(b) Facilitating effective competition in the generation and supply of electricity (and without limiting the foregoing, to facilitate the national electricity transmission system being made available to persons authorised to supply or generate electricity on terms which neither prevent nor restrict competition in the supply or generation of electricity);(c) Subject to sub-paragraphs (i) and (ii), to promote the security and efficiency of the electricity generation, transmission and distribution systems in the national electricity transmission system operator area taken as a whole;(d) To efficiently discharge the obligations imposed upon the licensee by this license and to comply with the Electricity Regulation and any relevant legally binding decisions of the European Commission and/or the Agency; and(e) To promote efficiency in the implementation and administration of the Grid Code arrangements

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Code Administrator Consultation questions

Q	Question	Response
1	<p>Do you believe that GC0127 & GC0128 or any of the three alternatives raised better facilitate the Grid Code objectives?</p> <p>Please include your reasoning.</p>	<p>Yes</p> <p>As it implements the requirements of the EU Emergency & Restoration Code. Whilst the Original deals with most of the requirements it does not fully deal with Article 15(3) which is dealt with better in WACM2 as this implements the requirements of article 15(3) as per the reasons given in the annex attached to the bottom of this submission.</p> <p>In terms of the Original & WACM2 verses WACM1 & WACM3 this is down to a difference in legal interpretation as to whether the TSO is allowed chose which SGU these rules apply to or not, if they are allowed to do this then the Original & WACM2 are acceptable, if not then it has to be WACM1 & WACM3 in this case WACM3 would be the preferred. Whilst WACM3 introduces the requirements of Article 15(3) to Grid Code parties there requires to be a consequential Distribution Code modification to apply this distribution connected Electricity Storage Modules.</p>
2	<p>Do you support the proposed implementation approach?</p>	<p>Yes</p>

Q	Question	Response
3	<p>Do you have any other comments in relation to GC0127 & GC0128?</p>	<p>As a Workgroup member I am not happy the way the Workgroup was run and in particular with drive to carry on and issue the Workgroup report without legal text for any of the WACMs. When the Panel instructed the Workgroup to then write legal text for the WACMs there then was a situation that technically only the Proposer of the WACMs could change their contents (in this case other parties input was generally accepted). However during the WACM discussions I would have preferred to have raised a slightly different version of WACM2 but was not allowed as this was not in the instruction from the Panel and hence restricted freedom of Open Governance. Similarly the Workgroup report was not updated to include the subsequent discussions on the WACMs as the instruction was only to produce legal text, to deal with this shortcoming I have attached an Annex which contains my interpretation of the reasoning behind WACM2.</p> <p>Going forward I will not be supporting progressing any modification without legal text unless there are assurances that if the Workgroup is then instructed to go back and produce legal text then the Workgroup return to normal operation with normal rules being applied and not a restricted set.</p>

Annex

Note this document is based on explanatory text which was circulated to the Workgroup with the 2nd draft of WACM2 legal text but has been amended in light of subsequent workgroup discussions and WACM2 legal text changes. It has been included in this consultant response as no explanation of the reasoning behind WACM2 has been included in the Workgroup Report.

WAGM2 – Solution

Early on the Workgroup the Proposer included a suggestion for Electricity Storage Modules which appeared to be mandating a response characteristic which all Electricity Storage Modules would require to be capable of achieving, these response requirements are still detailed within Workgroup Report section 3 subsection titled “Storage Providers” fourth paragraph starting “It is however important to note...” and its associated “figure 1.0”. As discussed in the Workgroup report these mandatory capabilities would be in difficult for some storage technologies to achieve and potentially exclude them from the GB market so the Proposer withdrew this from the Original.

