# P410 'Changing imbalance price calculations to comply with the Imbalance Settlement Harmonisation regulations'

This Modification will introduce changes to the imbalance price calculations to ensure Balancing and Settlement Code (BSC) compliance with the European Imbalance Settlement Harmonisation regulations.

ELEXON recommends P410 is progressed to the Assessment Procedure for an assessment by a Workgroup

ELEXON does consider it likely that P410 will impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC

This Modification is expected to impact:

- Suppliers
- Generators
- Non Physical Traders
- Interconnector Users
- Virtual Lead Parties (VLPs)
- National Grid ESO as the National Electricity Transmission System Operator (NETSO)
- ELEXON as Balancing and Settlement Code Company (BSCCo)

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**Phase**

- Initial Written Assessment
- Definition Procedure
- Assessment Procedure
- Report Phase
- Implementation


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## Contents


1 Summary 3
2 Why Change? 4
3 Solution 6
4 Areas to Consider 8
5 Proposed Progression 9
6 Likely Impacts 11
7 Recommendations 14
Appendix 1: Glossary & References 15


## About This Document

This document is an Initial Written Assessment (IWA), which ELEXON will present to the Panel on 9 July 2020. The Panel will consider the recommendations and agree how to progress P410.

There are two parts to this document:

- This is the main document. It provides details of the Modification Proposal, an assessment of the potential impacts and a recommendation of how the Modification should progress, including the Workgroup's proposed membership and Terms of Reference.
- Attachment A contains the P410 Proposal Form.


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# 1 Summary

## What is the issue?

The Imbalance Settlement Harmonisation proposal (ISHP) does not allow the Market Index Price (MIP) to be a valid component of the imbalance price in GB. The ISHP requires that in the case where there is no activation of balancing energy in either direction, a 'Value of Avoided Activation of balancing energy' (VOAA) is used to determine the imbalance price. The VOAA must be based on available prices of Replacement Reserves (RR) or Frequency Restoration Reserves (FRR). This means it cannot be based on prices from another market. As the MIP is based on prices from intraday wholesale electricity markets, it is not a valid VOAA.

The Workgroup will also need to consider other issues that may arise from the approved wording of the ISHP. This may include:

- the continued use and components of price adjusters;
- whether NIV tagging is consistent with the intent of the ISHP; and
- whether the use of marginal pricing using PAR1 is allowed by the ISHP.

## What is the proposed solution?

The solution will introduce a new parameter – VOAA – to be used in the calculation of the imbalance price. VOAA will replace the current function of the MIP in the imbalance price calculations and must be based on the prices of available energy from RR and FRR.

The Workgroup will also consider whether there is value in keeping references to the MIP or whether these should be removed from the BSC.

## Impacts

As P410 will change the imbalance price calculation it will impact **all BSC Trading Parties** that are exposed to the Imbalance Price.

P410 will also impact **ELEXON as the BSCCo** and **National Grid ESO as the NETSO**.

## Implementation

This Modification must be implemented within 18 months of ACER's decision on the final form of the ISHP. We currently anticipate that decision in July 2020, meaning **December 2021** is the latest possible time for implementation.

## Recommendation

We recommend that P410 is submitted to the **Assessment Procedure** to be assessed by a Workgroup.


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# 2 Why Change?

## What is the issue?

Under the current drafting of the Imbalance Settlement Harmonisation proposal (ISHP), the Market Index Price (MIP) will no longer be a valid component of the imbalance price in GB. The ISHP requires that in the case where there is no activation of balancing energy in either direction (i.e. Net Imbalance Volume (NIV) = 0MWh) a 'Value of Avoided Activation of balancing energy' (VOAA) is used to determine the imbalance price. The ISHP further requires that VOAA is based on available prices of Replacement Reserves (RR) or Frequency Restoration Reserves (FRR). This means it cannot be based on prices from another market. As the MIP is based on prices from intraday wholesale electricity markets, it is not a valid VOAA.

This Modification must specify how to determine and apply a VOAA that can be used in the imbalance price calculations where NIV=0.

## Background

Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing ('the EBGL') Article 52(2) requires that Transmission System Operators (TSOs) establish a methodology for harmonising the determination and application of an imbalance price in an Imbalance Settlement Harmonisation proposal ('the ISHP'). The latest version of the proposal is in draft form with the Association for the Cooperation of Energy Regulators (ACER), and has been submitted to the Board of Regulators, the final approval stage. There will need to be BSC changes based on the expected draft, and there is no indication that this position will change prior to the final decision. Even if there are changes between the draft and approved ISHP, it is very likely that changes to the BSC will be required.

