Draft Modification Report

P415 ‘Facilitating Access to Wholesale Markets for Flexibility Dispatched by VLPs’

P415 seeks to amend the BSC to allow Virtual Lead Parties (VLPs) to participate in the GB wholesale market.

The BSC Panel initially recommends **approval** of the P415 Alternative Modification and **rejection** of the P415 Proposed Modification

The BSC Panel **does** believe P415 impacts the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC

This Modification is expected to impact:

- Suppliers; and
- Virtual Lead Parties (VLPs).

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Phase

Initial Written Assessment

Definition Procedure

Assessment Procedure

Report Phase

Implementation

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About This Document

This is the P415 Draft Modification Report, which Elexon will present to the Panel at its meeting on 8 June 2023. It includes the responses received to the Report Phase Consultation on the Panel's initial recommendations. The Panel will consider all responses, and will agree a final recommendation to the Authority on whether the change should be made.

There are six parts to this document:

- This is the main document. It provides details of the solution, impacts, costs, benefits/drawbacks and proposed implementation approach. It also summarises the Workgroup's key views on the areas set by the Panel, and contains details of the Workgroup's membership and full Terms of Reference.
- Attachment A contains the draft redlined changes to the BSC for the P415 Proposed and Alternative Solutions
- Attachment B contains the Solution Summary and Business Requirements
- Attachment C contains the final P415 Cost Benefit Analysis (CBA) Report
- Attachment D contains the full responses received to the Workgroup's Assessment Procedure Consultation. Please note that there are two versions of this document: public and confidential. We have included the public version for this report. Confidential responses will be shared with Ofgem as the Authority only.
- Attachment E contains the full responses received to the Panel's Report Phase Consultation.

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Not sure where to start?

We suggest reading the following sections:

- Have 5 minutes? Read section 1
- Have 15 minutes? Read sections 1, 7 and 8
- Have 30 minutes? Read all except section 6
- Have longer? Read all sections and the annexes and attachments.
- *You can find the definitions of the terms and acronyms used in this document in the BSC Glossary*[1]

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1 Summary

Why Change?

Currently customers (consumers of electricity) who are able to be flexible about their consumption cannot currently obtain any value from that flexibility from the Wholesale Energy Market, except if they work with their Supplier to do so. Therefore, customers can only obtain value from flexibility from working with their Supplier, and not from VLPs who may also be able to support flexibility services.

This is because the BSC assigns all flexibility delivered by a customer to their Supplier, with the exception of flexibility instructed by National Grid ESO in the Balancing Mechanism, which can be assigned to a third party (referred to in the BSC as a "Virtual Lead Party").

As a result, customers can only access power exchanges (and other markets that require notification of contracts under the BSC) though their Supplier. This contrasts with Balancing Services and the Capacity Market (CM), all of which allow a customer's flexibility to be offered by an aggregator without the involvement of the Supplier. This defect should be fixed primarily because it will remove a barrier to customers offering flexibility, and hence should increase participation and the level of effective competition in the wholesale market.

Solution

P415 will enable a VLP to trade Deviation Volumes on the wholesale market on behalf of their customer(s). These trades shall be captured in the same manner as existing Parties i.e. via Electricity Contract Volume Notifications (ECVN).

Deviation Volumes are a measurable commodity that represent an import/export MWh deviation to the Total System as a result of independent aggregation activity by a VLP.

Neither the counterparty nor registered Supplier shall bear any liability for delivery of the trade. On principle, the registered Supplier at a site where the customer has chosen to use a VLP independent aggregation service will receive no direct benefit nor detriment from such a service.

P415 Proposed Solution

Under the Proposed Solution, compensation costs are mutualised, with compensation paid at a price that approximates the Supplier's expected sourcing costs, obtained by using Ofgem's published Price Cap Methodology (PCM). The approach to 'who pays compensation' (mutualised under the Proposed Solution, paid by the VLP under the Alternative) is the only difference between the Proposed and Alternative Solutions. At the time of the Assessment Procedure Consultation, the Proposed Solution was what is now the Alternative Solution.

Please note that the Proposer of P415 is proposing this solution on the basis that it enables both a Proposed and Alternative solution to be brought before Ofgem (as they requested), which would not be possible otherwise, as described in further detail in Section 6 'Workgroup Discussions'. The Proposed and Alternative solutions have been flipped, such that the P415 Proposer does not believe that the Proposed solution is a better option that the Alternative, but does believe that it is better than the current BSC arrangements.

What are Deviation Volumes?

Deviation Volumes are a new type of Settlement volume introduced for P415 and represent the difference between what is forecast to be consumed / generated and what was actually consumed / generated (where the difference can be attributed to a VLP action taken at that site.)

Deviation Volumes represent an import/export MWh deviation to the Total System as a result of said action by a VLP.

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A minority of the BSC Panel and Workgroup members believe that the Proposed Solution is better than the Alternative Solution.

P415 Alternative Solution

Under the Alternative Solution (Proposed Solution at the time of the Assessment Procedure Consultation), VLPs are liable to pay compensation costs for volumes adjusted by that VLP, with compensation paid at a price that approximates the Supplier's expected sourcing costs, obtained by using Ofgem's published Price Cap Methodology (PCM).

A majority of the BSC Panel and Workgroup members (including the P415 Proposer) believe that the Alternative Solution is better than the Proposed and should be approved

Impacts & Costs

Costs Estimates			
Organisation	Implementation (£)	On-going (£)	Impacts
Elexon	£2.2-3.2 Million	£10k per year	Systems, documents and processes
Industry	Medium to Low	Low	Systems and processes
Total	£2.3-3.3 Million	0	

CBA Summary of Findings

On request of the BSC Panel and P415 Workgroup, CEPA performed a Cost Benefit Analysis (CBA) of P415 to provide information to the BSC Panel, P415 Proposer and P415 Workgroup on the potential benefits, costs and other impacts of implementing P415.

Further detail can be found in the CBA Final Report in Attachment C, but in summary:

1. The volume of additional flex that would be deployed as a result of P415 is highly uncertain.
2. The magnitude of benefits could be significant.
3. Costs of implementation are likely to be small relative to potential upside for benefits.
4. Some potential risks exist but are likely to be relatively low materiality with possible mitigations.

Assuming P415 does deliver additional volumes of flexibility, the CBA modelling suggests benefits could be material with the potential for £100s millions of consumer welfare benefit per year, considered across a range of scenarios.

Implementation

P415 is targeting implementation for 7 November 2024 as part of the November 2024 BSC Release.

The Proposer and Workgroup wish P415 to be implemented as soon as possible, if approved, but note that the necessary system change to enable the solution has a necessary lead time of one year following the point of Ofgem decision.

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Impact on EBGL Article 18 Terms and Conditions

Draft redlined changes to several areas of the BSC (described in further detail in Section 5 'Impacts and Costs' have been identified as falling under the European Balancing Guidelines (EBGL) Article 18 Terms and Conditions listed in BSC Section F Annex F-2, but the Proposer and Workgroup believe these impacts to be positive by better facilitating several of the EBGL Objectives.

Panel's Initial Recommendation

The BSC Panel initially believe that whilst the Proposed Solution is better than the baseline, the Alternative Solution is better than the Proposed. Therefore, the initial recommendation is that the Alternative Solution is better than the Proposed and should be **approved**, and further information can be found in section 8 ' Panel's Initial Discussions'.

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2 Why Change?

What is the issue?

Under the status quo, customers (consumers of electricity) who are able to be flexible about their consumption cannot currently obtain any value from that flexibility from the wholesale energy market, except if they work with their Supplier to do so. This is because the BSC assigns all flexibility delivered by a customer to their Supplier, with the exception of flexibility instructed by National Grid ESO in the Balancing Mechanism or Replacement Reserve market (TERRE), which can be assigned to a third party (referred to in the BSC as a "Virtual Lead Party".)

As a result, customers can only access power exchanges (and other markets that require notification of contracts under the BSC) though their Supplier. This contrasts with Balancing Services and the Balancing Mechanism which allow a customer's flexibility to be offered by an aggregator without the involvement of the Supplier.

This anomaly should be fixed primarily because it will remove a barrier to customers offering flexibility, and hence should increase participation and the level of effective competition the demand side can bring.

In addition, it is a requirement of the Clean Energy for All Europeans package (EU Directive 2019/944). Article 17, Clause 1 which states:

> *"Member States shall allow final customers, including those offering demand response through aggregation, to participate alongside producers in a non-discriminatory manner in all electricity markets."*

The same article goes on to clarify that the Supplier's permission must not be required.

Background

P415 relationship with P344, P375 and P376

Elexon note that aspects of the Settlement functionality needed to achieve a P415 solution had been implemented by P344: 'Wider Access and Project TERRE' which enables VLPs to participate in the Balancing Mechanism. P344 allows the separation of normal supply to the customer and the offering of normal flexibility from the customer.

Elexon also note that BSC modifications: P375 'Settlement of Secondary BM Units using metering behind the site Boundary Point' and P376: 'Utilising a Baselining Methodology to set Physical Notifications' introduce functionality that facilitates accuracy in determining settlement of actions the VLP has taken.

- P375 allows metering at the flexible asset; and
- P376 also provides baselining methodologies to separating out normal behaviour from flexibility.

Therefore P415 solution builds upon the functionality of P344, P375 and P376 to reduce cost and promote efficiency.

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P376: 'Utilising a Baselining Methodology to set Physical Notifications'

As new concept introduced by P415, Deviation Volumes capture the difference between what a site would tend to consume or generate without any action from VLP (called the baseline) and what was actually consumed/generated as a result of a VLP action taken at that site. Deviation Volumes represent an import/export MWh deviation to the Total System as a result of that action by a VLP.

In order to calculate Deviation Volumes, Settlement needs to be able to accurately forecast an expected BM Unit volume. P376 introduced a new defined item 'Settlement Expected Volume' which represents an expected BM Unit volume based upon historical metered volumes. P415 proposes to utilise this P376 functionality to set the baseline from which Deviation Volumes shall be measured.

Note: the consequence of this is that only Baselined Secondary BM Units will have wholesale market Deviation Volumes calculated.

Amending the P376 baselining solution for P415

P376 seeks to allow the expected flows at Supplier Volume Allocation (SVA) Metering Systems participating in the Balancing Mechanism (BM) to be calculated using an approved Baselining Methodology.

The new Settlement Expected Volume calculated from the baseline values will be decoupled from the Physical Notification used by the National Electricity Transmission System Operator (NETSO) for dispatch. It will be used in Settlement to calculate Non-Delivery Charges, allowing balancing service providers to be more accurately recompensed for their actual change from normal usage and the impact this change has on the system, thus enabling greater participation.

P375 is compatible with P376 so that Settlement is able to use a baselining methodology to set Physical Notifications (PNs) (i.e. calculating a 'Settlement Expected Volume) for Secondary BM Units (SBMUs) containing Asset Metering.

How does the baselining work?

Under P376, a VLP notifies Elexon that a SBMU is to be a Baselined BM Unit.

However not all MSID Pairs in a Baselined BM Unit may be suitable for using the baselining solution. Parties will need to monitor MSID Pairs in a Baselined BM Unit to ensure that the appropriate statuses are selected for each. The Party will select from the three statuses:

1) Baselined – MSID Pairs that will have their forecasted volumes determined using a Baselining Methodology.

2) Included in Party Submission – MSID Pairs in a Baselined BM Unit that will not have their forecast volumes determined using a Baselining Methodology. Instead Parties will submit an aggregate forecast of energy flows for these MSID Pairs.

3) Inactive – MSID Pairs in a Baselined BM Unit that will not be used to provide any balancing services and whose volumes will not be used in the calculations. Inactive MSID Pairs will not be able to have Delivered Volumes assigned against them.

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The Supplier Volume Allocation Agent (SVAA) then calculates a Settlement Expected Volume for Baselined BM Units using an agreed baseline methodology and historical metered consumption.

P375: 'Settlement of Secondary BM Units using metering behind the site Boundary Point'

P375 will allow Metering Equipment situated 'behind' the defined Boundary Point to be used for Settlement purposes in place of the Boundary Point Meter. P375 has been designed to be compatible with P376 so that Settlement will be able to use a baselining methodology to set Physical notifications (i.e. calculate a 'Settlement Expected Volume) for secondary BM Units containing asset metering.