In terms of WACM2 the Emergency & Restoration code does not actually specify that all Electricity Storage Modules need to have a mandatory capability it just requires Electricity Storage Modules, with such a capability, must use this capability in the event of a frequency drop. Article 15(3) of the Emergency and Restoration Code states that: -

“Prior to the activation of the automatic low frequency demand disconnection scheme, each TSO and DSO identified pursuant to Article 11(4) shall foresee that energy storage units acting as load connected to its system:

(a) automatically switch to generation mode within the time limit and at an active power set-point established by the TSO in the system defence plan; or

(b) when the energy storage unit is not capable of switching within the time limit established by the TSO in the system defence plan, automatically disconnect the energy storage unit acting as load”.

The key premise of this Article is that it requires setting of a time limit for reversing power flows from import to export and that this reversal of power flow will give a greater response than just tripping an Electricity Storage Module. So rather than trying to hard code a specific minimum power reversal requirement, any power reversal response which results in the Electricity Storage Modules exporting power must be better for the system than just tripping the Electricity Storage Module as more energy is being released into the system, providing it is done quickly enough. This approach also has the benefit it is not dependent on the type of technology used by the Electricity Storage Module nor does it specify how it is achieved, it only requires that if an Electricity Storage Module is capable of providing a response better than tripping within a time scale then it should be carried out.

This then raises the question of what should the time limit be set to for the required reversal of power flows?

To answer this question, it is best to review three of the largest frequency drops caused by two generating units tripping off in quick succession in recent times. These events include the last 2 occasions when the system frequency has dropped below 48.8Hz on the 27 May 2008 and 19 August 2019 and another frequency drop on the 27 April 2014. Traces of the 3 frequency responses against

time are shown in figure 1 below, note the data logging rates are approximately every 5 second for 27 May 2008 and 19 August 2019 and 20ms for the 27 April 2014.