### Other considerations

The final text of the ISHP may require other changes to be made to the BSC. Once the final ISHP is approved, the P410 Workgroup will be able to consider any additional changes required. As the defect for P410 is the BSC's non-compliance with the ISHP, we consider any new issues arising to be relevant for consideration within this Modification. A non-exhaustive list of potential issues that may need to be considered are:

- Whether the Buy/Sell Price adjusters constitute as an 'Incentivisation component' and whether they should remain in the imbalance price calculation going forward.
    - Early indications show we are likely to need further input to understand whether we should include all components of these price adjusters in the methodology or not.
- Whether the NIV tagging is valid rationale for designating a system balancing action resulting in energy only balancing actions in one direction.
    - We believe that NIV tagging is compliant with the ISHP as Article 7(3) requires that single pricing uses the price for energy that contributes towards reducing system imbalance.

**What is the Market Index Price?**

The MIP is calculated from trades on the spot markets and is provided by Market Index Data Providers. It is used in Settlement calculations as a proxy for the price of energy when the Net Imbalance Volume is zero, or the Replacement Price Calculation is Zero.

**What is the Net Imbalance Volume?**

NIV is the net imbalance volume (in MWh) of the total system for a given Settlement Period. It is derived by netting Buy and Sell Actions in the Balancing Mechanism. Where the NIV is positive, the system is short and would normally result in the SO accepting Offers to increase generation/decrease consumption and vice versa.

**What are Replacement Reserves and Frequency Restoration Reserves?**

RR and FRR are balancing products used by Transmission System Operators to restore (or maintain) the 'normal' frequency on the Transmission Network.


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- Whether we can continue to use Price Average Reference Volume 1 (PAR1).
    - The Proposal requires the use of either weighted average or maximum/minimum (marginal) price approaches for the calculation of the imbalance price from the actions in the price stack. However, the proposal does not define maximum or minimum price. We consider that the PAR1 calculation constitutes a marginal pricing approach, and is therefore compliant with the proposal.

## Desired outcomes

The primary desired outcome is that the calculation of the imbalance price is compliant with the requirements of the ISHP. The secondary desired outcome is that the calculated imbalance price is, in all cases, an incentive to Parties to remain in balance or to sustain an imbalance that is beneficial to the balance of the total system.

**What are the Buy/Sell Price adjusters?**

Price adjusters are values added to the calculated system prices to reflect availability costs and some other fees incurred by the NETSO. The calculation of price adjusters is contained in the Balancing Services Adjustment Data Methodology Statement.

**What is NIV tagging?**

The system Operator may accept Bids and Offers to increase and reduce energy in a single Settlement Period. NIV Tagging is a process that nets off 'buy' and 'sell' actions. This leaves a reduced stack of actions in one direction.

**What is the Price Average Reference Volume?**

Price Average Reference Volume is used to tag Bid-Offer acceptances such that a maximum volume of PAR MWh is used to set the Energy Imbalance Price. The current value of PAR is 1MWh meaning the most expensive 1MWh of balancing action is used in setting the imbalance price.


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# 3 Solution

## Proposed solution

The solution will introduce a new parameter – VOAA - to BSC Section T 'Settlement and Trading Charges' to be used in the calculation of the imbalance price. VOAA will replace the current function of the MIP in the imbalance price calculations.

The VOAA:

- must be based on the price of available energy from RR and FRR;
- must be reflective of the cost of balancing the system; and
- should provide an incentive to Parties to be in balance or to balance favourably. That is, in case there has been no activation of balancing energy the resulting price should provide no incentive for any Party to deviate from their position[1].

We believe that it may be challenging to achieve all three of these aims. However, the first two are explicit requirements of the ISHP that any solution must satisfy.

The VOAA may be derived from bids and offers for RR and FRR for both standard products (traded on the Trans-European Replacement Reserve Exchange (TERRE) or Manually Activated Reserve Initiative (MARI) platforms) and specific products (such as the Balancing Mechanism (BM)). This will depend on access to the platforms following negotiations on the enduring relationship between the UK and the EU.

ELEXON already has permission to access data from the TERRE platform and submitted bids and offers for the BM. ELEXON has performed an initial analysis of the available BM data and has determined that data cleansing and insight would be needed for it to be effectively used to calculate the VOAA. In particular, invalid bids and offers would need to be removed from the data and there may need to be some insight from National Grid ESO regarding which of the remaining bids and offers constitute viable balancing energy (for example not located behind a constraint).

