

Public

GB Pricing Methodology

Date	Version Number	Comments
20/05/22	V1.0	Initial Version
15/03/23	V1.1	Revision to initial version to correct the competitiveness HHI criteria, replacing “above” with “below;” clarification of review period; addition of new DFS product to Appendix B; correction to EFR product name in Appendix B; version control table added.
20/05/25	V2.0	Reviewed pricing methodology in line with requirement in section 4.3. Some changes to the document, include; Change of product classification from “Legacy and New” to “Enduring and Phased/Phasing out”. An updated Appendix B, indicating which products are being phased out/phasing out. Updates to reflect the change from ESO to NESO, as well as from Pricing Proposal to Pricing Methodology.

Introduction

- I. The **GB Pricing Methodology (PM)** has been developed for the GB market in order to provide clear guidance to the GB Transmission System Operator (TSO) of which payment mechanism is utilised when a new Balancing product is introduced.
- II. Article 6(4) of Regulation (EU) 2019/943¹ states that “**settlement of balancing energy for standard balancing products and specific balancing products shall be based on marginal pricing (pay-as-cleared)** unless the regulatory authority approves an alternative pricing method on the basis of a joint proposal by all transmission system operators **following an analysis demonstrating that that alternative pricing method is more efficient**” (emphasis added).
- III. Article 6(14) of Regulation (EU) 2019/943 states that “Transmission system operators may, where standard balancing products are not sufficient to ensure operational security or where some balancing resources cannot participate in the balancing market through standard balancing products, propose, and the regulatory authority may approve, derogations from paragraphs 2 and 4 for specific balancing products which are activated locally without exchanging them with other transmission system operators.”

¹ Retained EU Regulation 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.

Public

- IV. Article 6(14) of Regulation (EU) 2019/943 also states that *“Proposals for derogations shall include a description of measures proposed to minimise the use of specific products, subject to economic efficiency, a demonstration that the specific products do not create significant inefficiencies and distortions in the balancing market either inside or outside the scheduling area, as well as, where applicable, the rules and information for the process for converting the balancing energy bids from specific Balancing products into balancing energy bids from standard Balancing products.”*
- V. The PM was developed in 2022 in order for the GB TSO to ascertain when Marginal Pricing (Pay as Cleared) should be used for Balancing products and highlights the process for when Alternative Payment Mechanisms can be utilised if deemed to be more efficient.
- VI. In 2022 products were classed as Legacy and New. Legacy products were products that were active prior to the approval of the methodology. However, now all balancing products will be classed as enduring or phased/phasing out as per Appendix B. Any products being phased out/phasing will not be reviewed and assessed.

Scope

1.1 The PM is the proposal for GB in accordance with Article 6(4) of Regulation (EU) 2019/943.

1.2 The PM defines the methodology to determine the pricing mechanism of Balancing Energy resulting from Frequency Restoration Reserves with manual activation (hereafter referred to as “mFRR”), Replacement Reserves (hereafter referred to as “RR”) and Frequency Containment Reserves (FCR), also known as Specific Balancing products. Capacity payments (i.e., Balancing Capacity) are out of scope of this PM.

Definitions and Criteria

2.1 All definitions for mFRR, RR and FCR can be found in Commission Regulation (EU) 2017/1485².

2.2 Definitions for Balancing Energy, Balancing Capacity, Standard Balancing products and Specific Balancing products can be found in Regulation (EU) 2019/943. For clarity, definitions for Alternative Payment Mechanism and Marginal Pricing (Pay as Cleared) are set out in the table below.

Term	Definition
Marginal Pricing (Pay as Cleared)	Auction whereby a uniform price is given for all transactions.
Alternative Payment Mechanism	Any payment mechanism which is different to Marginal Pricing. For example, but not limited to, Pay as Bid or Market Indexing

² Retained Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation.

Public

2.3 Marginal Pricing (Pay as Cleared) will be the payment mechanism used for all in scope products if the product meets the following criteria, subject to the conditions outlined in General Principles (Section 3).