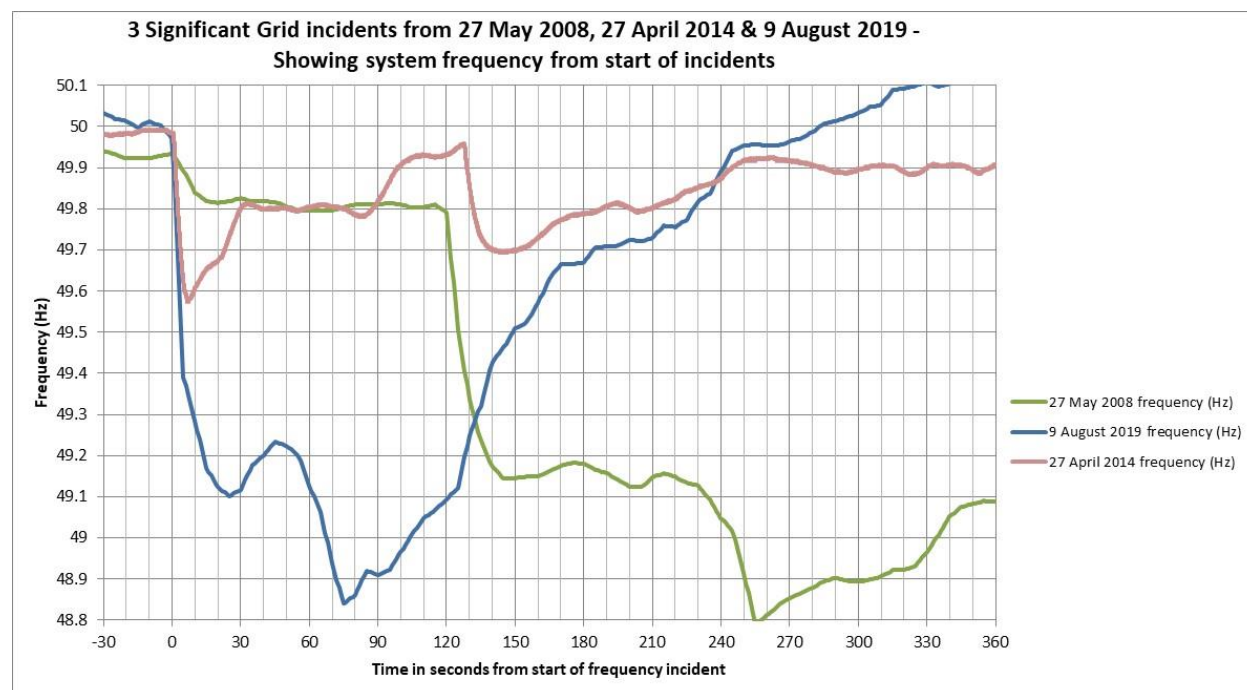


Figure 1

In an attempt to try and establish acceptable response time figure 2 shows the actual frequency traces and has used the first 2 data points of each trace to predict the initial slope and then estimates if this rate of frequency decrease had been continued how long it would take the frequency to reach 48.8Hz from the point it passed below 49.5Hz, note the time axis has now been zeroed at the point the frequency trace drops below 49.5Hz.

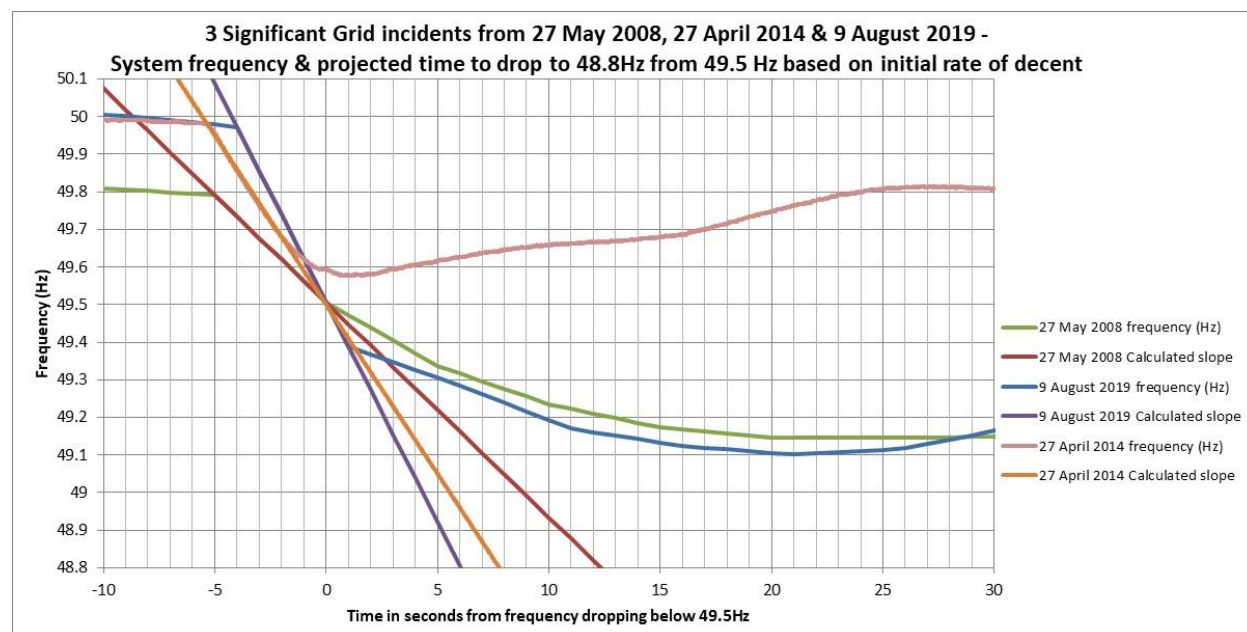


Figure 2

Looking at figure 2 it can be seen that the three events predict that if the rate of frequency drop was to continue at the original rate it would take either 6s, 8s or 12s to drop the frequency from 49.5 Hz to below 48.8Hz, so it could be suggested that a response within 6 seconds would potentially

guarantee the power flow would be reversed in time. It should be noted, however there could be a bigger system event and hence the 6 second still might not be quick enough.

An alternative approach is to look at the two events where the frequency has actually dropped below 48.8Hz as shown in figure 3 below.