Therefore the P415 solution shall be able to calculate Deviation volumes for Baselined BM Units (using the P376 functionality) that contains asset metering (using the P375 functionality).

Desired outcomes

Just as customers can participate in Balancing Services or the Balancing Mechanism by working with an independent aggregator, with no involvement from their Supplier, so they should also be able to participate in a similar manner in the wholesale energy market. This requires that dispatched flexibility volumes be separated from normal supply volumes, with different parties responsible for each.

To avoid duplication of effort, the mechanism for this should build on the Virtual Lead Party introduced by P344 for the Balancing Mechanism, should support the use of sub-Meters per P375 and baseline methodologies per P376 .

In a period in which a customer's consumption is being varied by a VLP so as to meet a wholesale market commitment, the customer's Supplier's balancing position should be unaffected. Any imbalances resulting from the VLP's portfolio failing to deliver the traded volumes during that period should be the responsibility of the VLP.

Provision of flexibility for wholesale market purposes under these new arrangements should be stackable with all other flexibility services – i.e. they should all be able to be offered and dispatched simultaneously, subject to the limitation that each unit of delivered energy can only be counted once.

Although we anticipate that in most cases the flexibility traded will be reductions in net consumption, there could be useful actions in the opposite direction, so the mechanism should be symmetrical

What is an Event Day?

The Baseline Methodology creates a baseline based on normal usage and predicts what the MSID Pair should be doing. Therefore, it needs to discount days where the site is doing something not normal, such as providing a Balancing Service or to fulfil trades on the wholesale market. Current Event Day submissions provisions currently only recognise Balancing Services only and need to be amended. P415 shall amend the notification type options available for event day submissions to Settlement

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3 Solution

P415 solution

P415 Solution Requirements

The following solution elements are shared between the P415 Proposed and Alternative Solutions.

Deviation Volumes

Deviation Volumes are a new type of Settlement volume introduced for P415 and represent the difference between what is forecast to be consumed/generated and what was actually consumed/generated (where the difference can be attributed to a VLP action taken at that site.)

Deviation Volumes represent an import/export MWh deviation to the Total System as a result of said action by a VLP.

For Example:

- VLP enacts an Early Shutdown (i.e. reduces demand at site boundary); or
- The Early shutdown (i.e. the demand reduction action) effectively results in an additional amount of MWh on the Total System.

Registration

P415 will require minor changes to BSC registration, Qualification and communication processes to facilitate wholesale market access for VLPs. To remove barriers to entry P415 creates a new Trading Party category of VLP to facilitate access to the wholesale market. This effectively means that an Independent Aggregator shall be able to access the wholesale market and balancing markets separately (i.e. via distinct BSC Participation Capacities) removing the Qualification and compliance burden on Independent Aggregators who only want access to a single market.

Performance Assurance Activities

Under the BSC, to participate in the Supplier Volume Allocation (SVA) market Parties have to complete SVA Qualification (including the VLP Participation Capacity) to provide assurance that their systems and processes have been developed in line with BSC requirements. Qualification also helps check that systems won't pose a risk to Settlement.

Whilst the new Trading Party (in the new category of VLP) is distinct and separate from the existing VLP Participation Capacity it will still operate in the SVA market (i.e. allocate MSID Pairs to Secondary BM Units and submit Delivered Volumes) and therefore SVA Qualification will also be needed.

Currently all BSC Parties and Party Agents must demonstrate the required ability to communicate with BSC Central Systems and this Qualification process delivers the aforementioned assurances.

As a Trading Party (in the new category of Virtual Lead Party) a VLP is distinct and separate from the existing VLP Participation Capacity, CVA Qualification will also be needed.

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Secondary BM Units

A Trading Party (in the new category of Virtual Lead Party) shall be able to register Secondary BM Units in the same manner as existing VLP participation capacity. Secondary BM units shall continue to have the same requirements and restrictions as per the existing arrangement.

A Secondary BM Unit must satisfy the following conditions:

a) the Secondary BM Unit does not comprise of CVA Metering System(s);

b) the Secondary BM Unit may only comprise of Half Hourly SVA Metering System(s) and/or flows to and from which are measured by an Asset Metering System;

c) a Secondary BM Unit shall not have a Half Hourly SVA Metering System allocated to it which is allocated to another Secondary BM Unit at the same time;

d) a Secondary BM Unit does not comprise of Half Hourly SVA Metering System(s) and/or Asset Metering Systems in more than one GSP Group; and

e) a Secondary BM Unit may have an Asset Metering System allocated to it which is allocated to one other Secondary BM Unit at the same time, provided that the Asset Metering System is used solely for Asset Differencing.

Credit Cover

Independent Aggregators who register and qualify as a Trading Party (in the new category of Virtual Lead Party) will pay their Trading Charges approximately 29 calendar days after a Settlement Day occurs (like all Trading Parties). Over this period a Party's Credit Cover ensures it has enough collateral to cover these payments in case of default.

Secondary BM Units (whose lead party is VLP Trading Party) shall be treated as a Non-Credit qualifying BM Unit.

Energy Indebtedness (EIpj) for Secondary BM Units shall be the sum over the previous 29 calendar days (including the current Settlement Day) of Credit Assessment Energy Indebtedness (CEI), Metered Energy Indebtedness (MEI) and Actual Energy Indebtedness (AEI)

As a Trading Party (in the new category of Virtual Lead Party) is not exempt from being in Default of the BSC, the BSC Panel shall have the same powers and rights in relation to these Parties as it does for existing Trading Parties as outlined in Section A 'Parties and Participation'.

Contract Notifications

Trading Parties (in the new category of Virtual Lead Party) shall function in the same ways as existing Trading Parties in regards to the submission of wholesale market traded volumes to Settlement i.e. via submission of Electricity Contract Volume Notification (ECVN) and Metered Volume Reallocation Notification (MVRN).

Calculating SBMU Deviation Volumes

As a Trading Party (in the new category of Virtual Lead Party) an aggregator will likely not be active (in either the BM or wholesale markets) in every Settlement Period during a Settlement Day and therefore should only be allocated Deviation Volumes when they are active.

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- When a Trading Party (in the new category of Virtual Lead Party) is activated in the BM NGESO sends a Bid Offer Acceptance (BOA) to Settlement.
- When a VLP is activated in the wholesale market the Trading Party (in the new category of Virtual Lead Party) shall be obligated to inform Settlement when they are active in the wholesale market.

Receipt of either a BOA from NGESO or a wholesale market notification from a Trading Party (in the new category of Virtual Lead Party) shall trigger the calculation of Deviation Volumes. This ensures that only VLP-triggered deviations are attributed to Independent Aggregators and ensures integrity of Settlement.

MSID Pair Delivered Volume

Under the current BSC arrangements a VLP is obligated to notify Settlement of the load deviations it has actioned at each non-baselined MSID Pair (and Baselined MSID Pair with the status of submitted) within its portfolio when fulfilling each balancing action.

This obligation is to be expanded to include both balancing actions and wholesale market activity. Note: that there is no obligation to differentiate between Balancing and wholesale market volumes (as the VLP may be active in both at the same time). Therefore the MSID Pair Delivered Volume will represent to total deviation action at a site.

The VLP impacted Suppliers Imbalance adjustments (designated within the BSC as the Period Supplier BM Unit Delivered Volume (QBSDij)) is calculated by aggregating the Period Secondary BM Unit Supplier Delivered Volume (QSDiji2) from all Secondary BM Units that impact the Supplier BM Unit.

- QBSDij = Σi2QSDiji2
- where Σi2 represents the sum over all Secondary BM Units i2 for which Primary BM Unit "i" is to be allocated a value of QSDiji2.

However QSDiji2 is based on the physically-delivered VLP Balancing Volumes and the aforementioned VLP MSID Pair Delivered Volumes.

Therefore new arrangements need to be introduced for the volumes affected by a Trading Party (in the new VLP role) to account for wholesale market activity.

These new arrangements need to work in parallel with the existing arrangements to ensure that the Elexon can settle Suppliers accurately for Trading Parties (in the new role of VLP) that impact their imbalance position.

Imbalance Settlement

Trading Parties who are VLPs shall not be allocated metered volumes from Secondary BM Units.

Secondary BM Units shall be allocated Deviation Volumes. Credited Energy Volumes represent Metered Volumes and as Deviation Volumes are distinct Metered Volumes they cannot be allocated here. Therefore a new entry is needed in the energy imbalance volume calculation to represent Deviation Volumes

Benefits

P415 is intended to offer benefits to consumers by enhancing flexibility of demand to meet periods of high and low Renewable Energy Sources (RES) output. The P415 CBA in

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attachment C identified the potential for significant benefits where P415 leads to deployment of significant volumes of additional flexibility. While benefits hold with lower volumes, they are more marginal.

Total welfare impacts were found to be positive under all scenarios and under both Compensation variants in the CBA.

The most likely wider benefits were considered to be from spill over effects to other markets – CM, balancing market, local flexibility markets – particularly given the need for many flexibility providers to stack revenues.

However, the CBA reported that CEPA did not expect these non-modelled benefits to be large enough to significantly influence their overall welfare assessment.

The Cost Benefit Analysis highlighted that costs of implementation are not negligible (low £10s millions up front implementation costs with £1s millions annual costs) and could outweigh benefits if P415 delivers only very small amounts of additional flexibility but the potential upside benefits could dwarf implementation costs if P415 results in even moderate volumes of additional flexibility.

P415 alternative solutions

Over the course of assessment of P415, the Workgroup discussed several approaches to the liability for payment of Supplier compensation and the price at which it should be paid. As discussed in further detail in Section 6 ‘Workgroup Discussions’, variants of the solution that varied the price at which compensation payments should be paid were ultimately not taken forward, but the Proposer and Workgroup have developed the following Proposed and Alternative solutions.

P415 Proposed Solution

Under the P415 Proposed Solution, also referred to as Supplier Compensation 3:

- Compensation costs are mutualised across all Suppliers; and
- Compensation is paid at a price that represents the average Supplier sourcing costs.

It should be noted that the Proposer of P415 is presenting this solution on the basis that it enables both a Proposed and Alternative solution to be brought before Ofgem, which would not be possible otherwise, as described in further detail in Section 6 ‘Workgroup Discussions’. The P415 Proposer prefers that compensation is paid by the VLP and does not believe that the Proposed Solution is a better option that the Alternative, but does believe that it is better than the current BSC arrangements.

P415 Alternative Solution

Under the P415 Proposed Solution, also referred to as Supplier Compensation 1:

- VLPs (as the Balancing Responsible Party) are liable for compensation costs; and
- Compensation paid at a price that represents the average Supplier sourcing costs.

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Ofgem Price Cap Methodology

Under both the Proposed and Alternative Solutions the Supplier Compensation Reference Price approximates the average Supplier's sourcing costs.

Ofgem's published Price Cap Methodology (PCM) will be used to calculate this figure.

The PCM figure used will be the single rate metering arrangement with the inclusion of an allowance for:

- shaping, forecast error and imbalance;
- transaction costs; and
- basis risk.

If Ofgem were to no longer utilise a price cap methodology, or if this methodology were no longer suitable, Elexon will develop the methodology to produce the part required by P415, so in the event that this cannot be done before the final price cap period expires, the existing price cap will be maintained until such a time that it is no longer required.

In this circumstance, the BSC Panel shall agree the Supplier Compensation Price Methodology and which third part service provider should be used to obtain the relevant data for use in Settlement. A new Category 3 BSC Document (under the supervision and control of the BSC Panel) would contain the Supplier compensation methodology to allow appropriate governance controls and transparency to industry.

Legal text

The legal text to deliver the intent of P415's Proposed and Alternative solutions can be found in Attachment A.

Responses to the Assessment Consultation

Do you agree with the Workgroup that the draft legal text in Attachment A delivers the intention of P415?			
Yes	**No**	**Neutral/No Comment**	**Other**
8	2	1	1

Please note that, at the time of the Assessment Consultation, no formal Alternative had been raised, and what was referred to as the Proposed Solution (Compensation 1) has now become the Alternative. Legal Text to support the new Proposed Solution will be issued as part of the Report Phase Consultation, so that industry have an opportunity to review.

