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## Draft Final Modification Report

# GC0173: Consistency of Technical and Compliance Requirements between GB and European Users

**Overview:** This modification is designed to ensure alignment between the Grid Code Connection Conditions and European Connection Conditions and interactions with the Compliance Processes and European Compliance Processes in addition to a data clarification issue in the Planning Code regarding thermal storage technologies.

### Modification process & timetable

1	<b>Proposal Form</b> 22 May 2024
2	<b>Workgroup Consultation</b> 20 March 2025 – 20 April 2025
3	<b>Workgroup Report</b> 16 July 2025
4	<b>Second Code Administrator Consultation</b> 26 September 2025 – 27 October 2025
5	<b>Draft Final Modification Report</b> 19 November 2025
6	<b>Final Modification Report</b> 09 December 2025
7	<b>Implementation</b> 10 Business Days after Authority decision

**Have 5 minutes?** Read our [Executive summary](#)

**Have 80 minutes?** Read the full [Draft Final Modification Report](#)

**Have 120 minutes?** Read the full Draft Final Modification Report and Annexes.

**Status summary:** The Draft Final Modification Report has been prepared for the recommendation vote at Panel.

**Panel recommendation:** The Panel will meet on 27 November 2025 to carry out their recommendation vote.

**This modification is expected to have a: Low impact** on NESO, Grid Code Users, and Transmission Licensees

**Modification drivers:** Efficiency, Governance, and Transparency

<b>Governance route</b>	Standard Governance modification with assessment by a Workgroup	
<b>Who can I talk to about the change?</b>	<b>Proposer:</b> Antony Johnson <a href="mailto:antony.johnson@neso.energy">antony.johnson@neso.energy</a>	<b>Code Administrator Chair:</b> Jess Rivalland <a href="mailto:jessica.rivalland@neso.energy">jessica.rivalland@neso.energy</a>

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## Executive Summary

The proposed modification aims to align the relevant Grid Code Connection Conditions and improve consistency with relevant Compliance Processes. Key changes include clarifying definitions, updating the requirements relating to frequency sensitive relays, and addressing known issues in the Grid Code.

### What is the issue?

As currently drafted, there are inconsistencies between the Grid Code Connection Conditions, European Connection Conditions, the relevant Compliance Processes, European Compliance Processes, and also with Engineering Recommendation G99. There are also inappropriate data requirements required for thermal storage technologies.

### What is the solution and when will it come into effect?

**Proposer's solution:** Ensuring alignment between the Grid Code Connection Conditions and European Connection Conditions, in addition to interactions with the Compliance Processes and European Compliance Processes. The solution seeks to remove unnecessary data requirements for thermal storage technologies and improve the formatting.

**Implementation date:** 10 Business Days after Authority decision.

### What is the impact if this change is made?

The low impact of this modification on NESO, Grid Code Users, and Transmission Licensees arises as the Grid Code is designed to provide greater clarity, consistency, and understanding to Users rather than developing any new requirements. In this specific modification, the opportunity has been taken to clarify a number of requirements, in particular with regard to compliance testing for Generators in respect of Power Park Modules and Electricity Storage Modules and in this respect the modification is seen as having a low impact on industry participants.

**Workgroup conclusions:** The Workgroup concluded unanimously that the Original Solution better facilitated the Applicable Grid Code Objectives than the Baseline.

**Code Administrator Consultation:** The First Code Administrator Consultation received 2 non-confidential responses and the Second Code Administrator Consultation received 1 non-confidential response.

**Panel recommendation:** Panel will meet on 27 November 2025 to carry out their recommendation vote.

## Public Interactions

Interaction with the Electricity Balancing Regulation (EBR).

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## What is the issue?

This modification is designed to ensure alignment between the Connection Conditions (CC) and European Connection Conditions (ECC) in the Grid Code, in addition to ensuring alignment with the Compliance Processes (CP) and European Compliance Processes (ECP).

This modification aims to ensure consistency between the CC and the ECC, as well as ensuring compliance with the EU Network Codes Requirements for Generators (RfG), Demand Connection Code (DCC) and High Voltage DC Network Code (HVDC). Additionally, it identifies some minor discrepancies between the ECP and Engineering Recommendation (EREC G99).

As part of this modification, it is also proposed to remove some of the data erroneously requested in respect of thermal storage technologies.

## Why change?

As currently drafted, there are inconsistencies between the requirements in the CC as applicable to GB Code Users and ECC as applicable to EU Code Users.

In addition, the CP and ECP that detail how Users are required to demonstrate their ability to satisfy the requirements of the CC and ECC have been reviewed to ensure consistency with the proposed changes in addition to identifying any consistency issues with EREC G99.

