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Code Administrator Meeting

Summary

Workgroup Meeting 2: CMP456: Cost recovery for legacy plant in relation to GC0168, CMP466: CMP456 Consequential Charging Modification

Date: 18 March 2026

Contact Details

Chair: Kat Higby, katharine.higby@neso.energy

Proposer: Tim Ellingham, tim.ellingham@rwe.com

Key areas of discussion

The Chair confirmed that the purpose of Workgroup Meeting 2 was to review open actions, discuss the cost-benefit analysis and impacted Generators, discuss any other costs to be added to the total model costs, discuss the charging mechanism, present Alternative Request 1, vote on Alternative Request 1 and review the timeline and Workgroup Consultation.

Actions Review

Action 1: JR advised that the models only need to be provided once but with maintenance for the lifetime of the plant and apparatus - **Closed**

Action 2: Estimated and shared with Workgroup - **Closed**

Action 3: Shared with Workgroup - **Closed**

Action 4: LEEMPS affected as per action 3 - **Closed**

Action 5: Alternative raised and will be discussed and voted during the meeting - **Closed**

Action 6: Estimated and shared with Workgroup - **Closed**

Discussion on Cost-Benefit analysis and impacted Generators

The Workgroup discussed the potential benefits associated with retrospective Electro-Magnetic Transient (EMT) models.

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The NESO SME explained that without appropriate EMT studies, new connections may need to be disconnected for extended periods. He illustrated this using an example assumption: if 1,000 MW of generation were disconnected for a week at £100/MWh, the cost impact would be around £16 million.

The NESO SME said that defensive actions taken by NESO to address system strength or stability issues—such as increasing short-circuit levels—can also carry significant costs.

The NESO SME noted that retrospective EMT models help avoid such events, reduce the risk of equipment damage, and provide system-wide security benefits, some of which cannot be easily quantified.

The NESO SME summarised that while several quantifiable benefits exist, the most important value lies in improved system stability, which underpins the rationale for obtaining retrospective EMT models.

Discussion on other Costs to be added to the total model costs

The Workgroup discussed whether any additional cost categories (to the Original Proposal) should be included in the total EMT model cost estimates.

The Proposer stated that they wished to confirm whether all relevant cost components had been captured and asked the Workgroup for feedback on any further items that should be added to the list in the modification proposal form.

The Proposer noted that some costs—such as physical test runs and model verification—may depend on plant availability and asked whether NESO would request model production or testing during periods when a plant is out of merit or not scheduled to run, and whether NESO intends to take such availability constraints into account under GC0168.

The NESO SME stated that NESO will prioritise model requests based on system need and will consider outage conditions or availability constraints where

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appropriate. The NESO SME Noted that flexibility has already been reflected in the draft GC0168 legal text, allowing NESO and Users to agree suitable timelines where model production depends on plant availability.

The Proposer asked whether NESO would treat physical test runs required to verify EMT models as recoverable costs, particularly where a plant is not scheduled to run during the GC0168 compliance window.

The NESO SME responded that such situations could be discussed on a case-by-case basis when NESO issues the request, but the framework already anticipates some flexibility and acknowledged that these may be outliers but confirmed that NESO is open to bilateral discussion.

The Proposer asked how NESO intends to treat verification runs, noting that producing a model and matching it against as-built parameters is not sufficient on its own, explaining that certain verification tests require the plant to run in specific operating conditions, not simply at base load.

The Proposer queried whether NESO would consider these physical test runs a legitimate cost of model production, and whether deadlines would be extended until a natural run occurs, or whether the Generator would be expected to undertake additional on-demand testing.

The NESO SME clarified that if validation data from factory tests, commissioning records, or other existing sources is available, this can be used to verify the EMT model. However, if such data does not exist, Users would need to carry out studies across different operating points, and in those cases on-site testing would be required and added that there may be no alternative in scenarios where specific operating-condition data is needed to validate the model.

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The Proposer asked whether NESO intended to provide a repository of accepted model templates or examples, noting that while generic PSCAD models exist, Generators need certainty that they are starting from an appropriate basis rather than having to rebuild models from first principles.

The NESO SME explained that NESO publishes the EMT modelling guidance on its website, and this guidance is being incorporated into the Electrical Standards through GC0168. The NESO SME clarified that NESO does not publish specific model files (e.g. Power System Stabiliser (PSS) or Automatic Voltage Regulator (AVR) implementations), but standard IEEE-based models are publicly available from PSCAD/MHI and can be used as a starting point.

The NESO SME added that for synchronous machines, where RMS models or DRC data already exist, NESO can construct and validate EMT models itself using the submitted data. This is why synchronous generators are treated differently from IBRs (Inverter-based resource) in GC0168, as IBR models cannot be built from generic structures and must be provided by Users.

The Proposer agreed to review previous models within his organisation and share any relevant experience with the Workgroup.

Alternative Request 1 Presentation

The Workgroup discussed the Alternative Request 1 raised a Workgroup member.

The Alternative Request 1 Proposer explained that the purpose of this proposal is to extend the scope of cost recovery to capture additional scenarios not included in the original proposal. Highlighting that model development often incurs substantial costs before modelling even begins — particularly the cost of obtaining the necessary data, which can include stopping turbines or undertaking other intrusive activities.