BM data could then be an input to a calculation to find a midpoint between 'next most expensive prices' of RR and FRR bids for the calculation VOAA. This assessment could include or discount bids and offers activated for system reasons.

Platforms will calculate prices regardless of whether or not balancing demand was activated from a given TSO, and the price calculated would represent the marginal price of balancing for that TSO. The TSO would be exposed to that price whether they needed positive or negative balancing energy. Similarly, it represents a price at which Parties are willing to change their position (in either direction).

One or both of these prices could be used, and the way in which the prices are combined could vary. A straight average is most likely to give a result reflective of available bids and offers[2].

The solution may disapply the MIP and remove reference to it in the BSC and BSC Systems. It will no longer serve a purpose in respect of calculating the imbalance price.

[1] 'Favourable imbalance' is challenging to define in situations where there has been no activation of balancing energy. As the system maintained balance, technically all imbalance is favourable to maintaining the system. Therefore, the price should incentivise Parties to maintain their position, or disincentivise the alteration of a Party's position.

[2] A volume weighted average is not applicable in this scenario, as there are no activated volumes to contribute towards a weighting.


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There may be a rational argument to maintain the calculation and publication of the MIP. This can be discussed in the Workgroup.

### Benefits

This Modification will provide the following benefits:

- For GB to be compliant with the requirements of Article 52.
- Balancing energy pricing continues to be reflective of the cost of balancing the system.
- Balancing energy pricing continues to incentivise favourable imbalances and disincentivise unfavourable imbalances.

## Applicable BSC Objectives

### Applicable BSC Objective (b)

While this Modification will also ensure efficient operation of the National Electricity Transmission System, we do not consider that it results in a more efficient outcome than the existing baseline. This is because we believe the MIP continues to be a reasonable proxy where it is used.

We would not recommend any change to the existing calculations if the MIP continued to be compliant with the ISHP. We therefore believe that the Modification will be **neutral** on Applicable BSC Objective (b).

### Applicable BSC Objective (c)

We believe this Modification **positively** impacts Applicable BSC Objective (c) as it harmonises the imbalance settlement approach with other markets across the EU, improving competition and access to markets.

### Applicable BSC Objective (e)

We believe this Modification **positively** impacts Applicable BSC Objective (e) as it will ensure compliance with the ISHP, as per the EBGL.

We believe P410 will be **neutral** against all other Applicable BSC Objectives.

## Implementation approach

This Modification must be implemented within 18 months of ACER's decision on the final form of the ISHP. We currently anticipate that decision in July 2020, meaning December 2021 is the latest possible time for implementation.

**What are the Applicable BSC Objectives?**

(a) The efficient discharge by the Transmission Company of the obligations imposed upon it by the Transmission Licence

(b) The efficient, economic and co-ordinated operation of the National Electricity Transmission System

(c) Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

(d) Promoting efficiency in the implementation of the balancing and settlement arrangements

(e) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency [for the Co-operation of Energy Regulators]

(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation

(g) Compliance with the Transmission Losses Principle

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# 4 Areas to Consider

In this section we highlight areas which we believe the Panel should consider when making its decision on how to progress this Modification Proposal, and which a Workgroup should consider as part of its assessment of P410. We recommend that the areas below form the basis of a Workgroup's Terms of Reference, supplemented with any further areas specified by the Panel.

The core question that the P410 will need to consider is how a VOAA can be calculated in compliance with the ISHP, and its application in the Settlement calculations.

In addition to this, the Modification Workgroup will need to consider any other issues that may arise from the final approved ISHP, as specified in Section 2 of this paper. This includes, but is not limited to:

- the continued use and components of price adjusters;
- whether NIV tagging is consistent with the intent of the ISHP; and
- whether the use of marginal pricing using PAR1 is allowed by the ISHP.

## Areas to consider

The table below summarises the areas we believe a Modification Workgroup should consider as part of its assessment of P410:

| Areas to Consider |
|---|
| How can a VOAA be calculated in compliance with the ISHP? |
| Is there any value to keeping references to the MIP in the BSC? |
| Is the BPA permissible in its current form? |
| Is the use of PAR1 compliant with the ISHP and it optimal? |
| Do components of the BPA need to change, or should a new parameter be introduced to account for relevant costs? |
| How will P410 impact the BSC Settlement Risks? |
| What changes are needed to BSC documents, systems and processes to support P410 and what are the related costs and lead times? When will any required changes to subsidiary documents be developed and consulted on? |
| Are there any Alternative Modifications? |
| Should P410 be progressed as a Self-Governance Modification? |
| Does P410 better facilitate the Applicable BSC Objectives than the current baseline? |
| Does P410 impact the EBGL provisions held within the BSC, and if so, what is the impact on the EBGL objectives? |


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# 5 Proposed Progression

## Next steps

The Proposer recommends that this Modification is be submitted to the Assessment Procedure to be assessed by a Workgroup.

