



GC0117 – Harmonisation of Power Station Thresholds across GB

Modification Update – October 2023

Recap of Modification

- GC0117 Modification proposed by SSE Generation to harmonise Power Station Thresholds across GB; open governance means a solution will be progressed and submitted to Ofgem for a decision.
- Development by industry workgroup including ESO.

Current Thresholds

Generator Size	Embedded Connection		
	SHET	SPT	NGET
Small	<10MW	<30MW	<50MW
Medium			50-100MW
Large	10MW+	30MW+	100MW+

 Mandatory BM participation

- ‘Large’ embedded generators as defined in the Grid Code have to participate in the Balancing Mechanism in some form (e.g. BELLA (Scotland only) and or BEGA) and have a contract with the ESO
- BELLA – Bilateral Embedded Licence exempt Large Agreement, BEGA – Bilateral Embedded Generation Agreement
- Thresholds differ across GB TO areas for historical reasons:

Current Options to address Modification

- Original Proposal – Small/Large Threshold set at 10MW with the Medium Threshold removed
- Alternative Proposal raised by Northern Powergrid – England and Wales Small/Medium/Large Thresholds moved into Scotland

Current Options to Address Modification

Generator Size	Harmonised Proposal Across GB	
	Original Proposal	Alternative
Small	<10MW	<50MW
Medium		50-100MW
Large	10MW+	100MW+

 Mandatory BM participation

- Other options were presented and discussed within the Workgroup but were discounted due to not gaining enough Workgroup support or not being operationally possible after discussions with the Electricity National Control Centre (ENCC).
- **The ESO support the original proposal**, as this will increase BM participation going forward and ensure a consistent approach in terms of Control Room despatch, notwithstanding that this could impact other areas of the ESO.
- **It is noted that in respect of the original proposal, implementation could not take place until 2027 (current date 1st June 2027), due to the ESO needing to deliver the necessary IT enhancements as part of Balancing Transformation Programme required to efficiently accommodate and instruct the additional numbers of BM participants going forwards.** The Proposer has confirmed that they are happy with the potential implementation date but the current timescales would see this being formalised into the Grid Code (if approved), much earlier (circa early 2024), with the future implementation date. The implementation date would also give impacted parties time to prepare for any additional requirements if the original proposal were to be approved.

Forward Looking only or Retrospective?

- The subject of whether the proposals should be retrospective has been discussed at length with the workgroup with the conclusion that any form of retrospectivity **would not supported by ESO Workgroup members** due to:

Original Proposal

- Under the Original Proposal, this could result in some Generators not being able to comply with the additional obligations that would be placed on them as a “Large” Power Station, with these additional obligations not being commercially viable in some cases e.g., Fault Ride Through performance or Frequency Response could require major plant redesign – or even the ability to participate in the BM and the tools and facilities necessary to implement participation e.g. 24/7 control points etc.
- Even with the enhancements being delivered as part of the Balancing Transformation Programme, retrospective implementation of the original proposal would require additional capability in respect of efficient despatch of these additional BM participants. Even with the full functionality of the new systems in the Balancing Programme – these new systems would not be able to cope with the additional volume of data that retrospectivity would generate.

Alternative Proposal

- In respect of the alternative proposal, retrospectivity could impact the ESO’s ability to balance the system in Scotland going forward should current “Large” Generators no longer choose to participate in the BM.

The workgroup discussed at length a whole range of retrospectivity options from no retrospectivity to full retrospectivity including compliance with the full suite of technical requirements to submission of data alone to application to EU Compliant Plant only.

The outcome of these discussions was that no retrospectivity would be the appropriate way forward.

Cost Benefit Analysis - Highlights

The ESO Modelling Team conducted a Cost Benefit Analysis on the original and alternative proposals which was split into 3 Work Packages: **(1) Impact of BM Price Stack, (2) Impact on Constraint Costs, and (3) Impact on Demand Forecast Errors.**

WP1: Impact on price stack available in the BM.