Criteria	Definition	Measures
a) Homogeneity	The product cannot be distinguished from the same product offered by different providers by the consumer (TSO).	<p>The range of offerings from providers may be determined by:</p> <ul style="list-style-type: none"> i) Degree of allowable variation of parameters (including but not limited to): <ul style="list-style-type: none"> • Location. • Speed of Delivery. • Duration of Service. • Recovery Periods. ii) Range of Prices submitted by different technology types.
b) Full Information	As much information as possible for the market in which the product is available is correct, transparent, and available to all parties.	<p>Types of information available to market prior to price being set.</p> <p>This should include as a minimum (but not limited to):</p> <ul style="list-style-type: none"> • volumetric information • timescales • operational impacts • prices <p>The information should be available in a suitable timescale.</p>

Public

c) Competition	The market in which the product is in has competition and is not distorted by a single or dominant market participant.	<p>Herfindahl-Hirschman Index³</p> <p>i) Percentage of time that one unit/company (select where applicable) sets a marginal price based on modelling and projections ii) If the market scores above 1500 as per the index, it will be deemed as competitive.</p>
----------------	--	---

2.4 The TSO shall complete an assessment form (included in Annex A of this document) against the three criteria outlined in paragraph 2.3 upon development of a product, or a reassessment of an enduring product during a review. This assessment will determine whether the market criteria are present for Marginal Pricing to be more efficient or an Alternative Payment Mechanism (e.g., Pay as Bid, Market Indexing) would be more efficient. If all 3 criteria outlined in paragraph 2.3 are met, NESO will conduct a Cost Benefit Analysis (CBA) (including all implementation costs) to determine if implementing Marginal Pricing will result in a positive outcome for the market. If the CBA shows a positive outcome for consumers, then the product shall be settled on a Pay as Cleared basis. If these criteria are not met and/or the CBA shows a negative outcome, an Alternative Payment Mechanism may be utilised if it results in a more economically efficient outcome.

2.5 If Marginal Pricing is not the outcome of the assessment, the TSO shall provide further details as outlined in Article 6(14) of Regulation (EU) 2019/943 covered within paragraph 3.5 of this document. This will enable Alternative Payment Mechanisms to be used subject to economic efficiency.

General Principles

3.1 The settlement of balancing energy for all Specific Balancing products shall be based on Marginal Pricing if the criteria in paragraph 2.3 are met.

3.2 The TSO may evaluate any new products to determine whether they are in scope of the outlined criteria. Alternative settlement methods may be used when the criteria in paragraph 2.3 cannot be met.

3.3 If any new products meet one or more of the criteria (a) to (c), NESO will perform an assessment to determine whether use of an alternative pricing method is more economically efficient.

3.4 If after 3 years, any enduring products continue to meet one or more of the criteria (a) to (c) during a review of the product, NESO will perform an assessment to determine whether use of an alternative pricing method is more economically efficient.

3.5 That assessment or reassessment will include the elements outlined in Article 6(14) of Regulation (EU) 2019/943:

- a) a description of measures proposed to minimise the use of the Specific Balancing product (as highlighted in the aforementioned regulation), subject to economic efficiency and;

³ The HHI is calculated by squaring the market share of each provider competing in the market and then summing the resulting numbers. For example, for a market consisting of four providers with shares of 30, 30, 20, and 20 percent, the HHI is 2,600 ($30^2 + 30^2 + 20^2 + 20^2 = 2,600$). HHI below 100 indicates a highly competitive industry, HHI between 100 and 1,500 indicates an industry with a low degree of concentration, HHI between 1,500 to 2,500 indicates moderate market concentration, HHI above 2,500 indicates high market concentration.

Public

- b) an evaluation of whether the product will create significant inefficiencies or distortions in the balancing market either inside or outside the scheduling area.
- c) Where applicable, the rules and information for the process for converting the balancing energy bids from Specific balancing products into balancing energy bids from standard balancing products are found at Article 6(14) of EU Regulation 2019/943.

3.6 NESO will share its assessment of new products with the Authority via the Electricity Balancing Regulation (EBR)⁴ Article 18 submissions. Timescales will be aligned with those set out in the EBR. The outcome of the assessment will also be shared publicly.

3.7 NESO will share its reassessment of enduring products with the Authority for agreement and the updated assessment will be shared publicly. If a reassessment indicates that a change in service settlement is required, NESO will follow the process set out in paragraph 3.6 while proposing the service amendments to Article 18 of the EBR.