Given the potential for material systems changes for both BSCCo and the NETSO we aim to have the Workgroup process finished and a final Modification report consulted on and submitted to Ofgem by January 2021 at the latest.

## Workgroup membership

The assessment of this Modification Proposal requires knowledge in:

- The ISHP;
- BSC Settlement Calculations, in particular imbalance pricing; and
- The EBGL Article 18 Terms and Conditions.

## Self-Governance

The Proposer believes that this Modification **should not** be treated as a Self-Governance Modification as it will result in a change in the way the imbalance price is calculated in some scenarios. This may have some impact on competition between Parties and on the cost of electricity for consumers. It is also likely that this Modification will require changes to the EBGL Article 18 Terms and Conditions contained within the BSC and subject to these impacts materialising, P410 cannot be considered as Self-Governance.

## Urgency

This Modification **should not** be treated as an Urgent Modification. The legal deadline for implementing the ISHP into the BSC is 18 months after the proposal is approved. Based on ACER making a decision in July, this deadline will be December 2021. Although there are likely to be system changes required by this Modification, there should be sufficient time to develop these under the normal Modification processes.

**What is the Self-Governance Criteria?**

A Modification that, if implemented:
(a) does not involve any amendments whether in whole or in part to the EBGL Article 18 terms and conditions; except to the extent required to correct an error in the EBGL Article 18 terms and conditions or as a result of a factual change, including but not limited to:
(i) correcting minor typographical errors;
(ii) correcting formatting and consistency errors, such as paragraph numbering; or
(iii) updating out of date references to other documents or paragraphs;
(b) is unlikely to have a material effect on:
(i) existing or future electricity consumers; and
(ii) competition in the generation, distribution, or supply of electricity or any commercial activities connected with the generation, distribution, or supply of electricity; and
(iii) the operation of the national electricity transmission system; and
(iv) matters relating to sustainable development, safety or security of supply, or the management of market or network emergencies; and
(v) the Code's governance procedures or modification procedures; and
(c) is unlikely to discriminate between different classes of Parties.


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## Timetable

| Proposed Progression Timetable for P410 | |
|---|---|
| Event | Date |
| Present Initial Written Assessment to Panel | 9 July 2020 |
| Workgroup Meeting | W/B 3 August 2020 |
| Workgroup Meeting | W/B 31 August 2020 |
| Assessment Procedure Consultation | 21 September 2020 – 9 October 2020 |
| Workgroup Meeting | W/B 19 October 2020 |
| Present Assessment Report to Panel | 12 November 2020 |
| Report Phase Consultation and EBGL change process | 19 November 2020 – 21 December 2020 |
| Present Draft Modification Report to Panel | 14 January 2020 |
| Issue Final Modification Report to Authority | 21 January 2020 |


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# 6 Likely Impacts

| Impact on BSC Parties and Party Agents | |
|---|---|
| Party/Party Agent | Potential Impact |
| Suppliers | This Modification will impact all BSC Trading Parties who are exposed to imbalance prices, as it will change the imbalance price in some scenarios. |
| Generators | |
| Non Physical Traders | |
| Interconnector Users | |
| VLPs | |

| Impact on the National Electricity Transmission System Operator |
|---|
| The NETSO may need to provide new data and perform some elements of data cleansing and categorisation. The extent of this will depend on the final solution. |

| Impact on BSCCo | |
|---|---|
| Area of ELEXON | Potential Impact |
| Market Operations | The processes and insights provided by the Market Operations team will need to account for the potential changes to the imbalance price. |

| Impact on BSC Settlement Risks |
|---|
| We do not anticipate any impact on the Settlement Risks resulting from this Modification. |

| Impact on BSC Systems and processes | |
|---|---|
| BSC System/Process | Potential Impact |
| Settlement Administration Agent | We believe that the Settlement Administrator Agent and the Balancing Mechanism Reporting Service systems will need new calculations to determine VOAA and to deliver it into the imbalance price calculations. |
| Balancing Mechanism Reporting Service | |
| ELEXON Portal | There may also be some reconfiguration of ELEXON Portal data files to include the new value and details of the calculations performed. |

| Impact on BSC Agent/service provider contractual arrangements | |
|---|---|
| BSC Agent/service provider contract | Potential Impact |
| Settlement Administration Agent | We believe that the Settlement Administrator Agent and the Balancing Mechanism Reporting Service systems will need new calculations to determine VOAA and to deliver it into the imbalance price calculations. |
| Balancing Mechanism Reporting Agent | |