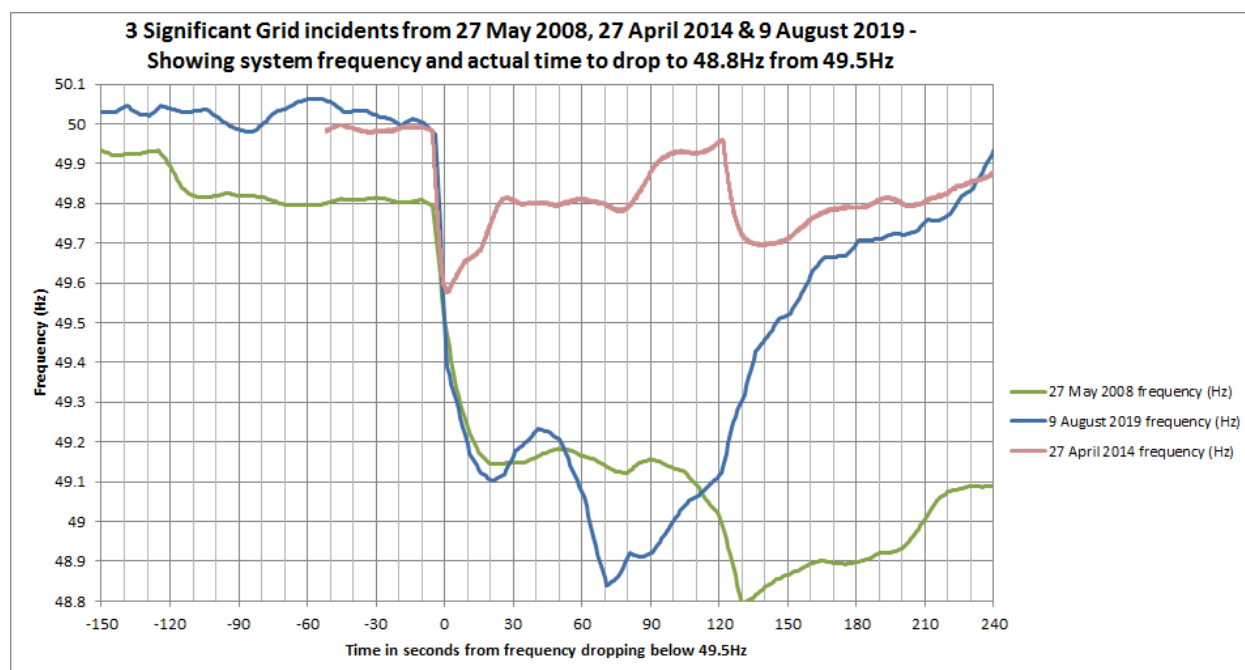


Figure 3

During these events it can be seen that after the frequency drops below 49.5Hz it actually took approximately 70 seconds on the 9 August 2019 and 130 seconds on the 27 May 2008 (note due to logging rate no points are recorded below 48.8Hz), so potentially it would be better for real events if the timescale was longer giving a greater time for more Electricity Storage Modules to reverse and hence giving more recovery response to the system. From figure 3 the permitted time for Electricity Storage Modules to reverse could potentially be as long as a minute but probably 20 second would be better.

Within the Original Proposal there is a requirement for all Electricity Storage Modules to trip at 49.2Hz which is also the intention of WACM2 but only for Electricity Storage Modules which declare they are unable to reverse power flow within the specified timescale. In addition to the 49.2Hz trip setting, WACM2 is also intended to added a second trip set point of 48.9Hz for Electricity Storage Module which had indicated they were capable of reversing their power flow but have fail to start exporting at 48.9Hz, this is to guarantee the removal their import from the system before the LFDD is triggered at 48.8Hz.

Given that there is a low level trip level being set within WACM2 which will ensure that all Electricity Storage Modules have either reversed their power flow or tripped by 48.9Hz then the concerns of requiring a short time period for power reversal to be achieved is negated and it would be beneficial to use the slower times based on the more realist events as there would be more response to the system. Hence the reason for the 20 second response time set within the legal text in WACM2.