3.8 If an assessment or reassessment concludes that it is more economically efficient to use an Alternative Pricing Method, NESO may do so. If it does not, NESO must undertake the CBA to see if Marginal Pricing is more applicable.

3.9 Where NESO launches a product that is developed after the PM has been approved, NESO will perform a market assessment. This assessment will take place no more than 2 years after initial launch of the product (initial review) and thereafter at least once every 3 year(s) (periodic review). If the market assessment shows a significant change in conditions, NESO shall conduct a further assessment in accordance with paragraph 2.3 to determine whether the respective product is suitable for settlement using Marginal Pricing. This assessment shall include a CBA of the impact Marginal Pricing will have on the market and include implementation costs. If the CBA does show a positive impact, the product will be suitable for settlement based on Marginal Pricing. If the CBA does not show a positive impact for consumers by implementing Marginal Pricing, the product may remain settled on its Alternative Payment Mechanism. This assessment will be sent to Ofgem for approval. Ofgem will have two months to respond.

3.10 Products being phased out will not be assessed using this Pricing Methodology, as NESO expect that many of these products will be phased out in the near future, or replaced with other products, as per introduction point vi) of this document. Phased out products will also not be assessed.

3.11 Where Balancing Mechanism Units (BMUs) are providing a new reserve service, they will still be instructed under a Balancing Mechanism Bid Offer Acceptance (BM BOA). This means that either:

- a) Some BM BOAs will need to be settled using Marginal Pricing; or
- b) BMUs will continue to be settled using their current Alternative Payment Mechanism for the foreseeable future.

Publication and Review of the PM

4.1 The TSO shall publish the PM in a timely fashion after the Authority has approved the Methodology.

4.2 The PM will be published on the TSO website in a timely fashion after approval is received, and industry informed via the Joint European Stakeholder Group (JESG) mailing list.

4.3 The TSO shall review the Pricing methodology every 3 years and advise the Authority of the outcome of any such review. The review will be sent to the Authority for approval.

⁴ REGULATION (EU) 2019/2195 of 23 November 2017 as retained and amended in UK Law by Statutory Instruments 2019 No.532

Public

Appendix A – NESO Assessment

New Product Assessment Form – utilisation settlement mechanism

Context

Article 6(4) of Regulation 2019/943 obliges TSOs to settle balancing energy (utilisation) on a Pay as Cleared (PAC) basis for standard and specific balancing products. Currently most balancing products in GB use a Pay as Bid (PAB) settlement for balancing energy as an Alternative Payment Mechanism. We have created a Pricing Methodology (PM), which has been approved by Ofgem, to assess which payment mechanism is best for new products. Please see the PM for full detail, which is available [here](#).

- This assessment is to be submitted as part of the EBR Article 18 submission.
- This submission is to be revisited within the first two years of a product going live, then every 3 years, as outlined in the PM, subject to the market assessment outcome.

Each new product that is put forward must complete this assessment against the outlined criteria:

Criteria	Definition	Measures
Homogenous	The product cannot be distinguished from same product offered by different providers by the consumer (TSO)	<p>The range of offerings from providers may be determined by:</p> <p>i. Degree of allowable variation of parameters (including but not limited to):</p> <ul style="list-style-type: none"> • Location • Speed of delivery • Duration of service • Recovery Periods <p>ii. Range of Prices submitted by different technology types</p>
Full Information	As much information as possible for the market in which the product is available is correct, transparent, and available to all parties.	<p>Types of information available to market prior to price being set.</p> <p>This should (can include as a minimum: but not limited to</p> <ul style="list-style-type: none"> • volumetric information • timescales • operational impacts • (prices of other participants) <p>The information should be available in a suitable timescale.</p>

Public

Competition	The market in which the product is in has competition and is not distorted by a single or dominant participant.	<p>Herfindahl-Hirschman Index</p> <p>i. Percentage of time that one unit/company/technology type (select where applicable) sets a marginal price based on modelling and projections.</p> <p>ii. If the market scores above 1500 as per the index, it will be deemed as competitive.</p>
-------------	---	---

Please provide your assessment of each criterion in the blow pro-forma:

Product Name	
Product Description	
NESO Business Lead	
RAPID Complete (Please provide hyperlink)	
RACI Complete (Please provide hyperlink)	
Product Description	
Planned Go-Live Date	

Criteria	Assessment
Homogeneity	Please insert your assessment against the criteria highlighted in figure 1. Please provide as much detail as necessary to support your decision on payment mechanisms.
Full Information	Please insert your assessment against the criteria highlighted in figure 1. Please provide as much detail as necessary to support your decision on payment mechanisms.
Competition	Please insert your assessment against the criteria highlighted in figure 1. Please provide as much detail as necessary to support your decision on payment mechanisms.