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| Impact on Code | |
|---|---|
| Code Section | Potential Impact |
| T 'Settlement and Trading Charges' | Changes will be needed to introduce the new VOAA parameter and calculations. |
| X-1 'General Glossary' | Changes will be needed to add definitions and terminology for VOAA and the parameters necessary for the calculation of VOAA |
| X-2 'Technical Glossary' | |
| V 'Reporting' | Changes will be needed to include new data relating to VOAA. |
| Q 'Balancing Service Activities' | Changes may be needed if there are additional requirements on bid-offer pair data submitted by National Grid ESO for the calculation of VOAA. |
| B 'The Panel' | If the calculation and publication of the MIP is discontinued, these BSC Sections will also need amending to remove references to Market Index Data, Market Index Data Providers, Market Index Data Provider Contracts, the Market Index Definition Statement and Market Index Volumes and the associated parameters. |
| C 'BSCCo and its Subsidiaries' | |
| D 'BSC Cost Recovery and Participation Charges' | |
| H 'General' | |
| O 'Communications Under the Code' | |
| W 'Trading Disputes' | |

| Impact on EBGL Article 18 terms and conditions and objectives |
|---|
| P410 will require changes to BSC sections which constitute EBGL Article 18 Terms and Conditions. The impact of this will be determined during the Assessment Procedure. |

| Impact on Code Subsidiary Documents | |
|---|---|
| CSD | Potential Impact |
| BMRS Data Catalogue | Changes will be needed to include new data relating to VOAA. |

| Impact on a Significant Code Review (SCR) or other significant industry change projects |
|---|
| We do not believe this Modification impacts on any existing SCR or other significant industry change projects, beyond some relationship with wider implementation of changes to ensure compliance with European Regulation. An SCR Exemption request was sent to Ofgem on 3 July 2020. |


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| Impact on Consumers |
| --- |
| This Modification will change the calculation of the imbalance price in some circumstances, which may have a small impact on the cost of energy for consumers. Actual costs will depend on a customer's Supplier and that Supplier's hedging and operations strategy, as well as system management conditions on a per Settlement Period basis. |

| Impact on the Environment |
| --- |
| We do not anticipate any impacts on the environment as a result of P410. |


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# 7 Recommendations

We invite the Panel to:

- **AGREE** that P410 progresses to the Assessment Procedure;
- **AGREE** the proposed Assessment Procedure timetable;
- **AGREE** the proposed membership for the P410 Workgroup; and
- **AGREE** the Workgroup's Terms of Reference.


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# Appendix 1: Glossary & References

## Acronyms

Acronyms used in this document are listed in the table below.

| Acronym | |
|---|---|
| Acronym | Definition |
| ACER | Association for the Cooperation of Energy Regulators |
| BM | Balancing Mechanism |
| BMRS | Balancing Mechanism Reporting Service |
| BPA | Buy Price Price Adjustment |
| BSC | Balancing and Settlement Code |
| BSCCo | Balancing and Settlement Code Company |
| EBGL | Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing |
| FRR | Frequency Restoration Reserves |
| ISHP | Imbalance Settlement Harmonisation Proposal |
| IWA | Initial Written Assessment |
| MARI | Manually Activated Reserves Initiative |
| MIP | Market Index Price |
| NETSO | National Electricity Transmission System Operator |
| NIV | Net Imbalance Volume |
| RR | Replacement Reserves |
| TERRE | Trans European Replacement Reserves Exchange |
| VOAA | Value of Avoided Activation of balancing energy |

## External links

A summary of all hyperlinks used in this document are listed in the table below.

All external documents and URL links listed are correct as of the date of this document.

| External Links | | |
|---|---|---|
| Page(s) | Description | URL |
| 4 | Commission Regulation (EU) 2017/2195 of 23 November 2017 establishing a guideline on electricity balancing | https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R2195&from=EN |
| 6, 12 | BSC Sections | https://www.elexon.co.uk/bsc-and-codes/balancing-settlement-code/ |
| 12 | BMRS Data Catalogue | https://www.elexon.co.uk/csd/bmrs-data-catalogue/ |


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