Responses were largely supportive or provided no comment or remained neutral. One 'No' was received, as the respondent couldn't find the attachment at the time of replying.

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4 Impacts & Costs

Estimated implementation costs of P415

- High: >£1 million
- Medium: £100-1000k
- Low: <£100k

Implementation cost estimates			
Organisation	Item	Implementation (£)	Comment
Elexon	Systems	£2.2-3.2 Million	New systems and processes will be needed to allow for effective data and settlement flows regarding deviation volumes to account for VLP flexibility actions, to reflect imbalance settlement arrangements and to introduce the relevant compensation flows and procedures
	Documents	£2K	
NGESO	Processes	Unknown but expected to be low	Will need to receive additional information relating to VLPs' intended Deviation Volumes from VLPs using the P415 process
Industry	Systems & processes	Low to medium	Extrapolated from responses to Call for Evidence under the CBA, and limited responses to the Assessment Consultation.
	Total	£2.3-3.3 Million	

Estimated on-going costs of P415

On-going cost estimates		
Organisation	Costs (£)	Comment
Elexon	£10K per year	New systems and processes will be needed to allow for effective data and settlement flows regarding deviation volumes to account for VLP flexibility actions, to reflect Imbalance Settlement arrangements and to introduce the relevant compensation flows and procedures
NGESO	None anticipated	
Industry	Low	Extrapolated from limited response to CBA Call for Evidence and limited responses to the Assessment Consultation.

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On-going cost estimates		
Organisation	Costs (£)	Comment
Total	Low ongoing costs anticipated	

P415 impacts

Cost Benefit Analysis Identified Impacts and Benefits

During consideration of the Initial Written Assessment the BSC Panel requested that a Cost Benefit Analysis (CBA) be undertaken to provide information to the BSC Panel, P415 Proposer and P415 Workgroup on the potential benefits, costs and other impacts of implementing P415.

Following a procurement process to deliver the analysis on behalf of the P415 Workgroup, CEPA was chosen as the service provider to deliver this analysis and delivered its final CBA report in September 2022.

The full CBA report can be found in Attachment C, what follows is a summary of the key findings.

In their response to the P415 CBA call for evidence, Suppliers reported medium to low implementation costs (ranging from £500K to £40K) in order to develop systems to monitor and validate charges and revenues and register as a VLP. Low ongoing costs (ranging from £100K to £40K) were reported to maintain the data and operational efficiency of any system changes, as well as increased customer outreach and account management associated with P415.

VLPs reported low implementation and ongoing costs, noting that P415 is an elective process (existing VLPs will not be forced to register to the wholesale market) and almost all the functionality needed for P415 is already required for BM participation (and for aggregation more generally), i.e the processes required for P415 (when considered in isolation from P344/P375/P376) are relatively simple

The Final CBA Report also noted that implementation costs are not negligible and could outweigh benefits if P415 delivers only very small amounts of additional flexibility. These costs are expected to be in the low £10s of millions for up front implementation costs, and in £1s millions annual costs (this is an aggregate industry position). However, the potential upside benefits could dwarf implementation costs if P415 results in even moderate volumes of additional flexibility.

CBA Findings

CEPA described how P415 will provide a new route to market for flexibility providers that does not currently exist. Its implementation could promote competition for flexibility services and encourage suppliers to develop better flexibility propositions themselves.

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A review of aggregated DSR in international markets provides examples of aggregator business models contributing flexibility to a range of markets. However, these markets are generally at an early stage and there are no examples of aggregated DSR deployment at the kind of volumes included in CEPA's modelled scenarios.

There is also uncertainty about technology uptake that could facilitate flexibility potential.

It remains possible that P415 could deliver only very small volumes of additional flexibility:

- Existing routes to market already exist for flexibility provision;
- Suppliers are already actively developing customer flexibility propositions in the absence of P415; and
- Customers may reveal a preference for a single integrated energy and flexibility service from a single provider rather than multiple agreements.

CEPA accounted for uncertainty of flexibility deployment in their modelling in two ways:

1. CEPA place their modelled analysis into the context of three Future Energy Scenarios scenarios; and
2. CEPA adopt a range of assumptions for the additional volume of flexibility that P415 would deliver.

Total welfare

Please note that at the time the CBA was undertaken, only Compensation 1 and 2 had been developed by the Workgroup. Therefore specific analysis of Compensation 3 (which shares the mutualisation aspect with Compensation 2 but differs from Compensation 2 in that the cost of compensation is derived from a Supplier's approximate sourcing cost, rather than the day ahead spot price) was not possible.

Even though Compensation 3 was not considered by the CBA, Elexon believe that the additional benefits provided by mutualised compensation will not be significantly reduced from analysis of Compensation 2.

Total welfare impacts were found to be positive under all scenarios and under both Compensation variants (please note these welfare impacts do not take into account fixed costs that would need to be recovered by VLPs/flexibility providers).

Total welfare benefits were found to scale with the deployment of additional flexibility. As Compensation 2 lowers the variable cost for VLPs when delivering flexibility, the CBA observes more flex deployment and larger total welfare benefits.

CEPA's 'no flexibility' sensitivity demonstrated that the findings were reasonably robust to different beliefs about additionality of flexibility capability by P415.

Distributional effects and flexibility provider welfare

Rather, the CBA outcomes indicated that the socialised compensation costs in Compensation 2 were found to result in a cost burden transfer from those consumers that don't provide flexibility to those consumers that do.

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Producer surplus

By shifting demand to periods of high RES output, both compensation variants were found to help to avoid the need for curtailment of RES, helping new RES generators to recover greater revenues.

The producer surplus benefits were found to be larger under Compensation 2 as CEPA found more load shifting flexibility is deployed.

Non-modelled benefits

The most likely wider benefits were found to be from spillover effects to other markets – CM, balancing market, local flexibility markets – particularly given the need for many flexibility providers to stack revenues.

However, CEPA did not expect these non-modelled benefits to be large enough to significantly influence their overall welfare assessment.

Risks and unintended consequences

CEPA found that risks of consumer detriment due to the VLP-consumer relationship may exist but are not as material as the supplier relationship with consumers given the different responsibilities and activities of a VLP.

Suppliers face some new potential risks from P415. The design of P415 protects them from some risk as Suppliers are compensated for the lost opportunity to sell energy and have their imbalance position corrected where a VLP takes responsibility for a flexibility action. They may face additional forecasting and hedging challenges, particularly in relation to load shifting activities. However, these risks may become increasingly prevalent as flexibility evolves, even without P415.

The baselining methodology may be more applicable to large industrial and commercial customers but may not reflect less predictable and less consistent demand patterns of small residential and commercial customers. Risks regarding inaccurate baselines and 'baseline gaming' could be more material for such customers.

CEPA identified a potentially material gaming risk under Compensation 2 as a Supplier could 'benefit twice' from deploying flexibility from its own customer as a VLP. This would come at an additional cost to the rest of the market and the Workgroup's response is discussed in Section 6. 'Workgroup Discussions'

Impact on BSC Parties and Party Agents		
Party/Party Agent	Impact	Estimated cost
Suppliers	Suppliers may need to introduce new systems and processes to align with BSCCo's own systems	M

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Impact on BSC Parties and Party Agents		
Party/Party Agent	Impact	Estimated cost
VLPs	VLPs may need to introduce new systems and processes to align with BSCCo's own systems	L

Impact on the NETSO	
Impact	Estimated cost
NGESO will need to receive additional information relating to VLPs' intended Deviation Volumes from VLPs using the P415 process. This high level requirement has been captured while exact data formats and interfaces will be developed during the implementation phase for this Modification, should it be approved	Unknown

Responses to the Assessment Consultation

Will P415 impact your organisation?

Yes	No	Neutral/No Comment	Other
5	1	2	4

VLPs reported impacts that were largely positive and elective, involving development and ongoing operational effort by their organisation to integrate wholesale market access into offerings to customers. One VLP reported that, however, compared to the broader Wider Access reforms (P344/P375/P376), this was expected to be a relatively small incremental effort to set up new processes for trading to complement their existing trading desks, and implement new decision making activities.

Several VLPs noted that the eventual chosen compensation mechanism would affect the impact and ultimately the business case for activity and investment in the GB market, possible leading to some choosing not to do so under Compensation 1.

One Supplier reported a low impact resulting from P415, but one that would require minor system changes and additions and potentially additional FTE to manage this new process. However they also noted that, while the introduction of P415 would open their customers to competitors looking to offer them flexibility services, they welcomed more competition into the market on the basis that it will increase customer education and interest in flexible demand thereby increasing the pool of customers to compete over, also helping to introduce more innovation into this space.

NGESO reported no direct impact but stated that the P415 solution will allow VLPs the option of direct access to the wholesale market which may encourage larger volumes of participation, and that they were supportive of greater competition and participation to encourage more efficient use of the system, as well as reducing barriers to entry and widening of the market, which in turn will enable additional volumes of demand flexibility.

However, in relation to P415, NGESO reported concerns over information provision and a lack of transparency regarding VLP provision of data to ESO leading to a risk to real time

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operation of the system. Further work to bottom out and address these concerns (which ultimately led to the addition of a high level requirement for VLPs to provide additional DV information to NGESO, which is captured in Section 6.

Responses to the Assessment Consultation

How much will it cost your organisation to implement P415?			
Yes	No	Neutral/No Comment	Other
3	4	1	3

VLPs reported implementation costs, but were unable to provide a full and formal estimate.

One VLP stated that Wider Access in general (P344/P375/P376) has required a large degree of implementation effort but to them, P415 is a relatively small incremental change. They were confident that the benefits would substantially outweigh implementation costs, which was echoed by another VLP respondent who believe the change will have a net positive impact, so overall costs would be negative.

Several VLPs highlighted that costs are heavily dependent on the compensation methodology applied, with some reporting that if Compensation 2 or 3 were to be chosen, most of the cost will be borne by the rollout of their technology. However If Compensation 1 were to be chosen, they would have to pay direct, full compensation to Suppliers on top of rollout and operating costs, plus power market products stacking costs. This would prevent domestic aggregators from rolling out technologies at scale, and therefore would prevent most of them from entering the market, according to this respondent.

One Supplier estimate a cost of £100k-£500k to make the necessary changes to systems to monitor and validate charges and revenues.

Responses to the Assessment Consultation

What will the ongoing cost of P415 be to your organisation?			
Yes	No	Neutral/No Comment	Other
0	0	5	2

Respondents reported that ongoing costs were low where there was an impact on participants. Some VLPs reported that the costs of implementing P415 were expected to be negligible if the solution chosen for P415 does not create a barrier to independent VLPs.

Another VLP responded highlighted that there would be very little incremental operational overhead specifically caused by P415 but did describe a knock-on effect: carrying out wholesale market trades involves trading fees and some changes to risk management functions, which do have ongoing costs. Again, this VLP was confident that their benefits would outweigh these costs, so were not concerned about them.

A Supplier reported ongoing costs of £50-£100k in order to maintain the data and operational efficiency of any system changes, which was estimated to incur an additional 1FTE per annum.

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Responses to the Assessment Consultation

How long (from the point of approval) would you need to implement P415?
A few months to 1 year

Respondents reported lead times ranging from a few months to 1 year. Several VLP respondents noted that because it builds on P375 and P376, and the VLP/AMVLP roles are already defined by Elexon, the implementation of P415 could be done quickly on approval.

Impact on BSCCo		
Area of Elexon	Impact	Estimated cost
Settlement and Invoicing	New systems and processes will be needed to allow for effective data and settlement flows regarding deviation volumes to account for VLP flexibility actions, to reflect imbalance settlement arrangements and to introduce the relevant compensation flows and procedures.	H
Participant Management		
Performance Assurance		

Impact on BSC Settlement Risks
Any risks to be tracked under Risk 25; the new risk assesses the Balancing Services provided by Virtual Lead Parties allowing error to enter Settlement, such that the energy volumes required for Settlement are incorrect or missing

Responses to the Assessment Consultation

Do you agree with the Workgroup's assessment of the impact on the BSC Settlement Risks?			
Yes	No	Neutral/No Comment	Other
4	0	8	0

Respondents either agreed with the assessment of impacts on the BSC Settlement Risks or remained neutral on this point.