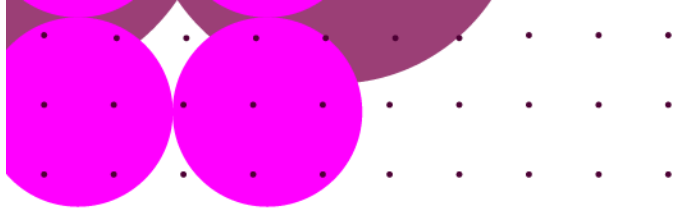
Conclusion	Please insert your conclusion. Detail key points in support of this submission.
------------	---

If Pay as Cleared is not the outcome, further detail is required.

Overall Assessment	Marginal Pricing/Alternative method – provide details (Delete where applicable)
Description of measure proposed to minimise the use of the specific product subject to economic efficiency	

Public

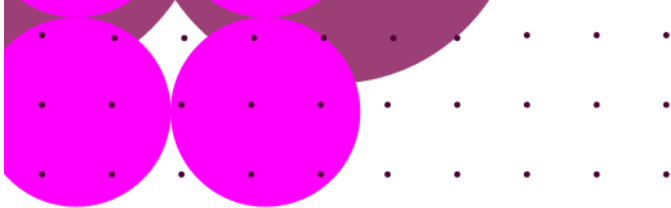
A demonstration that the specific balancing product does not create significant inefficiencies and distortions in the balancing market inside the scheduling area	
A demonstration that the specific balancing product does not create significant inefficiencies and distortions in the balancing market outside the scheduling area	
Where applicable, the rules and information for the process for converting the balancing energy bids from the specific balancing product into balancing energy bids from standard balancing products. EU Regulation 2019/943	
Date of scheduled review (Insert date 2 years from Go-Live date, to be followed by periodic review every 3 years)	



Public

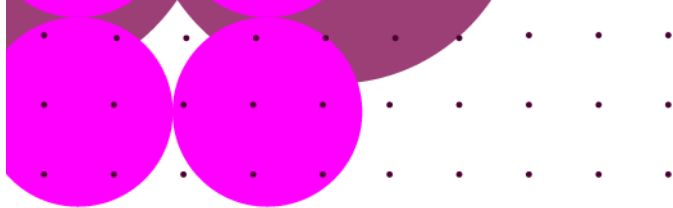
Appendix B – Product List

Product Type	Art18 Consultation/ Pricing Proposal Date	Next Review Date	Enduring/ Phasing Out	Phased Out	In Scope of Regulation (EU Regulation 1029/943 A6(4))	In Scope of PM	Current or Planned Payment Mechanism (Availability). Not Covered by Methodology	Current or Planned Payment Mechanism. (Utilisation) Covered by Methodology	Subject to reassessment (Utilisation Only)
STOR	N/A	N/A	Phasing Out	Ending 2025	Yes	Yes	Pay as Clear	Pay as Bid	No
Fast Reserve	N/A	N/A	Phasing Out	Ending 2025	Yes	No	Pay as Bid	Pay as Bid	No
Auction Trial	N/A	N/A	Phased out	Phased out	No -No longer Procuring	N/A	N/A	N/A	No
Firm Frequency Response (Primary Secondary and High)	N/A	N/A	Phased out	Phased out	No	No	Pay as Bid	Index Linked Payment	No
Enhanced Frequency Response	N/A	N/A	Phased out	Phased out	No	No	N/A	N/A	No
Super SEL	N/A	N/A	No longer Procuring	No Longer Procuring	YES – Instructed by BM	No	Pay as Bid	Pay as Bid	No
BM BOA	Under Review	To be reviewed following the publication of	Enduring	N/A	Yes	Yes	N/A	Pay as Bid	Yes



