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CUSC Modification Proposal Form

CMP456: Cost recovery for legacy plant in relation to GC0168

Overview: Modification GC0168 requires existing plants, upon request to obtain and submit Electromagnetic Transient (EMT) models. This is a significant and costly challenge for older plant with complex systems and with little direct benefit to the Generator. This modification enables appropriate cost recovery.

Modification process & timetable

1. **Proposal Form** — 29 October 2025
2. **Workgroup Consultation** — 04 February 2026 - 11 February 2026
3. **Workgroup Report** — 19 March 2026
4. **Code Administrator Consultation** — 31 March 2026 - 07 April 2026
5. **Draft Final Modification Report** — 16 April 2026
6. **Final Modification Report** — 24 April 2026
7. **Implementation** — TBC

Status summary: The Proposer has raised a modification and is seeking a decision from the Panel on the governance route to be taken.

This modification is expected to have a: High impact on Generators and Suppliers

Proposer's recommendation of governance route	Urgent modification to proceed under a timetable agreed by the Authority (with an Authority decision)	
Who can I talk to about the change?	**Proposer:** Tim Ellingham Tim.ellingham@rwe.com	**Code Administrator Contact:** Catia Gomes catia.gomes@neso.energy

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What is the issue?

GC0168 is a modification proposal that will oblige Generators to provide National Energy System Operator (NESO) with Electromagnetic Transient (EMT) models. The reasons for this are set out in GC0168 proposal form.

The modification will apply retrospectively, requiring existing Generators - who typically lack EMT models - to undertake the complex task of creating one.

In many cases the Original Equipment Manufacturer (OEM) may no longer exist and consequently the costs of creating an EMT model may run to hundreds of thousands of pounds per Balancing Mechanism Unit (BMU) meaning a Generator with multiple sites could be facing a multi-million impact and an even greater sum as an industry.

New Generators will be required to provide an EMT model as a condition of connection. The costs will be part of construction financing and data will be provided by OEMs as part of their contracts. Without an express cost recovery mechanism older Generators will be placed at a commercial disadvantage due to obligations from GC0168 but with no route to recover costs incurred.

Given the advancement of GC0168, it is recommended that this modification be progressed urgently to prevent any potential gap in coverage between the approval of GC0168 and the implementation of CMP456 and the resulting charging modification CMP466.

Why change?

The GC0168 modification requires NESO to obtain detailed models, specifically EMT models, to accurately simulate the power system during challenging scenarios. These EMT models are essential for the effective management of the National Electricity Transmission System (NETS) and to ensure that newly connecting generation plant meet compliance standards. However, the main challenge arises with existing generation plant, which were not originally designed with EMT models in mind. The control systems in such installations are often unique or outdated, making the process of developing retrospective models both complex and costly. As these efforts offer no direct benefit to the Generator, it is appropriate that the financial burden should not rest with them. Therefore, a suitable cost recovery mechanism is necessary to address this issue.

What is the Proposer's solution?

Following a process similar to that established in CMP398 for Generators forced to provide EMT models retrospectively. NESO should refund the reasonable, efficient and proportionate costs of providing the EMT models. The costs to be recovered via the Balancing Services Use of System (BSUoS) charges.

Costs to be recovered

It is proposed that recoverable costs encapsulate:

1. EMT model production:
    a. Procurement of a suitable contractor
    b. Physical interrogation of existing control system
    c. Production of equivalent model in the specified software and version as referred to via PC.A.9.9.1. of the Grid Code
    d. Model User guide and report creation
    e. Liaison with NESO for verification, see below
2. Model verification physical test runs (when the plant is to be run out-of-merit):
    a. Out of the money market equalisation (possibly by a pre-arranged Bid Offer Acceptance (BOA/7a trade)
    b. Contractor on-site fees

The following outline process is to be developed along with legal text via a Workgroup.

1. NESO request the EMT model and agree the parameters of the model.
2. Generators assess the cost of providing the EMT model. Generators seek ex ante pre-expenditure approval requests for costs in excess of £200k.
3. Generators develop the EMT model and make ex post claim for costs.
4. NESO panel assess costs and can request further information if needed.
5. Dispute resolution process to be discussed by Workgroup.
6. Payment of agreed costs by NESO to Generator either in single sum or instalments, in a time frame to be discussed by the Workgroup.

There will need to be a cut-off date such that Generators connected after a certain date will not be eligible to apply for refund of EMT model costs. This should be determined by the Workgroup.

Draft legal text

To be developed by Workgroup.

What is the impact of this change?