Impact on BSC Systems and process	
BSC System/Process	Impact
Supplier Volume Allocation Agent Data Calculations Platform (SVAA DCP)	New systems and processes will be needed to allow for effective data and Settlement flows regarding deviation volumes to account for VLP flexibility actions, to reflect

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Impact on BSC Systems and process	
BSC System/Process	Impact
Participant Management Platform (PMP)/ Central Registration Agent (CRA)	imbalance settlement arrangements and to introduce the relevant compensation flows and procedures.
Funds Administration Agent (FAA)	
Energy Contract Volume Aggregation Agent (ECVAA)	
Elexon Portal	
Settlement Administration Agent (SAA)	

Impact on BSC Agent/service provider contractual arrangements	
BSC Agent/service provider contract	Impact
BSC Agents	None anticipated

Impact on Code	
Code Section	Impact
BSC Section A	Allowing a VLP to register as a Trading Party in the new role
BSC Section D	Describing the main charge to be applied for the new Trading Party
BSC Section J	Covering registration qualification of the new Trading Party
BSC Section K	BM Unit registration for the new Trading Party Credit qualification for the new Trading Party GC/DC determination for the new Trading Party
BSC Section M	Update to credit indebtedness calculation to cover deviation volumes Calculation of GC/DC for the new Trading Party
BSC Section N	Addition of the new cashflows
BSC Section P	Allowing the new trading party to be the subsidiary party to MVRNs
BSC Section S	Include under delivered volumes in accordance with BSCP602 (SVA Metering System & Asset Metering System Register) Include in event day submission Submission of wholesale market activity notification

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Impact on Code	
Code Section	Impact
BSC Section S-2	(For Compensation 1) Allowing delivered volumes to be calculated when a wholesale market activity notification is received (For Compensation 3) Calculation of gross demand for each Supplier BM Unit Provision of gross demand to SAA Calculation of non-final gross demand for each supplier BM Unit Provision of non-final gross demand to SAA
BSC Section T	Calculation of deviation volumes Calculation of the account level period deviation volume Calculation of supplier delivered volumes for secondary BM Units under the new trading party Addition of the new cashflows (For Compensation Method 1) Reference to a new methodology to obtain the supplier compensation reference price Allowing the Panel to own and update the methodology Calculation of compensation cashflows (For Compensation Method 3) Reference to a new methodology to obtain the supplier compensation reference price Allowing the Panel to own and update the methodology Receiving Gross and Non-Final demand data from SVAA Calculation of supplier final demand proportions and compensation cashflows
BSC Section X-1	Updates to cover new terms
BSC Section X-2	Updates to cover new terms

Impact on EBGL Article 18 terms and conditions
This Modification is not expected to impact Balancing under the BSC but does impact the BSC provisions that constitute EBGL Article 18 Terms and Conditions, as described in BSC Section F, Annex F-2. The Workgroup believe these amendments do not materially amend the EBGL Article 18 Terms and Conditions for the reasons given below.

Impact on EBGL Article 18 Terms and Conditions

The drafting of the P415 Legal Text impacts several BSC provisions that constitute EBGL Article 18 Terms and Conditions listed in BSC Section F Annex F-2. This impact will be

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consulted on as part of the Report Phase Consultation, with a concurrent EBGL consultation on the P415 proposal to run for one calendar month.

Within the redlining there are numerous clauses, within six documents, that have an impact on the EBGL Article 18 Terms and Conditions within the BSC. Due to this, the redlining will be issued for a one-month EBGL industry consultation to meet the EBGL change process obligations.

BSC Section	Clauses Impacted
Section A	Entire BSC Section affected under EBGL
Section J	3.3
Section N	6
Section P	3
Section S	11
Section T	4

Impact of the Modification on the Relevant EBGL Objectives:	
Relevant Objective	Identified impact
(a) Fostering effective competition, non-discrimination and transparency in balancing markets;	**Positive**
(b) enhancing efficiency of balancing as well as efficiency of European and national balancing markets;	Neutral
(c) integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security;	Neutral
(d) contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union while facilitating the efficient and consistent functioning of day-ahead, intraday and balancing markets;	Neutral
(e) ensuring that the procurement of balancing services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of balancing markets while preventing undue distortions within the internal market in electricity;	Neutral
(f) facilitating the participation of demand response including aggregation facilities and energy storage while ensuring they compete with other balancing services at a level playing field and, where necessary, act independently when serving a single demand facility;	**Positive**
(g) facilitating the participation of renewable energy sources and support the achievement of the European Union target for the penetration of renewable generation.	Neutral

The Workgroup believe that P415 is neutral against most of the EBGL Objectives and positive against (a) and (f), as P415 is expected to foster effective competition and facilitate demand response by increasing the ability of market participants to introduce greater demand response into the wholesale market.

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Responses to the Assessment Consultation

Do you agree with the Workgroup's assessment that P415 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC?			
Yes	**No**	**Neutral/No Comment**	**Other**
5	0	7	0

Respondents either agreed with identified impacts on EBGL or remained neutral on this point. Several respondents commented that the purpose of P415 is to remove discrimination and foster greater competition from demand-side resources so it should be expected to benefit objectives (a) and (f).

Impact on Code Subsidiary Documents	
CSD	Impact
BSCP01	reference new role and data flow
BSCP15	reference new role (as able to register Secondary BM Units)
BSCP65	reference new role
BSCP70	reference new role
BSCP507	reference new role (in relation to MSID pair processes)
BSCP508	reference new role
BSCP537	reference new role
BSCP602	add new process
New Category 3 BSC Document	A new subsidiary document containing the Supplier compensation methodology

Impact on a Significant Code Review (SCR) or other significant industry change projects
There is no impact on any open SCR. Ofgem confirmed this view on 8 October 2020.

What are the consumer benefit areas?

1) Will this change mean that the energy system can operate more safely and reliably now and in the future in a way that benefits end consumers?

2) Will this change lower consumers' bills by controlling, reducing, and optimising spend, for example on balancing and operating the system?

3) Will this proposal support:
i)new providers and technologies?
ii) a move to hydrogen or lower greenhouse gases?
iii) the journey toward statutory net-zero targets?
iv) decarbonisation?

4) Will this change improve the quality of service for some or all end consumers. Improved service quality ultimately benefits the end consumer due to interactions in the value chains across the industry being more seamless, efficient and effective.

5) Are there any other identified changes to society, such as jobs or the economy.

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Impact of the Modification on the environment and consumer benefit areas:	
Consumer benefit area	Identified impact
1) Improved safety and reliability Additional flexibility will help to smooth out demand curves and peaks, promoting reliability.	**Positive**
2) Lower bills than would otherwise be the case Additional flexibility is expected to smooth out periods of unusually high demand, which would normally result in an increase to bills	**Positive**
3) Reduced environmental damage Additional flexibility is expected to reduce demand for energy produced from environmentally damaging sources.	**Positive**
4) Improved quality of service N/A	Neutral
5) Benefits for society as a whole Aforementioned benefits are expected to lead to a net positive for society as a whole	**Positive**

P415 would enable wider customer access and participation in the wholesale market. The unlocking of flexibility is expected to lead to benefits for society as a whole.

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5 Implementation

Recommended Implementation Date

The Workgroup and BSC Panel recommends an Implementation Date for P415 of:

- 7 November 2024 and part of the Standard November 2024 BSC Release;

To support this release date, Elexon require a decision from the Authority to approve P415 on or before 6 October 2023.

The P415 Proposer and Workgroup desire implementation of P415 as soon as reasonably possible, if approved, to unlock the benefits. In their view this would ideally be sooner than 2024 but the group note the necessary system changes at both the Elexon and industry level (and associated lead time of at least 1 year) that make it extremely challenging to implement any sooner than this timeframe.

The P415 Workgroup strongly recommend to Ofgem that an aligned decision be made with consideration to P444 'Compensation for Virtual Lead Party actions in the Balancing Mechanism', to unlock the benefits associated with implementing both Modifications with the same compensation mechanism at the same time, and to avoid a situation where the markets are mismatched in their approach should a different compensation mechanism be chosen for each Modification.

Responses to the Assessment Consultation

Do you agree with the Workgroup's recommended Implementation Date?			
Yes	**No**	**Neutral/No Comment**	**Other**
4	7	1	0

A majority of respondents disagreed with implementation in November 2024, which Elexon had previously highlighted as the earliest possible time to implement P415 due to the year lead time to implement the system change to deliver the Modification.

Responses disagreeing with this approach while cognisant of the necessary steps to be taken as part of the Modification process, mostly centred around believing that more urgent timelines should be followed for P415 to unlock the positive impacts it offers to electricity markets especially given the difficult market conditions and high prices faced by consumers that P415 would help to alleviate, with several respondents noting that urgent timescales had been followed to deliver P447 'Avoiding impact of Winter Contingency actions on cash-out prices' and P446 'Domestic Energy Price Guarantee Scheme' in time for the previous winter.

One Supplier replied that they believed the Implementation date is too ambitious for the appropriate work to be completed, as they did not feel the solution had been fully developed to ensure that it is practical and delivered in a way that delivers value for consumers.

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6 Workgroup's Discussions

17 Workgroup meetings were held for P415, with the first taking place on 11 December 2020 and the final meeting on 28 March 2023.

Key Principles for Solution Development

What is a VLP trading in the wholesale market?

The starting point for discussions was recognising that within the wholesale market actors trade power as a product in 30-minute intervals.

The group considered the Ofgem definition of an Independent Aggregator as 'parties who bundle changes in consumer's loads or distributed generation output for sale in organised markets and who do not simultaneously supply the customer with energy.'

Acknowledging that VLPs are not Suppliers, the Workgroup drew a similarity between Non Physical Traders (NPTs) and VLPs (in that the Supplier continues to supply electricity to the site and to invoice them accordingly, but the responsibility for trading and delivering those volumes – presently Deviation Volumes in the context of P415- lays with another party).

By acting on a site, a VLP is effectively creating a change in load that would result in an imbalance on a Supplier's account under existing Settlement arrangements (i.e. the Supplier imbalance position will change). If the VLP action causes Metered Volumes to increase then the Supplier is short and if the VLP action causes Metered Volumes to go down the Supplier is long. Those long and short position changes are to be measured (via a new settlement volume to be known as Deviation Volumes) and allocated to the VLP who will take all the Balancing Responsibility for delivering these Deviation Volumes (and can then either close that position through trades or accept the cash out price if desired).

Discussion then turned to the impact on the Supplier's imbalance position caused by VLP activity noting that should the VLP be allocated the imbalance volumes it causes the Supplier should be adjusted to reflect the change in Balancing Responsibility. The Proposer agreed and noted that Settlement already does this under the P344 arrangements to settle VLP balancing volumes. Elexon agreed to add solution principle 4 to capture this requirement.

The Workgroup then noted that in this context Metered Volume always remain with the Supplier, but would now be extended to add Deviation Volumes. The VLP will be responsible for the imbalance volume that the Supplier would have otherwise had (if not for the imbalance adjustment applied by Settlement to include this extension).

The Workgroup agreed this should be the Settlement rule underpinning the P415 solution.

What is the role of a VLP in the wholesale market?

Summary:

- Is VLP role equivalent to a Supplier or Generator? **NO**
- Ofgem licence required? **Out of scope**

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Could VLPs be considered a Supplier under P415?

The group noted that the role of Supplier is a licenced activity i.e. Ofgem requires a license for any Supplier activity which details a number of requirements including many outside of the scope of the BSC (e.g. interactions with the end consumer).

The group recognised that the Ofgem's definitions of Independent Aggregators as 'parties who bundle changes in consumers loads or distributed generation output for sale in organised markets and who do not simultaneously supply the customer with energy' helps to clarify the role and purpose of VLPs.

The group were comfortable that Independent Aggregators/Virtual Lead Parties function as a service involving a customer and are not a Supplier because they don't supply the site as part of their business model and do not charge the customer for the volume that they consume.