The opportunity has also been taken to update the Grid Code Planning Code relating to the removal of thermal storage data which is not related to electricity storage and was erroneously included in the Grid Code.

## What is the solution?

### Proposer's solution

The Proposers Solution covers the following high-level issues:

- a. Removal of references to thermal storage technologies in PC.A.3.1.4. e.g. Latent Heat Storage, Thermochemical Storage and Sensible Heat Storage.
- b. In CC / ECC3.3.2 change the references to GB Generator and EU Generator to Embedded Medium Power Station not subject to a Bilateral Agreement.

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- c. Updates to application of frequency sensitive relays provided for in ECC.6.3.13.
- d. CC.6.3.12 prohibits the use of rate of change of frequency relays. This prohibition was not carried over into the ECC when RfG was implemented. It is proposed to update ECC.6.3.12 & 13.
- e. Provide clarification of the ancillary services required in ECC.8.1. CC.8.1 defines Ancillary Services requirements in terms of Large and Medium Power Stations and ECC.8.1 defines the requirements in terms of Type C and Type D Power Generating Modules.
- f. Amend ECC.8.1 (c) as it contradicts ECC.8.1 (a) for directly connected Medium Power Stations.
- g. Clarify the obligations for Embedded Medium Power Stations (BEGAs) defining the requirement for Mandatory Service Agreements (MSA) other than in respect of Embedded Small Power Stations
- h. Amend ECP.A.5.8.8, ECP.A.6.4, ECP.A.6.5.1 ECP.A.6.6.8, ECP.A.6.6.10, ECP.A.6.8.1, and ECP.A.6.8.2 to improve clarity and correct references and errors where relevant.
- i. Amend ECP.A.6.2.1 to clarify the requirements for voltage control testing when operating a Power Park Module below 20% Active Power output.
- j. Amend ECP.A.6.8.1 to improve clarity.
- k. Clarify the Fault Ride Through requirements: The Grid Code specifies the simulation requirements in ECP.A.3.5 which includes unbalanced and several sets of balanced Supergrid voltage faults. EREC G99 currently only asks Users to provide unbalanced fault simulations and a single set of balanced fault simulations.
- l. Update the Voltage Control Testing requirements: +/-4% step injection test is missing from EREC G99.
- m. General typographical errors and references corrected over and above those listed above.

A detailed summary outlining the high-level Legal Text changes is included in **Annex 04**.

As part of this modification, some changes are proposed for Balancing Code 3 (BC.3.5.1) and therefore there will be an impact on the Terms and Conditions relating to Balancing Service Providers which fall under Article 18 of the Electricity Balancing Regulation (EBR – EU Regulation 2017/2195).

## Legal Text

The Legal Text for this change can be found in **Annex 03**.

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## Workgroup considerations

The Workgroup convened 6 times to discuss the identified issue within the scope of the defect, develop potential solutions, and evaluate the proposal in relation to the Applicable Code Objectives.

### Consideration of the Proposer's solution

The Workgroup reviewed the proposed Legal Text and suggested several updates.

One member raised a point regarding the formatting in the Planning Code under clause PC.A.3.1.4., suggesting that it required further review. The Proposer looked into this and confirmed that PC.A.3.1.4 did require reformatting. This change, including the removal of thermal storage data, is included as part of the Legal Text contained within **Annex 03**.

The Workgroup reached a consensus on changing the terms "GB Generator" and "EU Generator" in the CC/ECC to "Embedded Medium Power Station not subject to a Bilateral Agreement" for clarity.

It was brought to the attention of the Workgroup that ECC.6.3.2 required corrections to certain references. The NESO Subject Matter Expert (SME) stated that these corrections will be reflected in future drafts of the Legal Text to ensure accuracy and consistency.

Concerns were also addressed regarding the application of frequency sensitive relays. A Workgroup member inquired about any potential risks that the proposed text may undermine the requirements established in the Requirements for Generators (RfG). In response, another Workgroup member explained that CC.6.3.12 prohibited the use of rate of change of frequency relays, a provision that was not carried over into the ECC during the implementation of RfG. This related to a subsequent change made to ECC.6.1.2.3.1. The Proposer confirmed the revised text would not undermine the EU network Code requirements in respect of rate of change of frequency relays. The Workgroup agreed that there should be no reference to frequency level relays, as this would undermine the requirements of Article 13(1)(a)(ii) of RfG.