- The original proposal could lead to a reduction in the marginal BM price resulting in annual cost savings of balancing the system of up to approximately **£70m¹**.

WP2: Impact on constraint costs:

- The increased visibility of generators provided by the original proposal could lead to annual savings in constraint costs of up to approximately **£70m**.
- The reduced visibility as a result of the alternative proposal could lead to an increase in constraint costs of up to **£80m** per year.

WP3: Impact on demand forecast errors:

- The increased visibility of generators provided by the original proposal could lead to reduction in demand forecast errors and therefore cost savings of up to approximately **£220m** per year.
- The reduced visibility of wind units in Scotland as a result of the alternative proposal could lead to a significant increase in demand forecast errors and therefore additional annual costs of up to approximately **£530m** per year.

Note:

All costs/savings based on modification implemented from 2022.

¹ From 2029 in the “Leading the Way” FES scenario.

Following the presentation of the CBA to the workgroup, the proposer of the alternative proposal commented as to whether the potential savings from a constraint and demand forecast point of view could be realised with visibility of generators down to 10MW alone, without BM participation. Further analysis by the ESO Modelling Team in conjunction with the ENCC concluded that full BM participation is essential to deliver the predicted cost benefits over visibility alone.

ESO Impacts – Original Proposal

Compliance

- Discussions taking place between ESO Compliance and DNOs in respect of DNO/ESO compliance responsibilities and changes that may need to be agreed should the Large Threshold be lower to 10MW – The issue was raised at the Industry Technical Codes Group and Distribution Code Review Panel on the 1st June 2023 with further discussions to follow.

Connections

- BEGA Agreements would increase in respect of the original proposal as each generator over 10MW would require a BEGA.

Data Exchange between DNOs and ESO to facilitate Whole System Planning (Possible interaction with GC0139 Modification)

- Discussions taking place with the ESO Data and Modelling Team in respect of ESO/DNO data coordination – e.g., provision of sub-transmission network models from the DNO and how the 10MW for Large Threshold could impact this.

Control Room (Balancing Transformation Programme)

- The original option would result in an increased number of BMUs over time and require the enhancements being delivered as part of the Balancing Transformation Programme in order to be able to efficiently instruct larger numbers of BMUs going forwards.

Industry Impacts – Original Proposal

- The ESO is aware of the Original Proposal could result in increased on-going costs due to the obligations that would need to be met and additional facilities that could be required to support full BM participation.
- A questionnaire was issued by the ESO to Industry in order to gain an understanding of the potential implications and costs relating to full BM participation for a generator who under the current Power Station thresholds would not need to enter the BM.
- Based on the feedback from the questionnaire and separate communications from generators, an Industry Cost Impact Assessment was completed by the ESO detailing the additional obligations for full BM participation with estimated costs if relevant.

Potential Aggregator Impacts – Original Proposal

- The lowering of the 'Large' threshold to 10MW would result in only generators of less than 10MW being able to be aggregated into a single larger BMU, with Users over 10MW or more requiring to be registered as a standalone full BM participant.

ESO Impacts – Alternative Proposal

Control Room

- The alternative proposal would create difficulties for the ESO to efficiently manage the system in Scotland going forward as we would see fewer numbers of BM participants over time. The CBA conducted by the ESO has shown significant increases in balancing costs to consumers due to the difficulties of managing constraints and the increase in errors from a demand forecasting point of view.

Other Industry Code Impacts

- **Grid Code** – Amendments to the definition of Power Station Thresholds from the implementation date (with BEGAs required for all Large Power Stations as part of the original proposal).
- **CUSC/SQSS/BSC** – Consequential changes to reflect any changes to Power Station Thresholds in the Grid Code.

Current Modification Timelines (subject to change)

- Workgroup 21 – 04/10/23
- Workgroup Report to Panel – 18/10/23
- Code Administrator Consultation – 30/10/23 – 30/11/23
- Draft Final Modification Report to Panel – 17/01/24
- Final Modification Report to Panel – 29/01/24
- **Final Modification Report to Ofgem – 06/02/24**

Questions?