Could VLPs be considered a Generator under P415?

After discussion, the Workgroup agreed that Independent Aggregators/Virtual Lead Parties cannot be considered a Generator as they do not legally own generation assets at site (i.e. the site itself may be a generator which may or may not require a license) but rather provide a service based on managing appliances and generation assets on those sites.

Could VLPs be considered a Non Physical Traders under P415?

The group noted that Non Physical Traders also trade electricity from Generators, Suppliers and other Trading Parties, buying volumes and selling them on to make a margin but also not considered to supply a site and therefore have no Supplier responsibilities or requirements to hold a licence.

After discussion it was agreed that Aggregators/Virtual Lead Parties are significantly different in function and purpose than Non Physical Traders. Also the group noted the additional settlement and VLP qualification requirements that will be needed to accurately settle any VLP trades. Therefore it was thought best to separate the roles/activities.

Should VLPs operating in the Wholesale Market be a Licensable Activity?

The group raised several questions around licensing, identifying that this would be an important area to discuss and pass feedback and questions on to Ofgem, as this area that sits outside the BSC.

It was noted that licenses create obligations (such as reporting obligations) with wholesale market customers over and above those to do with the BSC, and that several Workgroup members were concerned about this area and the obligation that suppliers have owing to deals with their customers, particularly in forward markets.

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A Supplier representative pointed out that they have no problem with VLPs having access to the wholesale market, but stressed the need for careful consideration into whether P415 would balance the right rules for VLP to participate versus more onerous ones that are on Suppliers, ultimately making sure that the market is competitive.

It was agreed that licence conditions need to be looked at and carefully considered but this area would not in scope of a BSC Modification. The P415 group may not be able to directly impact licensing but agreed that it is important to feed these concerns and discussions back to Ofgem because, if they felt the issue was broad enough and sufficiently worth pursuing, they could subsume P415 into a Significant Code Review.

Should VLPs comply with REMIT requirements?

The group also questioned whether VLPs would be subject to REMIT reporting requirements under P415.

Noting that REMIT is intended to address potential market manipulation and insider information by placing responsibility on the party to make sure they don't undertake market manipulation, the group considered that contracts such as the Grid Trade Master Agreements (GTMAs) have to be reported by Suppliers in order to trade in forward markets. The group were of the opinion that VLPs shouldn't be absolved from the obligation to report what they've traded and that they would have to comply with all REMIT regulations to avoid any potential for engaging in behaviour that would unduly influence the price to their benefit.

The group were comfortable with this assumption and support that VLPs should and would comply with all REMIT requirements. The Proposer confirmed this approach for the proposed solution, noting that his expectation is that if a VLP is engaging in forward trades in its role as a party with an energy account then it will be subject to REMIT. As REMIT is not a BSC issue, this does not form any formal legal opinion.

Should a VLP be liable for non-commodity levies?

Summary:

- **No** because levies are calculated using metered volumes and under P415 a VLP participating in the wholesale market won't have any metered volumes allocated (much like a NPT)

In the previous discussions some Workgroup members had expressed concern that non-commodity costs paid by Suppliers and Generators could create a non-level playing field as VLPs who don't pay these costs (as they are not allocated metered volumes) receive an unfair advantage in the wholesale market.

To address the question of whether a VLP would receive a benefit under P415 in this regard, the group considered who currently is liable and why.

National Grid ESO currently recover these from Suppliers and Generators as they have a relationship with all consumers, and charges are based on the end customer paying for their usage of the system, whether they be distribution or generation, with rules defined in the CUSC.

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It was noted that, under P415, VLP activity could conceivably impact the consumption-based TNUoS, DUoS and BSUoS charges. The National Grid ESO representative highlighted that should a VLP not pay any of these charges, network charges are still being incurred by the asset being used. They did not think that this would constitute an impact on the "level playing field" as whatever metered flow an asset produces will incur network charges, so the contract that the VLP would have with that asset would still have to take into consideration any incurred network charges.

The group agreed with this interpretation – whatever happens the customer will have to pay the Network Charges. If VLPs ask them to deviate in a way that changes their network charges, VLPs would have to make it worth their while and present an attractive contractual proposition for them to deviate.

Should a Supplier receive compensation for VLP wholesale market activity?

Summary:

- Is compensation needed? — Proposer view – Supplier compensation required

  Alternate view – Supplier could be remunerated through imbalance settlement

Proposer's View

One of the key principles under which the P415 solution was raised was that the Supplier should not benefit nor suffer detriment because of the actions of an Independent Aggregator on site. This is why under the P415 Settlement solution the Suppliers' Imbalance position is adjusted to account for any Independent Aggregator activity (this expands on the arrangements introduced in P344 solution that adjusts Suppliers for balancing activity).

However this still leaves the Supplier commercially impacted in the likely Demand Side Response (DSR) scenario (i.e. the Independent Aggregator reduces demand at a customer's site). In this scenario the Supplier will have bought energy on the wholesale market (that it expected the customer to use) but can't invoice the customer as they haven't used it. As P415 adjusts the Supplier for any VLP activity this means that they won't receive any spill payments for the bought but unused energy.

The Proposer's view is that Supplier compensation is necessary as Suppliers will be left with a cost from the wholesale market they cannot recover in Retail Market due to the imbalance volume adjustment applied by Settlement. Without compensation Suppliers would be participating in the 2holesale market at a disadvantage and therefore compensation will be required to ensure a level playing field within the wholesale market.

The Proposer also noted that the compensation should flow both ways e.g. should the VLP activity result in demand turn up then the Supplier can sell power in the Retail Market it hasn't bought in the wholesale market and should compensate the VLP for costs incurred (i.e. the VLP would have to pay these costs to the customer to incentivise them deviate). In scenarios such as these the VLP is to be compensated for their additional costs by the Supplier.

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Alternate View

A Workgroup member with experience operating as a VLP in Europe gave a presentation to the Workgroup outlining the Clean Energy Package requirements and how this relates to the question of whether Suppliers would need to be compensated under P415 and, if necessary, who should pay.

The Workgroup member noted that under the Clean Energy Package GB settlement is not required to apply an adjustment to the Supplier imbalance volumes for VLP activity. Should an adjustment not be applied then the Supplier would be exposed to cash out price for any VLP activity. In the likely scenario of DSR then the Supplier will be left long and so would be receive remuneration through cash out and so compensation was not necessary. It was noted that some EU countries had taken this approach and was fully viable within the Clean Energy Package structure.

The Clean Energy Package states that: "*Member States may require electricity undertakings […] to pay financial compensation"* (Directive Art 17-4), and that most of all compensation must not create a barrier to entry for Aggregator to participate in the wholesale market: *"Such financial compensation shall not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility."*

Workgroup Discussions

Elexon noted the issue of Supplier compensation is open to interpretation within the Clean Energy Package, however there is a clear direction that mechanisms to achieve this must not present a barrier to entry for flexibility.

Noting that Suppliers will likely be left with a cost from the Wholesale Market they cannot recover in Retail Market due to the adjustment considered in the Settlement process when it comes to VLP activity under P415, the group feel that Supplier compensation will be necessary and will be added to the solution principles.

Finally it was noted that further discussion was needed to ensure that the compensation mechanism should not present a barrier to entry for flexibility, factored in to discussions on liability.

Supplier Compensation Volumes

Summary:

- Suppliers shall only be compensated for Deviation Volumes allocated to VLP Wholesale Market trades

The group considered what volumes should be used to calculate Supplier compensation under P415, also considering whether volumes used to calculate Supplier compensation should include balancing and wholesale market volumes (i.e. should the Supplier be compensated for all VLP activity).

Noting that BSC Modification P344 'Project TERRE' did not include Supplier compensation for balancing volumes, the group desire clarity from Elexon on whether the scope of the P415 defect (as captured in the Proposal Form) is sufficient to encompass both Balancing Mechanism and Wholesale market volumes. Elexon's legal opinion that the scope of P415

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is not sufficient to introduce Supplier compensation in the BM, and therefore another Modification would need to be raised to cover this element.

On 1 September 2022 Flexitricity raised P444 'Compensation for Virtual Lead Party actions in the Balancing Mechanism' to run concurrently to P415. Please see the P444 reports for more detail on its solution.

In the absence of P444 (if it is not approved), P415 would need to identify for each SBMU what volumes are to be allocated as Balancing volumes and what volumes are to allocated as Wholesale Market volumes.

Summary of Key Principles

The group agreed the P415 defect and identified a number of high level principles that the P415 Solution should adhere to:

1. Through independent aggregation a VLP shall be able to trade Deviation Volumes on the wholesale market on behalf of their customer(s). These trades shall be captured in the same manner as existing Parties i.e. via Electricity Contract Volume Notifications (ECVN).

2. Deviation Volumes are a measurable commodity that represent an import/export MWh deviation to the Total System as a result of independent aggregation activity by a VLP

3. The VLP shall be the Balancing Responsible Party (BRP) for any wholesale market Deviation Volumes traded. Neither the counterparty nor registered Supplier shall bear any liability for delivery of the trade.

4. The registered Supplier at a site where the customer has chosen to use a VLP independent aggregation service shall receive no direct benefit nor detriment from such a service.

5. VLPs shall have no advantage over existing Trading Parties and be subject to same BSC rules and requirements (where appropriate).

6. Through independent aggregation a VLP shall be able to trade Deviation Volumes in the wholesale market and provide other flexibility services during the same Settlement Period on behalf of their customer(s).

Supplier Compensation Variants and development of an Alternative Solution

Supplier Compensation Liability

Proposer View

In the Proposers view VLPs should be liable to pay for Supplier compensation as they directly benefit from activity at the Supplier's site (i.e. wholesale market trade or exposure to cash out price). If the compensation mechanism is built into the Solution then the additional cost incurred by the VLP (i.e. the Supplier compensation) is forecastable and therefore can be incorporated in to the VLP business model. It was thought by the

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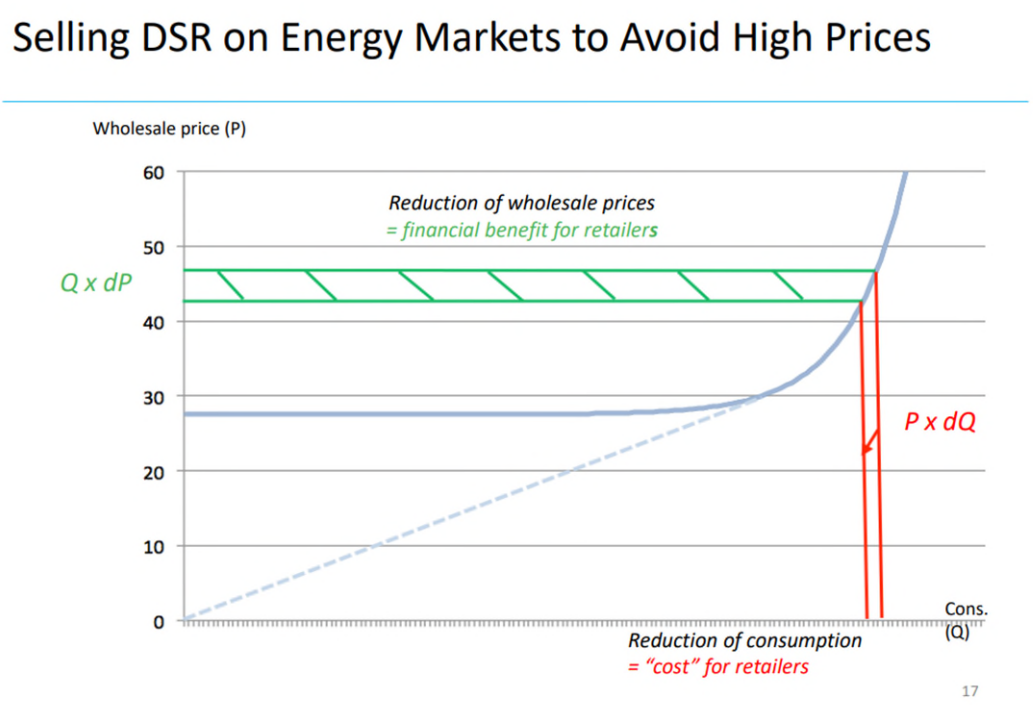
Workgroup that this would be the simplest solution to implement and hence was attractive when considering solution efficiencies and implementation costs.