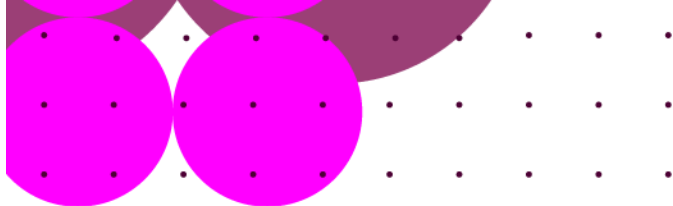
Public

		the decision on the Review of Electricity Market Arrangements							
Mandatory Frequency Response (Primary, Secondary and High	Under Review	We expect to have progressed service design for the Instructible dynamic response services that will replace MFR and have published the pricing methodology by 30 June 2026. If we have not achieved this milestone we would review the pricing methodology for MFR.	Enduring	N/A	Yes	yes	Pay as bid	Index Linked Payment	Yes



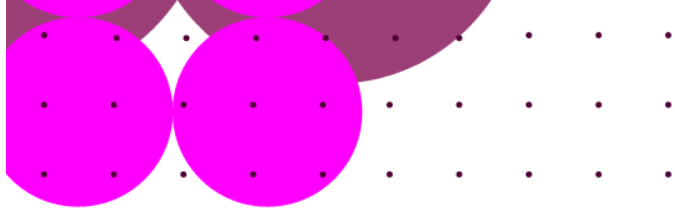
Public

Static Firm Frequency Response	N/A	N/A	Enduring	N/A	Yes	No- No energy bids are submitted/ no energy settlement takes place	Pay as Clear	No utilisation payment	No
Dynamic Containment	N/A	N/A	Enduring	N/A	Yes	No -No energy bids are submitted/ no energy settlement takes place	Pay as Clear (Availability)	No Utilisation payment	No
Dynamic Moderation	N/A	N/A	Enduring	N/A	Yes	No - No energy bids are submitted/ no energy settlement takes place.	Pay as Clear (Availability)	No utilisation payment	No
Dynamic Regulation	N/A	N/A	Enduring	N/A	Yes	No- No energy bids are submitted/ no energy settlement takes place.	Pay as Clear (Availability)	No utilisation payment	No



Public

Balancing Reserve	March 2023	March 2026	Enduring	N/A	Yes	Yes	Pay as Bid	Pay as Bid	Yes
Negative Quick Reserve (NQR)	March 2024	March 2027	Enduring	N/A	Yes	Yes	Pay as Clear	Pay as Bid	Yes
Positive Quick Reserve (PQR)	March 2024	March 2027	Enduring	N/A	Yes	Yes	Pay as Clear	Pay as Bid	Yes
Demand Flexibility Service (DFS)	July 2024	July 2027	Enduring	N/A	Yes	Yes	N/A	Pay as Bid	Yes
Fast Start	N/A	N/A	Enduring	N/A	No	No – Not balancing energy service	Bilateral Availability payment	Bilateral Start Payment	No
Pathfinder (Voltage, Stability, Constraint Management)	N/A	N/A	Enduring	N/A	No	No – not a balancing energy service	N/A	N/A	N/A
BM Start UP	N/A	N/A	Enduring	N/A	No	No – Not balancing energy service	Bilateral start payment and holding availability payment	Bilateral start payment and holding availability payment.	No



Public

Emergency System Restoration (ESR)	N/A	N/A	Enduring	N/A	No - (Non-Frequency Ancillary Service)	No - Not balancing energy service	Bilateral start payment and holding availability payment	N/A	N/A
Inertia Services	N/A	N/A	Enduring	N/A	No - (Non-Frequency Ancillary Service)	No - Not balancing energy service	N/A	N/A	N/A
SO, to SO trades	N/A	N/A	Enduring	N/A	No- Pre- Gate Closure, therefore not balancing	No - Not balancing energy service	N/A	N/A	N/A
SO, to SO Misc	N/A	N/A	Enduring	N/A	No- Pre- Gate Closure. Therefore not balancing	No Not balancing energy service	N/A	N/A	N/A
Capacity Market	N/A	N/A	Enduring	N/A	No - Capacity Mechanism	No- Not balancing energy service	N/A	N/A	N/A