The issue of mandatory Ancillary Services was discussed, as this is a key item requiring attention as part of the GC0173 modification. The Proposer noted that clarification is needed to the existing Grid Code Legal Text regarding the difference between CC 8.1 and ECC 8.1, which refers to Ancillary Services including mandatory Services Agreement. The Proposer noted CC8.1 defines Ancillary Services requirements in respect of Large and Medium Power Stations, whereas ECC.8.1 defines the Ancillary Services requirements in respect of Type C and Type D Power Generating Modules rather than on a Power Station

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basis. As part of this modification, the Proposer amended ECC.8.1 to reflect the inconsistencies between CC.8.1 and ECC8.1 which was agreed with the Workgroup.

For the ECP, the NESO SME included comments from Workgroup members in the Legal Text, with suggestions for examples and corrections.

Workgroup members also reviewed ECP.A.6.2 and ECP.A.6.4. The Proposer shared the first draft of the Legal Text and noted that further comments had been received from the NESO SME, which would be incorporated into the next iteration. In terms of ECP.A.6.5.1, the NESO Engineering Compliance representative suggested the addition of examples in brackets and possibly an extra paragraph, this was included within the Legal Text.

Several Workgroup members raised concerns regarding the proposed changes to ECP.A.6.2.1, especially with regard to the 20% operation clause. They discussed the requirements for demonstrating an automatic voltage control facility in power park modules, stating that it may be possible to demonstrate these requirements regardless of their MW output. Requiring tests at 20%, especially where factors such as wind speed need to be included, can result in substantive delays to the commissioning and compliance process. The concern was that Power Park Modules can provide all of their reactive capability from designated reactive compensation equipment (and hence not dependent upon the generating units) and likewise a similar issue applies to Electricity Storage Modules such as batteries, which again are not dependent upon MW output. The proposed changes to require 95% of the 20% capacity to be generating or absorbing could create significant complications, particularly for offshore windfarms, as it would necessitate maintaining certain generation levels that are dependent on wind conditions. This could lead to severe delays in commissioning and halt installation campaigns, raising concerns about the practicality and the need of such changes to the Grid Code. Workgroup members also wanted to understand why a battery storage system should be exporting or importing Active Power during a 20% test, which is meant to evaluate voltage control rather than production capability. The Workgroup asked NESO to explain the reasoning for this proposed change and what the drivers are as they believe this is outside the scope of the modification. NESO took this issue away and engaged with interested stakeholders to develop a more appropriate solution, which has been reflected in the proposed Legal Text.

In regard to the ECP requirements not being replicated in EREC G99, following a brief discussion, it was agreed that the omissions are not critical, and need not be made as a matter of urgency. The Energy Network Association (ENA) has added them to a list of pending modifications to EREC G99 which can be made at the first opportunity when EREC G99 is next revised. Distribution Network Operator (DNO) stakeholders can be



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briefed about the discrepancy between Grid Code and EREC G99 requirements via the ENA's Distributed Energy Resources Technical Forum at a future meeting.

The Workgroup members discussed the costs and implementation associated with the modifications and agreed they are administrative. It was noted that there are no additional costs such as software changes or new obligations on any parties.

The Workgroup members agreed that the existing expert Workgroup members, in conjunction with NESO Legal, were adequate for the Workgroup discussions.

## Workgroup Consultation Summary

The Workgroup held their Workgroup Consultation between 20 March 2025 – 20 April 2025 and received 4 non-confidential responses and 0 confidential responses. The full responses and a summary of the responses can be found **Annexes 05** and **06**.

**Objectives which the Proposer's solution better facilitates the Applicable Objectives than the baseline:** One respondent chose objective (a), three respondents chose objective (b), three respondents chose objective (c), three respondents chose objective (d), and three respondents chose objective (e)<sup>1</sup>.

**Support for solution:** All respondents were supportive of the proposed solution. One respondent noted that they believe the proposal addresses discontinuities between the CC and ECC, as well as consequential changes in the Compliance Processes and European Compliance Processes.

**Support for implementation approach:** All respondents were supportive of the chosen implementation approach, making no additional comments.

**Alternative Requests:** There were no Alternative Requests raised in the consultation responses.

**Draft Legal Text:** All respondents confirmed that the draft Legal Text satisfied the intent of the modification, with the majority of respondents making no additional comments. One respondent identified editorial points in the draft Legal Text and submitted a marked-up version highlighting those points, to which NESO subsequently responded.

**Impact on the Electricity Balancing Regulation (EBR) Article 18 T&Cs:** All respondents confirmed that the proposal does impact the EBR Article 18 T&Cs. One respondent noted

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<sup>1</sup> During the Workgroup Consultation the Grid Code Applicable Objectives were alphabetised and have since changed to Roman numerals e.g. i), ii) iii)

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that they believe there would be a change to Balancing Code 3, which has a minor impact on the EBR.