It was noted however that the additional cost to the VLP (i.e. the Supplier compensation) could be viewed as a barrier to entry, taking into account the compensation price yet to be considered.

Alternate View

An alternate view was that all Suppliers should be liable (i.e. mutualised by market share) as they will all benefit from lower sourcing costs due to flexibility in the wholesale market. Noting that flexibility will only be chosen when at a better price point than traditional generation and so both lowers the system demand for generation and thus the wholesale market price, hence reducing sourcing costs for Suppliers.



The Workgroup discussed whether the Supplier mutualisation of the compensation costs was more compliant with the Clean Energy Package and provided the correct incentivisation for flexibility to act in the wholesale market.

One member believed it to be unfair to state that mutualised compensation creates a cost for all Suppliers without acknowledging that demand response creates a benefit for all Supplier, and that mutualised compensation allows Suppliers to collect a net benefit, rather than only a benefit (as under a scenario where the VLP pays compensation).

Supplier Compensation Price

Summary:

What price should the Supplier be compensated at?

Retail price?	Expensive and difficult to implement

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Imbalance price?	Not appropriate as designed to send market signals to self-balance (or not)
Spot Market price?	Proposer view – Not representative of Supplier incurred costs
	Alternate view – Represents real time value of energy and the overall cost of DSR for suppliers
Approximation of Supplier Sourcing Cost price?	Proposer view – Representative of Supplier incurred costs and adheres to solution principles

Proposer's View on Supplier Compensation Price

In order to compensate the Supplier for actions taken by a VLP a Supplier Compensation Price is needed. The Proposer believes that the Supplier Compensation Reference Price should represent the average Supplier's sourcing costs and be determined in accordance with an industry agreed and governed document or methodology.

The Proposer walked the Workgroup through their view on what would be an appropriate Supplier Compensation price using the table below as an aid:

Supplier compensation scenarios (load reduction)

In each case, considering 1 MWh that's either consumed as expected or curtailed due to DSR dispatch:

	No DR	Corrected and compensated at				
		No Compensation	retail price	sourcing cost	cash-out	day-ahead
MWh DR	0	1	1	1	1	1
Supplier costs	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S
Supplier revenues	Retail R (from customer)	0	Retail R (from VLP)	Sourcing costs S (from VLP)	Imbalance I (from VLP)	Day-ahead D (from VLP)
Supplier profit	= R – S	= 0 – S = – S	= R – S	= S – S = 0	= I – S = ?	= D – S = ?
Impact on supplier (principle 4)	Supplier receives retail margin (Base case)	Supplier makes loss	Supplier keeps retail margin Same as base case	Supplier does not keep retail margin Supplier suffers no loss	Supplier exposed to volatility of imbalance price	Supplier exposed to volatility of day ahead price

Figure 1 - Supplier compensation scenarios

Part of the Workgroup agreed that compensation paid at the retail price would ensure that the Supplier is completely unaffected by VLP activity, while other members considered this approach does not use the appropriate counterfactual and thus does not reflect the actual cost of DSR for suppliers or benefits to them.

It was also noted however that a solution using the retail arrangements of individual sites is not feasible given that Settlement would need to capture large volumes of commercially

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sensitive contracting information. This would place requirements not only on settlement systems to process the information but also on Suppliers to provide it in a timely manner.

The Workgroup unanimously agreed that such a solution would be overly expensive to implement and operate, introduce onerous processes to the market and therefore was undesirable.

The Workgroup considered whether an estimation of the Supplier sourcing costs (i.e. reasonable wholesale trades to balance a Supplier portfolio) would be an appropriate price to apply. The group did note that different Suppliers will have different hedging strategies but felt comfortable that as long as the price used was representative of the average sourcing costs it would suffice to ensure Suppliers do not operate at a disadvantage and ensure the wholesale market remains competitive.

Alternate View

An alternative view was discussed by the Workgroup that the Supplier compensation price should be the day-ahead price (i.e. the spot market price). The argument presented was that should a Supplier be aware of, or learn with experience to anticipate the deviation at site when the trade was submitted (i.e. at H-60 GCT) it would have the opportunity to trade these volumes on the market. By denying the Supplier this opportunity (through imbalance adjustment) the Supplier is due compensation. It was also argued that therefore the real time cost for the suppliers is not the sourcing cost but the spot market price. Prior to the raising of any formal Alternative P415 Solution, the Workgroup wish to consult industry on their level of support for each variant of Supplier compensation being considered by P415

Development of Compensation Variants

As noted previously the P415 Workgroup discussed three potential Supplier compensation mechanisms:

- Compensation 1
  - VLPs (as the Balancing Responsible Party) are liable for compensation costs
  - Compensation paid at a price that represents the average Supplier sourcing costs

- Compensation 2
  - Compensation costs are mutualised across all Suppliers
  - Compensation paid at a price that represents the GB spot market price

- Supplier Compensation 3
  - Compensation costs are mutualised across all Suppliers
  - Compensation paid at a price that represents the average Supplier sourcing costs

Supplier Compensation 1

Under this approach, VLPs are liable to pay for Supplier compensation as they directly benefit from activity at the Supplier's site (i.e. wholesale market trade or exposure to cash out price). If the compensation mechanism is built into the Solution then the additional cost incurred by the VLP (i.e. the Supplier compensation) is forecastable and therefore can be

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incorporated in to the VLP business model. It was thought by a majority of the Workgroup that this would be the simplest solution to implement and hence was attractive when considering solution efficiencies and implementation costs.

Supplier Compensation 2

In an alternate approach, some of the Workgroup believe all Suppliers should be liable to pay for impacted Supplier compensation as all Suppliers benefit from reduced sourcing costs due to VLP activity.

If this compensation mechanism is built into the Solution then the additional cost incurred by the Suppliers shall be based on their market share (calculated using Final Demand)

This alternate view is that the Supplier Compensation Reference Price should represent the real time value of energy, I,e, the spot market price.

Supplier Compensation 3

In this alternate approach, all Suppliers should be liable to pay for impacted Supplier compensation at an estimation of the average Supplier sourcing costs.

The Workgroup sought additional views from the industry via the Assessment Consultation.

Responses to the Assessment Consultation

Do you support Supplier Compensation Method 1 under P415?			
Yes	**No**	**Neutral/No Comment**	**Other**
5	5	1	1

Of those who responded in support of Supplier Compensation 1 (a mix of VLPs and Suppliers), which is the P415 Alternative Solution, they did so on the basis that it is quite simple, gives appropriate economic signals to all parties, avoids Suppliers being left out of pocket, and ensures that each MWh is only paid for once, feeling it fair for the VLP to bear the cost of compensation.

Of those who did not support Compensation 1, arguments stated that it incentivises flexibility providers not to go down the VLP route, and therefore for Suppliers to internalise flexibility, ultimately leading to much lower volumes being deployed. Some respondents stated that the CBA acknowledges that in compensation 1 VLP's net revenues from the wholesale markets may not be enough to justify investment, and that VLPs may have to stack revenues across a wide range of market products to have a business case to invest.

Another respondent who stated 'no' reiterated that they do not support any compensation to Suppliers for the potential losses they may incur due to Demand Side Response activations. However, if compensation to Suppliers must be paid, this respondent stated it should do the least damage possible to the development of Demand Side Response.

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National Grid ESO stated that they do not support any form of compensation, on the basis that financial compensation should not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility.

Responses to the Assessment Consultation

Do you support Supplier Compensation Method 2 under P415?			
Yes	No	Neutral/No Comment	Other
4	6	1	0

Of those who responded in support of Supplier Compensation 2, they did so on the basis that Compensation 2 is based on the 'Net Benefit'- all Suppliers benefit from Demand Response participating in the market (thus reducing their sourcing costs) so therefore all Suppliers should also bear their fair share of the costs, so that the net benefits are fairly shared among all Suppliers, and ultimately among all consumers. These respondents believed that Compensation 2 contributes to the development of competitive demand-side alternatives to central system (supply side) assets in the wholesale market, feeling it better supports Demand Side Response in general.

Those who disagreed did so on the basis that Supplier Compensation Method 2 creates potential for distortion, gaming and increased costs for consumers. The P415 Proposer noted that while there may be some benefit to socialising the cost of the compensation payment, it did not make sense to over-compensate the supplier in this way. Several respondents referred to the potential for gaming risks, described in further detail later in this report.

The P415 Proposer stated how, under P344, the Supplier's balancing position is corrected to remove the effect of any VLP's actions. Otherwise, the Supplier would be exposed to cash-out prices for the affected volumes. The principle underlying this is that the Supplier should neither benefit nor suffer due to the VLP's actions: they should be indifferent. Paying them an estimate of their sourcing cost (as in Methods 1 and 3) achieves this: they do not get to supply the MWh they expected, but they're made whole by the compensation payment. Paying them the retail price would have a similar effect. The P415 Proposed argued that paying the Supplier the spot price violates this principle. They argued that it undermines the purpose of correcting the Supplier's balancing position. When the VLP dispatches the customer, the Supplier would unexpectedly find themselves exposed to the spot price. Since dispatches will tend to happen at times of high spot prices, this means the Supplier would typically have a windfall gain. They felt that while it may be appealing to Suppliers to occasionally receive such windfalls, there's no economic justification for doing so, especially as these unnecessary and unpredictable windfalls would be funded via a levy.

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Responses to the Assessment Consultation

Do you support Supplier Compensation Method 3 under P415?			
Yes	No	Neutral/No Comment	Other
4	3	3	1

Those who supported Supplier Compensation 3 (which is now the Proposed Solution) noted that this offers an alteration of Compensation 2 (where compensation is mutualised), with the price paid derived from the Ofgem PCM, to represent the sourcing cost to the Supplier.

Respondents who supported Compensation 3 expressed support for mutualised compensation, however some VLPs who supported Compensation 3 stated that a level of compensation based on long-term average tends to favour larger energy companies, that rely on long-term, secure contracts – to the detriment of smaller Suppliers who more heavily dependent on wholesale prices. The Compensation 3 method would impact them negatively even though this compensation method should be neutral to them.

Those who disagreed with Compensation 3 felt there was no reason to mutualise these costs which arise out of a benefit to the VLP, and did not support compensation methods that spread the cost of compensation across all consumers.

The P415 Proposer responded neutrally on Compensation 3, noting that it is not their preferred approach. As with Method 2, it involves a levy, and could also be argued to over-incentivise the provision of demand response at times when prices are too low for there to be economic benefits. However, unlike Method 2, it does not (in the respondent's view) egregiously over-compensate suppliers, so the levy costs will be smaller. The Proposer did note that if there is a stable consensus that the benefits from the additional participation that could be unlocked by Compensation 3 are sure to outweigh the additional costs of the levy, then this approach could be viable.

One respondent did not have a view on Compensation 3 but noted that if its development required further analysis/consultation that would ultimately lead to delays, they would not support the delays this would cause.

NGESO responded that of all options, this third option seemed the most preferable as the costs to the aggregator would be minimised, therefore maximising the opportunity for demand response to bring benefits to all consumers. Socialising costs across suppliers may involve a transfer from those that can provide flexibility to those who cannot (especially in the early phase of the decarbonisation transition) but the latter will benefit from reduced infra-marginal rent among other benefits like reduced investment in generation infrastructure. NGESO stated that it is crucial that the wider benefits of demand response are considered. What matters, as concluded by FERC, is that there is an overall net benefit for consumers.

Responses to the Assessment Consultation

Do you have a preference for Supplier Compensation Method 1, 2 or 3?			
1	2	3	Other/No comment
5	4	1	1

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A slight majority of respondents expressed a preference for Compensation 1, followed by Compensation, with the reasons given echoing those already provided for the previous questions.

Final Discussions on Compensation Price and Liability

Under the BSC, it is only possible for the Workgroup to bring forward one Alternative Solution to present to the BSC Panel and Ofgem alongside the Proposed solution.

Therefore the Workgroup were invited to consider whether Supplier Compensation 2 or 3 would be preferable for an Alternative, should this solution be agreed by a majority of the Workgroup to be better than the Proposed Solution.