Finally the response from an Electricity Storage Module needs to be proportionate to the frequency drop as required in ECC.6.3.7(g) and must fall with the yellow shaded area of figure 4 with the area

being defined by the response needing to be above 0MW at 48.9Hz which is the trip point at one extreme. Equally the response must not be so rapid such that it could cause system instability, hence the other extreme of the yellow shaded area only allows full power output after the frequency has dropped below 49.2Hz.

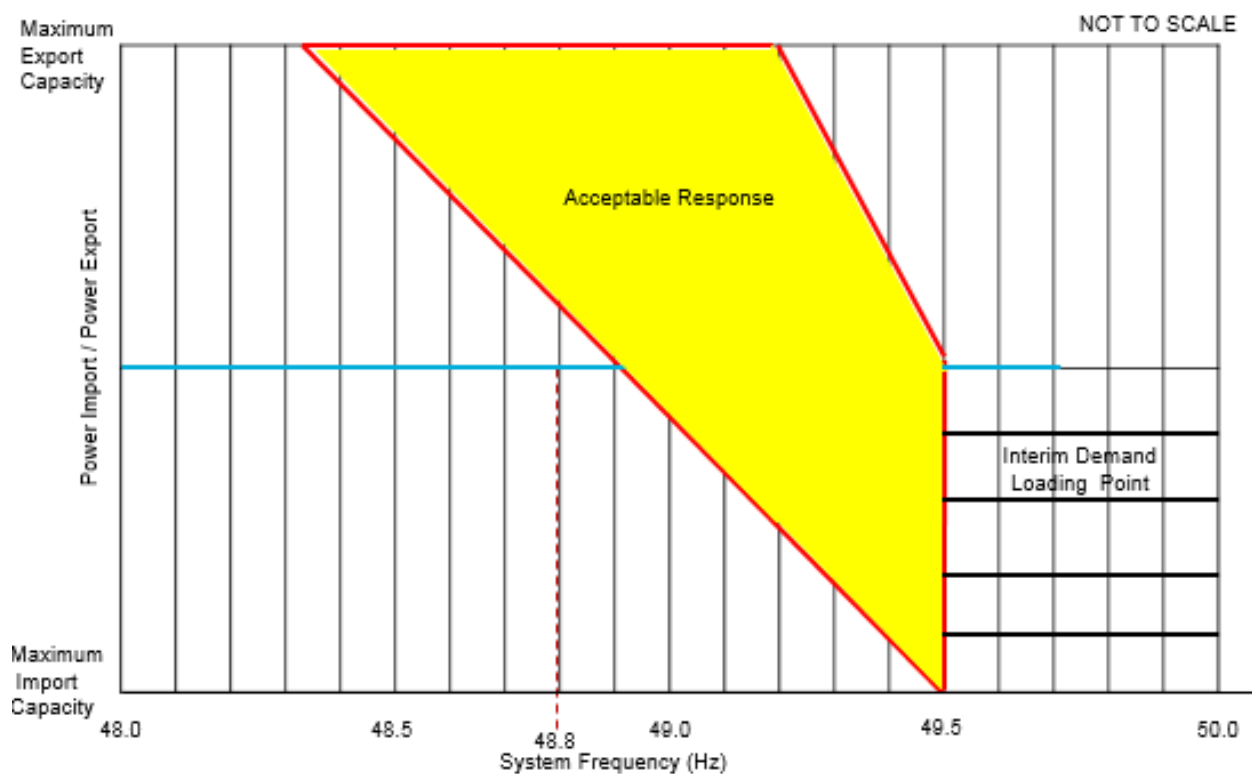


Figure 4 - WACM2 Electricity Storage Module acceptable zone for response characteristic

The final part of WACM2 requires Electricity Storage Modules to declare in the Data Registration Code submission whether or not they are capable of reversing their power flow in 20 seconds and if they are capable their response characteristic.