**Agreement with the proposed Legal Text in ECP.A.6.2.1:** All respondents agreed with the proposed Legal Text in ECP.A.6.2.1, making no additional comments.

## What is the impact of this change?

### Proposer's assessment against Grid Code Objectives

Relevant Objective	Identified impact
i. To permit the development, maintenance and operation of an efficient, coordinated and economical system for the transmission of electricity;	<b>Positive</b>  By clarifying the Grid Code as indicated in the Proposers solution, it will improve clarity. This is marginally seen as positive.
ii. 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);	<b>Positive</b>  By clarifying the Grid Code as indicated in the Proposers solution, it will improve clarity. This is marginally seen as positive.
iii. Subject to 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;	<b>Positive</b>  By clarifying the Grid Code as indicated in the Proposers solution, it will improve clarity. This is marginally seen as positive.
iv. To efficiently discharge the obligations imposed upon the licensee by this license* and to comply with the Electricity Regulation and any relevant	<b>Positive</b>

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legally binding decisions of the European Commission and/or the Agency; and	As NESO is responsible for Administration of the Grid Code, improving clarity is a key objective and therefore we see this modification as positive in respect of this Grid Code objective.
v. To promote efficiency in the implementation and administration of the Grid Code arrangements.	<p><b>Positive</b></p> <p>As NESO is responsible for Administration of the Grid Code, improving clarity is a key objective and therefore we see this</p> <p>modification positive in respect of this Grid Code objective.</p>

\* See Electricity System Operator Licence

## Proposer's assessment of the impact of the modification on the stakeholder / consumer benefit categories

Stakeholder / consumer benefit categories	Identified impact
Improved safety and reliability of the system	<p><b>Positive</b></p> <p>This modification will improve clarity and ensure consistency between GB Code Users (i.e. pre-European Connection Network Codes) and EU Code Users (i.e. post European Connection Network Codes). Whilst not having a direct impact on improved safety and reliability of the System, it will improve clarity which we overall see as positive.</p>
Lower bills than would otherwise be the case	<p><b>Neutral</b></p>

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	There will be no impact to lower Bills as a result of this modification.
Benefits for society as a whole	<b>Positive</b>  The Grid Code is a complex document running to many pages. Any change which improves clarity to Stakeholders and User's is only seen as positive.
Reduced environmental damage	<b>Neutral</b>  There will be no impact to environmental damage as a result of this modification.
Improved quality of service	<b>Positive</b>  The Grid Code is a complex document running to many pages. Any change which improves clarity to Stakeholders and User's and hence the quality of service they receive is only seen as positive.

## Workgroup Vote

The Workgroup met on 06 June 2025 to carry out their Workgroup Vote. The full Workgroup Vote can be found in **Annex 07**. The table below provides a summary of the Workgroup Members' view on the best option to implement this change.

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. *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);*
- 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*

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- v. *To promote efficiency in the implementation and administration of the Grid Code arrangements*

\* See Electricity System Operator Licence

The Workgroup concluded unanimously that the Original Solution better facilitated the Applicable Grid Code Objectives than the Baseline.

Option	Number of voters that voted this option as better than the Baseline
Original	5

## First Code Administrator Consultation Summary

The First Code Administrator Consultation was issued on the 30 July 2025 closed on 05 September 2025 and received 2 non-confidential responses and 0 confidential responses. A summary of the responses can be found in the table below, and the full responses can be found in **Annex 10**.

First Code Administrator Consultation summary	
Question	
Do you believe that the GC0173 Original Proposal better facilitates the Grid Code Applicable Objectives?	<p>One respondent stated that the change would better facilitate objectives (i) and (iii). One respondent stated that the change would better facilitate objective (v). Both respondents stated that the change would better facilitate objective (iv).</p> <p>Both respondents support the proposed solution. One respondent stated that while this modification aims to improve clarity of requirements for Medium Power Stations, the awkward alignment between Power Generating Module class and Power Station size remains.</p>
Do you support the proposed implementation approach?	Both respondents support the proposed implementation approach. One respondent questioned if the proposal would cause any issues for existing operational sites.

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Do you have any other comments?	One respondent stated that this change improves clarity, but the issue with Medium Power Stations still exists.
<b>Legal text issues raised in the consultation</b>	
Both respondents noted that Balancing Code 3 was missing from the legal text.	
<b>EBR issues raised in the consultation</b>	
No EBR issues were raised	

## Panel response to legal text issues raised in the Code Administrator Consultation

Grid Code Review Panel met on 25 September 2025 agreed that the Code Administrator should run a Second Code Administrator Consultation inclusive of the full modification legal text.