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Suggesting that validation of models can also be significantly more expensive for inverter-based renewables, especially where real-time simulation data, HIL data, or equivalent reference datasets do not exist for legacy plant. In such cases, validation must rely on alternative verification methods, which increase costs materially.

The Alternative Proposer emphasised that this proposal does not seek to alter the structure of the original proposal; rather, it aims to produce a more formalised and comprehensive list of scenarios where cost recovery should apply. Nothing that GC0168 is still a learning process and therefore included the wording *“including but not limited to”* to account for future unforeseen scenarios.

The Alternative Request 1 Proposer suggested that small generators — such as community-owned wind farms — may face disproportionately high costs and therefore require appropriate protection. Explaining that the costs experienced by his organisation for EMT model development were considerably higher than those referenced in the earlier CBA analysis for non-synchronous plant.

Concluding by stating that the Alternative Request 1 is intended to ensure the recovery mechanism recognises the full set of realistic cost impacts facing Generators.

The Original Proposer stated that, in his experience, OEMs often cannot supply data Generators expect them to have, and the actual costs and timelines quoted for EMT model development are significantly higher than those presented earlier. Noting that model development for a wind farm can involve lengthy timelines—such as six months for a base model plus additional months for site-specific elements—and that NESO could potentially reduce duplication by confirming when it has already reviewed models for particular machine types.

The NESO Representative explained that for synchronous machines, generic AVR and PSS model types exist, and NESO can often construct the EMT model itself using parameters already provided in DRC schedules or RMS models. This is why synchronous Generators are assumed to have lower cost impacts.

Emphasising, however, that for non-synchronous plant, each installation is site-specific. Even within the same manufacturer and turbine type, plant-level

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tuning, cabling, filters, and reactive compensation vary significantly, meaning a single “reference model” cannot be reused across sites.

The NESO Representative concluded that while NESO can standardise aspects of synchronous-machine modelling, it cannot provide generic templates for IBRs and invited Workgroup members to share any practical suggestions for improving efficiency while maintaining model accuracy.

Alternative Request 1 vote

The Workgroup voted on the Alternative Request 1 and by majority agreed that Alternative Request 1 should be taken forward by the Workgroup as WACMI.

Discussion on Charging mechanism

The Original Proposer noted that, based on the first Workgroup meeting, the *external cost (EXT)* parameter appeared to be the correct charging mechanism for CMP466, but the definitions were not immediately clear when reviewed in the CUSC.

The NESO Representative explained that NESO has engaged the Revenue team to assess the business impacts of the proposed recovery mechanism and explained that the Revenue Team were unable to attend the meeting, but NESO will arrange for them to support a future Workgroup discussion, either by attending in person or by providing slides.

The Chair concluded that the charging-mechanism discussion would be deferred to Workgroup 3.

Timeline Review

The Workgroup reviewed the timeline and agreed that based on the discussions above and the work still required before the Workgroup Consultation the timeline needed to be extended. The Chair agree to revise the timeline and share with the Workgroup.

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The original Proposer asked that the Workgroup thinks about the specific questions they would like to see in the Workgroup Consultation ahead of the next Workgroup meeting.

Actions

For the full action log, click [here](#).

Action Number	Workgroup Raised	Owner	Action	Due by	Status
1	WG 1	JR	Clarify whether NESO would request retrospective EMT models only once or on a recurring cycle	WG 2	Close
2	WG 1	JR	To provide information on how many Generators may be affected	WG 2	Close
3	WG1	JR	To share material relating to PC.A.9.2.2 and how to address Licence Exemptible Embedded Medium Power Station (LEEMPS) within the Grid Code legal text	WG 2	Close
4	WG 1	TE	Review GC0168 to identify and classes of Users who are not CUSC parties and may therefore require an alternative cost-recovery route	WG 2	Close
5	WG 1	WG	To consider raising an Alternative Request to address retrospective EMT model cost recovery	WG 2	Close

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6	WG 1	JR	To confirm the status of the GC0168 cost-benefit analysis and whether it is published	WG 2	Close
7	WG2	KH	Revise the timeline and share with the Workgroup	WG3	Open
8	WG2	TE	Check previous models and share with the Workgroup	WG3	Open

Attendees

Name	Initial	Company	Role
Kat Higby	KH	NESO	Chair
Catia Gomes	CG	NESO	Technical Secretary
Tim Ellingham	TE	RWE	Proposer
Caitlin Butchart	CB	InterGen	Workgroup member
Andrew Colley	AC	SSE Generation	Workgroup Alternate
Isaac Gutierrez	IG	ScottishPower Renewables	Workgroup member
Belinda Parrado	BP	ScottishPower Renewables	Workgroup Alternate
Karl Wilkins	KW	NGED	Workgroup Alternate
Nina Sanghera	NS	Drax	Workgroup Alternate
Ross Stacham	RS	EDF-PS	Workgroup member
Sean Gauton	SG	Uniper	Workgroup member
Utkarsh Agarwal	UA	ESB	Workgroup member

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Ghulam Haider	GH	Ofgem	Authority Rep
Jayraman Ramachandran	JR	NESO	SME
Aishwarya Harsure	AH	NESO	NESO Rep
Neil Dewar	ND	NESO	NESO Rep Alternate
Chris Smith	CS	Natural Power Consultants	Observer