Compensation 2 was discussed and ultimately agreed to be less favourable to a majority of the Workgroup. A minority believe that the day ahead spot price (compensation 2) is the price at which energy is bought (in line with previous discussions and arguments) in particular for small suppliers and that therefore this is the price that best protects those smaller Suppliers. Most of the Workgroup disagreed, believing that this would create a windfall for the Supplier in this scenario, with one member noting that they would be surprised if Ofgem were to support small Suppliers paying for energy at the day ahead price, given that this is what had caused so many to fail in 2021 and was counter to current Ofgem guidance for how they should operate in the market.

Compensation 3 (mutualised, with price paid at the Ofgem Price Cap) was mostly felt to be the best approximation of the retail cost Suppliers would have realistically paid for volumes that would adjusted by a VLP under P415, and would therefore be the closest way to make the Supplier whole without creating a windfall for them.

It was also noted that a potential gaming risk had been identified under Compensation 2, which does not exist under Compensation 3.

Raising an Alternative Solution

As per the defined process in Section F ‘Modification Procedures’, an Alternative solution can only go forward if a majority of the group believe that is better than the proposed.

Ahead of the vote to raise Supplier Compensation 3 as a formal Alternative, Ofgem had explained to the group that their preference was for multiple variants of the P415 Solution (i.e a Proposed and Alternative solution) to be passed through to them to allow them as full a picture as possible when deciding on the Modification.

A Workgroup member raised Compensation 3 as a formal P415 Alternative Solution and the group voted as to whether they agreed it was better than the Proposed Solution, however only a minority agreed that it would be better and therefore this Alternative was not raised.

At this point, the Ofgem representative for P415 reiterated that they would have preferred an Alternative to be raised (though accepting of the restrictions around process regarding the bringing forward of any Alternative) but also clarified for the group that the lack of any alternative options could increase the risk of Send Back or rejection from the Authority, which would ultimately risk delivering P415 to desired timescales.

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The group noted that the failure to raise an Alternative presented a risk in this regard and so, to allow for an Alternative solution that met the process requirements for the Alternative to be better supported by a majority of the Workgroup than the Proposed, the P415 Proposer states that they would like to "switch" the Proposed Solution so that the Proposed Solution becomes Compensation 3 (compensation is mutualised with price paid at approximation of sourcing cost) and the group would then vote to raise Compensation 1 (VLP pays compensation at approximation of sourcing cost) as the P415 Alternative Solution.

This vote proceeded and a majority of the group voted that they believe the now-Alternative (Compensation 1) to be better than the now-Proposed (Compensation 3) and thus enable the presentation of both these options to the BSC Panel and Ofgem and reduce the risk of any further delay.

Supplier Compensation Price Methodology

Elexon's initial proposal for calculation of a Supplier Compensation Reference Price for the Proposer's solution where the VLP pays compensation was based on the Baseload Reference Price that EMRS use in the Capacity Market, also explaining that this was not intended to try and capture ever different Supplier's hedging strategy (this would not be possible or proportionate as they are all different), but rather trying to capture the average cost of electricity in a future period.

Several members expressed a desire for the methodology to account for Supplier's shaping costs, feeling that a Baseload product that is flattened out across a given length of time will fail to account for these costs.

Some members of the Workgroup noted that Ofgem's Price Cap Methodology (PCM) accounts for these shaping costs and wondered whether this would be more suitable to explore as a starting point for the Supplier Compensation Reference Price methodology.

Elexon noted that this would add considerably more complexity and that in the end the benefits would have to be considered against the costs, but noted the Workgroup desire to examine the PCM in more detail as an existing process that takes into account many of the questions that the Workgroup raised on costs, defined periods and peak/off peak prices.

For avoidance of doubt, the proposal is not to tie P415 directly and permanently to the PCM, which was designed to be temporary, but to use its methodology as a starting point. Additionally, the PCM has several sections and the P415 Workgroup propose to only examine aspects of the PCM that is applicable to the wholesale market.

The P415 Proposer reaffirmed that they had no fixed view on the level of complexity in the calculation methodology, but considered that the PCM could have merit and did not violate the principle of P415 capturing a reasonable approximation of the cost that a Supplier probably incurred, that they won't be able to recover from the bill, and so not leave them significantly out of pocket or, conversely, with a windfall.

Ultimately, it was agreed and the PCM could form a good starting point for further discussion and examination, to potentially be mirrored and/or simplified for incorporation into P415.

The group also considered whether a bifurcation in the methodology would be necessary to account for both residential and commercial/industrial load. The Workgroup generally

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felt that this would be preferable but noted that it was less clear how to implement this, discussing the potential use of LLFCs and look up tables to identify domestic and non-domestic consumers.

Elexon advised the group to aim for simplicity in the first instance and then look to iterate at a future point. One option could be to launch P415 with one methodology that is broadly representative of commercial costs for Suppliers, then look to introduce more as required in a similar manner to the approach taken for P376.

Responses to the Assessment Consultation

The Workgroup believe that Ofgem's Price Cap Methodology should be used to calculate the Supplier Compensation Reference Price representing the average Supplier's sourcing costs, do you agree? Is there another method that you believe may be more appropriate?			
Yes	**No**	**Neutral/No Comment**	**Other**
5	5	1	1

Respondents who agreed believed this to be a reasonable estimate of Supplier costs. Several felt that whilst Ofgem's Price Cap Methodology is not perfect, it is the best available option that can be easily implemented and that captures most of the costs incurred by Suppliers.

Several respondents who replied 'no' stated that using a Supplier average sourcing cost would favour larger suppliers to the detriment of smaller energy Suppliers, with financial impacts which could limit the level of competition amongst GB suppliers, to the detriment of end consumers. This was challenged by a Workgroup member who did not understand this logic, as that would imply that the Price Cap is unfair to smaller Suppliers, which they felt was clearly not the case as, otherwise, the government wouldn't have implemented it.

In general, there were few suggestions for better methodologies, although one respondent suggested using the System price System Sell & System Buy Prices | BMRS (bmreports.com[1]) would be more accurate. Workgroup members noted that using System Buy and Sell price would be even more extreme than using the day-ahead price and noted that this would be more appropriate in a world where P415 left Supplier's uncorrected but, since that it not the case, did not support the adoption of this method, believing the PCM to be an appropriate and proportionate approximation of Supplier's sourcing costs.

Workgroup Discussion on the CBA

CEPA was asked to perform a CBA of P415 to provide information to the BSC Panel, P415 Proposer and P415 Workgroup on the potential benefits, costs and other impacts of implementing P415.

As well as considering the merits of P415 relative to the counterfactual in which P415 is not implemented, the CBA was intended to support comparison of compensation variants to evaluate how the costs and benefits are impacted by each design.

[1] https://www.bmreports.com/bmrs/?q=balancing/systemsellbuyprices

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Please note that at the time the CBA was undertaken, only Compensation 1 and 2 had been developed by the Workgroup. Therefore specific analysis of Compensation 3 (which shares the mutualisation aspect with Compensation 2 but differs from Compensation 2 in that the cost of compensation is derived from a Supplier's approximate sourcing cost, rather than the day ahead spot price) was not possible.

Some Workgroup members considered that, because CEPA had chosen not to take an endogenous approach (i.e determining its relationship with other variables within the model) to the total volume of Demand Response delivered that would show higher total levels of demand response delivered under Compensation 2 than Compensation 1, the CBA compared the variants assuming that the volumes would be the same. One member felt that this was not a full CBA as it didn't consistently account for the likelihood of more volumes under Compensation 2 or endogenously input compensation revenues. Therefore the member believed that the CBA only justifies whether P415 should be implemented or not (noting that regardless of the compensation route the outcome was positive for having P415) but is not relevant to choosing between Compensation Method 1 and Method 2. Some Workgroup members agreed and note that caveats to any CBA outcomes between Compensation Method 1 and Method 2 should be made clear.

The Proposer did not agree, believing that the CBA had modelled both variants so that a comparison between them could be made. Another member agreed, noting that any endogenous approach would also have to model not just capacity revenues but balancing revenues, possible distribution balancing revenues, ancillary revenues, such that so many inputs would have had to enter the modelling to make it near impossible. This member felt that it remained a matter of opinion whether the CBA could be used as a comparator but, given the length and amount of effort put into it, it would seem imprudent not to use it as such. The BSC Panel were content with the CBA methodology.

Responses to the Assessment Consultation

Having considered the findings of the P415 Final CBA Report in Attachment C, do you believe the benefits of implementing P415 will outweigh the costs?			
Yes	No	Neutral/No Comment	Other
5	1	2	4

Most respondents agreed that they believe the benefits of implementing P415 will outweigh the costs, with some respondents stating that they believe the costs will be trivial compared to the substantial additional value stream that will lead to greater participation from existing customers and attract participation by many more customers.

Several VLP respondents noted that the upfront implementation could outweigh benefits if P415 delivers only very small amounts of additional flexibility, believing that mutualised compensation under Compensation 2 and 3 promoted wider utilisation of flexibility to avoid this scenario.

P415 risks and unintended consequences

In the CBA Report CEPA considered the position of a Supplier when a VLP makes use of flexibility of one of its customers under the set of assumptions that CEPA set out. CEPA found that:

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- Under Compensation Method 1, Suppliers would be net neutral when VLPs deploy peak reduction flexibility and would benefit by 'Sourcing Cost – Spot Price (t')' when VLPs deploy load shifting flexibility.
- Under Compensation Method 2, Suppliers would benefit by 'Spot Price – Sourcing Cost' when VLPs deploy peak reduction flexibility and would benefit by 'Spot Price (t) – Spot Price (t')' when VLPs deploy load shifting flexibility.

This raises a question regarding the incentives of a supplier to become a VLP in order to make use of flexibility from its own customer and whether it could do so without providing any additional system benefit compared to deploying that flexibility as a supplier.

Under Compensation Method 1, targeting of the compensation cost at the VLP means that the supplier would face a cost when it acts as a VLP to make use of flexibility from its own customer.

- Further to the position summarised above, acting as a VLP, the supplier would also have to pay the Sourcing Cost by way of compensation.
- Therefore, there does not appear to be any benefit to the supplier from deploying flexibility from its own energy customers as a VLP.

However, under Compensation Method 2, CEPA found that a gaming risk may exist. A supplier who deploys flexibility of its own customer as a VLP would benefit as summarised above. The supplier would only face a small fraction of the overall costs of compensation as these compensation costs are socialised.

- The supplier effectively benefits twice under such an arrangement.
- It benefits from making use of its customer's flexibility as a supplier. However, it also benefits from the receipt of compensation without being liable for an equivalent payment of compensation.

It was not clear to CEPA whether there are mechanisms in place within the arrangements for a VLP to prevent suppliers from acting as VLPs for their own customers. If there are no mechanisms to prevent such behaviour, this could present an important source of gaming risk.

The Workgroup considered this potential risk and discussed any potential mechanisms that might mitigate this risk.

Some members considered that Compensation Method 2 could introduce an incentive for a Supplier to change their behaviour and maximise windfalls, even in times where it doesn't make any sense to dispatch. If compensation is socialised and there is a relationship between the Supplier and the VLP (e.g. same Party) then it distorts incentives (they would get revenue from the dispatch and the compensation) and potentially create a non-level playing field, introducing a regulatory risk.

Other members disagree that there is a material risk, noting that mechanisms exist in other markets to identify this sort of activity, and that those "gaming the system" would expose themselves to so much risk and regulatory punishment that it would disencentivise this behaviour, not seeing this as a material issue.

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Worked Example of Gaming Risk

Elexon agreed to work up an example to better illustrate the interactions at play, including different examples or a couple of scenarios to see help illustrate what the numbers look like, showing the net flow of money:

Hypothesis: under Compensation Method 2 the Supplier impacted by a VLP action will generally be over compensated due to the day ahead price being higher than the sourcing cost. This is at the expense of all of the other Suppliers.

In a scenario where the VLP and Supplier are working together, this additional margin can be taken into account when deciding on what offer prices to use. This could lead to an offer at an artificially low price, less than what is required to pay the customer, but still be profitable due to the over compensation from the day ahead price.