## Second Code Administrator Consultation Summary

The Second Code Administrator Consultation was issued on the 26 September 2025 closed on 27 October 2025 and received 1 non-confidential response and 0 confidential responses. A summary of the responses can be found in the table below, and the full response can be found in **Annex 11**.

Second Code Administrator Consultation summary	
Question	
Do you believe that the GC0173 Original Proposal better facilitates the Grid Code Applicable Objectives?	<p>The respondent stated that the change would better facilitate objectives (i), (iii), and (iv).</p> <p>The respondent supports the proposed solution and stated that this addresses issues between the Connection Conditions and European Connection Conditions and the consequential changes in the Compliance Processes and European Compliance Processes.</p>
Do you support the proposed implementation approach?	The respondent supports the proposed implementation approach.

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<b>Legal text issues raised in the consultation</b>
No legal text issues were raised.
<b>EBR issues raised in the consultation</b>
No EBR issues were raised

## NESO response to EBR issues raised in the Code Administrator Consultation

NESO was not asked to provide a response due to there being no EBR issues raised in the Code Administrator Consultation.

## Panel Recommendation vote

The Panel will meet on the 27 November 2025 to carry on their recommendation vote.

They will assess whether a change should be made to the Grid Code by assessing the proposed change.

## Panel comments on EBR impacts

The Panel will discuss when they meet on the 27 November 2025 to carry out their recommendation vote.

## When will this change take place?

### Implementation date

10 Business Days after Authority decision.

### Date decision required by

There is no specific back stop date required for this modification.

### Implementation approach

As this modification is proposed to ensure consistency between the CC and ECC in addition to any wider consistency issues arising from these updates, there are not expected to be any changes to wider systems or processes, although some consideration may need to be given to mandatory services agreements in CC.8.1 and ECC 8.1.

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### Interactions

- |   |  |  |   |
|---|--|--|---|
| <input type="checkbox"/> CUSC                   | <input type="checkbox"/> BSC   | <input type="checkbox"/> STC                 | <input type="checkbox"/> SQSS             |
| <input type="checkbox"/> European Network Codes | <input checked="" type="checkbox"/> EBR Article 18 T&Cs <sup>2</sup> | <input type="checkbox"/> Other modifications | <input checked="" type="checkbox"/> Other |

Interaction with the Electricity Balancing Regulation (EBR).

### Acronyms, key terms and reference material

Acronym / key term	Meaning
BSC	Balancing and Settlement Code
BEGA	Embedded Medium Power Stations
CC	Connection Conditions
CMP	CUSC Modification Proposal
CP	Compliance Processes
CUSC	Connection and Use of System Code
DCC	Demand Connection Code
DNO	Distribution Network Operator
EBR	Electricity Balancing Guideline
ECC	European Connection Conditions
ECP	European Compliance Processes
ENA	Energy Network Association
EREC G99	Engineering Recommendation G99 – Requirements for the connection of generation equipment in parallel with public distribution networks on or after 27 April 2019
GC	Grid Code

<sup>2</sup> If your modification amends any of the clauses mapped out in Annex GR.B of the Governance Rules section of the Grid Code, it will change the Terms & Conditions relating to Balancing Service Providers. The modification will need to follow the process set out in Article 18 of the Electricity Balancing Regulation (EBR – EU Regulation 2017/2195). All Grid Code modifications must be consulted on for 1 month in the Code Administrator Consultation phase, unless they are Urgent modifications which have no impact on EBR Article 18 T&Cs. N.B. This will also satisfy the requirements of the NCER process.



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HVDC	High Voltage DC Network Code (Commission Regulation (EU) 2016/1447)
PC	Planning Code
PPM	Power Park Modules
RfG	Requirements for Generators Network Code (Commission Regulation (EU) 2016/631)
SQSS	Security and Quality of Supply Standards
STATCOM	Static Synchronous Compensator
STC	System Operator Transmission Owner Code
T&Cs	Terms and Conditions

## Annexes

Annex	Information
Annex 01	GC0173 Proposal Form
Annex 02	GC0173 Terms of Reference
Annex 03	GC0173 Legal Text
Annex 04	GC0173 Summary table outlining high-level Legal Text changes
Annex 05	GC0173 Workgroup Consultation Responses
Annex 06	GC0173 Workgroup Consultation Summary
Annex 07	GC0173 Workgroup Vote
Annex 08	GC0173 Workgroup Attendance Record
Annex 09	GC0173 Workgroup Action Log
Annex 10	GC0173 First Code Administrator Consultation Responses
Annex 11	GC0173 Second Code Administrator Consultation Response