Proposer's assessment against CUSC Non-Charging Objectives	
Relevant Objective	**Identified impact**
(i) The efficient discharge by the Licensee of the obligations imposed on it by the Act and by this licence*;	**Positive** Will aid the path for the NESO to operate a reliable system. Provides assurance that the licensee's obligations are satisfied and discharged in a non-discriminatory way.
(ii) Facilitating effective competition in the generation and supply of electricity, and (so far as consistent therewith) facilitating such competition in the sale, distribution and purchase of electricity;	**Positive** Will enable new plant to connect faster if EMT models are available ahead of connections. Will assist in levelling the cost from model complexity on older plant versus new plant, enabling a more level field for Generators.
(iii) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency **; and	**Neutral**
(iv) Promoting efficiency in the implementation and administration of the CUSC arrangements.	**Positive**

	By having a simple and efficient procedure for any bona fide costs to be recoverable this will promote efficiency in the administration of the CUSC arrangements.

** See Electricity System Operator Licence*

***The Electricity Regulation referred to in objective (c) is Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast) as it has effect immediately before IP completion day as read with the modifications set out in the SI 2020/1006.*

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	**Positive** When Generators provide EMT models to NESO, it will be able to carry out pre-fault and post-fault analysis studies, the outputs of which will lead to accurate operational decisions in the interest of safety and reliability of the system which could ultimately lead to lower operational costs for the benefit of the end consumer.
Lower bills than would otherwise be the case	**Negative** Cost recovery processes seldom have zero cost implications for consumers.
Benefits for society as a whole	**Positive** Society benefits from a reliable electricity system. Improved EMT modelling will lead to improved system stability for consumers.
Reduced environmental damage	**Neutral** No obvious or direct environmental implication.

Improved quality of service	**Positive** Better EMT modelling coverage will lead to fewer system disturbances that interrupt business operation or domestic consumer comfort.

When will this change take place?

Implementation date:

10 Business Days after an Authority decision. Ideally this will be in line with GC0168 implementation and CMP466.

Date decision required by

The modification should go to the Authority alongside GC0168 and CMP466 so that it has full access to the package of changes proposed.

Implementation approach

No process or system changes envisaged.

Proposer's justification for governance route

Governance route: Urgent modification to proceed under a timeline agreed by the Authority (with an Authority Decision)

Due to the impending finalisation of GC0168, there could be a window where models could be requested but a cost recovery mechanism will not be in place.

Urgency Criteria

If you are proposing that your modification is Urgent, you must explain how it meets Ofgem's Urgent criteria (below). When modifications are granted Urgency, this enables the us to shorten the standard timescales for industry consultations. Note that we (Code Admin) must seek Authority approval for this option.

Ofgem's current guidance states that an urgent modification should be linked to an imminent issue or a current issue that if not urgently addressed may cause:

a) A significant commercial impact on parties, consumers or other stakeholder(s); or
b) A significant impact on the safety and security of the electricity and/or gas systems; or
c) A party to be in breach of any relevant legal requirements.

If a large focus of the retrospective modelling requirement is aimed at legacy plant**,** then this will capture most, if not all, Combined Cycle Gas Turbine power stations in the country. EMT and Root Mean Square model requirements were not present when these sites were built, so it follows that these sites are unlikely to have one prepared. There is currently circa 30GW of CCGT with around 26GW likely pre-dating an EMT model requirement, representing about 31 Balancing Mechanism Units. Costs for EMT models from OEMs can run far in excess of £200k per unit. Without this modification being in place there is a significant cost exposure to the industry parties could, in certain circumstances, call in to question the viability of low merit order sites, leading to the request for urgency on point a) above.
The required models are considered to be of essential use by NESO and this modification will enable timely acquisition of these models, which without cost recovery may result in delays in obtaining. Therefore, there are societal benefits to be gained in relation to operating a stable and secure system.

Interactions

☒Grid Code	☐BSC	☐STC	☐SQSS
☐European Network Codes	☐ EBR Article 18 T&Cs[1]	☐Other modifications	☒Other

Potential impact on Distribution Connection and Use of System Agreement (DCUSA) if EMT models are required for Licence Exemptible Embedded Medium Power Stations, such parties are likely not party to the CUSC, so therefore cannot access the recovery mechanism.

Acronyms, key terms and reference material

Acronym / key term	Meaning
BMU	Balancing Mechanism Unit
BOA	Bid Offer Acceptance
BSC	Balancing and Settlement Code

BSUoS	Balancing Services Use of System
CCGT	Combined Cycle Gas Turbine
CUSC	Connection and Use of System Code
DCUSA	Distribution Connection and Use of System Agreement
EBR	Electricity Balancing Regulation
EMT	Electromagnetic Transient
GC	Grid Code
NESO	National Energy System Operator
NETS	National Electricity Transmission System
OEMs	Original Equipment Manufacturers
RMS	Root Mean Square
SQSS	Security and Quality of Supply Standards
STC	System Operator Transmission Owner Code
T&Cs	Terms and Conditions

Reference material

- GC0168: Submission of Electro Magnetic Transient (EMT) Models
- CMP398: GC0156 Cost recovery mechanism for CUSC Parties