Ultimately this may lead to customers taking expensive actions that aren't justified by the wholesale price, paid for by the other Suppliers. Creating a non-level playing field for VLP and Supplier partnerships offering customers artificially attractive terms.

Scenario one: Independent parties and acceptable market conditions

Spot price = 80

VLP costs = 10

Lost supplier revenue = 30

Price offered for VLP to take action = 40

Final demand share = negligible

	VLP	Supplier	Customer	All suppliers
Business costs of VLP taking an action	-10	0	10	0
Payment for VLP taking action	40	0	0	0
Loss of revenue for supplier	0	-30	0	0
Compensation	0	80 - final demand share	0	-80 + final demand share
Total	**30**	**50 - final demand share**	**10**	**-80 + final demand share**

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Scenario two: Non Independent parties and acceptable market conditions

Spot price = 80

VLP costs = 10

Lost supplier revenue = 30

Price offered for VLP to take action = 40

Final demand share = negligible

	VLP A	Supplier A	Customer	All other suppliers
Business costs of VLP taking an action	-10	0	10	0
Payment for VLP taking action	40	0	0	0
Loss of revenue for supplier	0	-30	0	0
Compensation	0	80 - final demand share	0	-80 + final demand share
Total	**30**	**50 - final demand share**	**10**	**-80 + final demand share**

A BAU scenario and coincidental that the VLP and supplier are non-independent.

Scenario three: Independent parties and non-acceptable market conditions

Spot price = 80

VLP costs = 50

Lost supplier revenue = 30

Price offered for VLP to take action = 20

Final demand share = negligible

	VLP	Supplier	Customer	All suppliers

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Business costs of VLP taking an action	-50	0	50	0
Payment for VLP taking action	20	0	0	0
Loss of revenue for supplier	0	-30	0	0
Compensation	0	80 - final demand share	0	-80 + final demand share
Total	**-30**	**50 - final demand share**	**50**	**-80 + final demand share**

The VLP would lose out in this scenario, so no action should be taken.

Scenario four: Non Independent parties and non-acceptable market conditions

Spot price = 80

VLP costs = 50

Lost supplier revenue = 30

Price offered for VLP to take action = 20

Final demand share = negligible

	VLP A	Supplier A	Customer	All other suppliers
Business costs of VLP taking an action	-50	0	50	0
Payment for VLP taking action	20	0	0	0
Loss of revenue for supplier	0	-30	0	0
Compensation	0	80 - final demand share	0	-80 + final demand share

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Total	**-30**	**50 - final demand share**	**50**	**-80 + final demand share**

When the VLP would normally make a loss, by working with the Supplier it can still take an unfavourable action and make a profit at the expense of all other suppliers.

Responses to the Assessment Consultation

Do you consider there to be a material gaming risk under Supplier Compensation 2?			
Yes	**No**	**Neutral/No Comment**	**Other**
6	5	1	0

Respondent's views differed on whether they considered there to be a material gaming risk under Supplier Compensation Method 2. Those who responded 'yes' noted that CEPA had identified this potential gaming risk with Supplier Compensation Method 2.

The P415 Proposer reiterated that under both Compensation 2 and Compensation 3 the dispatched energy gets paid for twice: once in the wholesale market and once through the socialised compensation. Under Compensation 3, the compensation price will not be high enough to provide much benefit in the envisioned gaming scenario, but under Compensation 2, it could be very high indeed. This could be exploited either by the supplier and VLP being the same party, or through some informal cooperation between them.

On the question of whether this would be material, one respondent stated that given the infancy of the dual supplier-VLP relationship they believe this could evolve into a material risk.

NGESO stated that they believe that the introduction of supplier compensation would give rise to an increased likelihood of gaming.

A slight minority disagreed, as VLPs will have to prove that they have delivered demand response. P415 relies on P376's robust baseline, which has been approved for the Balance Mechanism and is also used for some local flexibility products.

Some stated that, in its gaming risk assessment, CEPA did not mention the fact that VLPs are responsible for their imbalances and will be penalised if they fail to deliver on the baseline. It was argued that, as proven by P376, baseline evidence can be defined effectively, quashing the risk.

The Workgroup noted the mixed responses to this question of risk and were ultimately unable to come to a consensus around this point. Some members believe there may be a risk, some believe this is immaterial and may be covered under existing arrangements or protections around insider trading.

Ultimately, the Workgroup are happy to pass these discussions to Ofgem for their consideration, noting that as Compensation 2 has not been brought forward as an Alternative Solution, this reduces the need to consider these discussions further as part of P415.

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Non-delivery calculation

Summary:

- No change needed

The non-delivery calculation identifies, per Settlement Period, whether a BM Unit has delivered against the balancing actions it has received and whether it has benefitted from that non-delivery.

To do so it compares a BMU Expected Metered Volume (QME) against the actual BM Unit Metered Volumes, and then compares the price the Party will be paid (i.e. Acceptance Price) against the price the party will be charged for non-delivery (Imbalance Price).

It was highlighted to the group that under the current arrangements the BM Unit Expected Metered Volume (QME) only takes into account FPN and balancing volumes (i.e. for SBMU it won't take into account any WM activity).

QME = FPN + QBS

Where FPN = the physical position of the BMU for a particular settlement period

QBS = balancing volumes

Non-delivery in the Wholesale Market (i.e. an imbalance volume) is calculated at the account level and incorporate WM volumes in BM non-delivery would require knowing the VLP's wholesale position at the SBMU level.

The VLPs in the group were asked whether providing a BM Unit view of WM activity (or intended WM activity) would be an onerous requirement. One Workgroup member stated that this would undermine aggregation by "disaggregating the aggregator" and was uncomfortable with this approach, but would support a solution of aggregating actions at an account level and where there's non delivery, paying the highest price within those aggregated volumes. This would only apply in cases where several units in several zones are activated.

At present the Workgroup do not see a need for these changes and are happy that the BOA will be given priority within the balancing volumes and happy that the incentive to deliver their volumes within the Balancing Mechanism/WM will be the imbalance cash out price.

Credit Arrangements

Summary:

- Option 1 'VLPs lodge cover for an estimate of their net exposure' chosen

The group considered 3 options for VLP Credit Arrangements under the P415 solution.

Under Option 1 VLPs would lodge cover for an estimate of their net exposure, this was felt to best uphold principle 5 'the VLP shall be subject to same rules and requirements where appropriate' and represents (of all the options) the best estimate of debt to be accrued.

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Under Option 2 VLPs would have to lodge cover for all contracted volumes. This would be easy to implement but would result in an increase of credit cover needed to be lodged and could be considered a barrier to entry for VLPs.

Under Option 3, the Credit Energy Indebtedness value would be set to zero and therefore result in a reduction of credit cover needed to be lodged. The group did not consider this to be appropriate as in case of VLP default the market shall be liable for any missing credit cover and liability for debt accrued would be placed on other market participants.

Therefore the group unanimously agreed and determined that Option 1 is the preferred P415 Credit Assessment Energy Indebtedness (CEI) solution for P415.

Reporting and customer consent

Summary:

- No changes are proposed for Supplier reporting of VLP activity

The group noted that Ofgem have previously expressed the view that the customer consent model (whereby the customer must consent to the relevant supplier receiving granular data) is preferable to mandatory sharing (whereby customer consent would not be required for suppliers to receive this data) via their decision on P344 'Project TERRE'. This is consistent with a decision on a very similar issue of data sharing for P354 (specifically ABSVD MSID data).

Having considered this information, the group thought would not be prudent to go against Ofgem's previous decision by including mandatory information sharing as a feature of P415.

A majority of the Workgroup agreed that correction and compensation under P415 means that Suppliers would not be impacted by VLP activity and therefore have less need for individual site-level data, although a Supplier representative disagreed that this would not be useful or desired for these organisation. Therefore no changes are proposed for Supplier reporting of VLP activity (to clarify reporting will not distinguish between VLP BM and WM volumes).

While the group agreed to move forward with solution that aligns to previous Ofgem judgements on P344 (i.e. no mandatory sharing of information between the VLP and Supplier) some members wished to highlight concerns on the Supply side that, under this model, costs allocated to customers on an individual basis (in particular any pass-through tariffs or in cases where customers are on different contracts) would be difficult to identify and allocate correctly.

The Workgroup were happy for these concerns to be recorded as part of the final report, though it was pointed out that any further Workgroup decisions around this point would be in danger of breaching Supplier's commercial contracts. Additionally, it was noted that under P415 Suppliers would be free to include customer consent as part of a contract with any customer as this solution doesn't prevent it, but merely does not mandate it within the BSC.

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Workgroup discussions on Implementation

P415 is a Modification that will introduce a new player into the WM, with wide ranging impacts on the BSC and its central systems in order to facilitate.

In December 2022 a Workgroup member raised the greater need for additional Demand Response due to the ongoing war in Ukraine and the potential for scarcity over the winter period, and wondered whether anything could be done to expedite P415, in light of recent moves toward aggregators to be able to activate their services right away.

The Workgroup were sympathetic, but it was noted that the P415 Solution features a large system change as a limiting factor, it wasn't otherwise obvious to the group how you can get around that lead time to meaningfully speed up implementation.

One member noted that the only way forward they could see would be to put pressure on Ofgem to make a timely decision on P415.

It was noted that NGESO had implemented Demand Side Flexibility at considerable speed this winter so alternative solutions outside P415 would likely be possible to address any urgent requirements.

Further engagement with National Grid ESO following the Assessment Consultation

Early in development of P415, the Workgroup asked NGESO if they would need visibility of what VLPs intend to physically deliver in the wholesale market (i.e. the equivalent of a FPN) to help them balance the system and whether they would be satisfied that issued balancing actions would be sufficiently incentivised under the P415 solution. The NGESO representative agreed to take this away for internal discussion.

Later in the process as part of their response to the Assessment Procedure Consultation, National Grid ESO highlighted several concerns over the data they would receive under P415 and highlighted issues that they felt would arise from the application of Supplier compensation which may cause distortions and inefficiencies.

Elexon, National Grid ESO and several P415 members met to work through their feedback to help ESO with additional data and managing risk.

NGESO described an identified gap - currently all info goes to ESO in form of a Physical Notification (PN). If VLP changes behaviour, ESO will notified of that behaviour via the PN but they will not know part of the PN is moving and so won't know what part of the PN to offset against the Supplier data to include in their national forecast. In order to make sure the ESO doesn't have information problems from these Modifications, they would like to know from VLPs in advance what their anticipated Deviation Volumes (DV) are.

A proposed way forward was developed to adjust the P415 solution so that VLPs send forecasted deviation volumes to ESO.

Changing the PN structure would be impactful and difficult but Elexon suggested to use a parallel process as this would be more quick and efficient to implement and ultimately not present a risk to overall delivery of this Modification to current timescales.

A new high level requirement for VLPs to let ESO know a day ahead, with intraday updates, what they expect their DV to be was identified, and the VLPs on the call were provisionally comfortable with this high-level requirement.

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At the final P415 Workgroup, Elexon explained these suggestions to the Workgroup, and the Workgroup were comfortable with the addition of this high-level requirement to the P415 Solution, noting further detail on processes, data formats and interfaces will be developed later, during implementation phase should P415 be approved.

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7 Workgroup's Conclusions

The Workgroup provided its views on both the P415 Proposed and Alternative Modifications against the Applicable BSC Objectives.

The **majority** of the Workgroup believes that P415 **Alternative** Modification would overall better facilitate the Applicable BSC Objectives compared with both the existing baseline and Proposed Modification and so should be approved.

Members' views against each of the Applicable BSC Objectives are summarised below:

Does the P415 Proposed Solution better facilitate the Applicable BSC Objectives?		
Obj	Proposer's Views	Other Workgroup Members' Views[2]
(a)	• Neutral	• Neutral (Unanimous)
(b)	• **Positive**	• **Positive (Majority)**
(c)	• **Positive**	• **Negative (Majority)**
(d)	• Neutral	• Neutral (Unanimous)
(e)	• Neutral	• Neutral (Unanimous)
(f)	• Neutral	• Neutral (Unanimous)
(g)	• Neutral	• Neutral (Unanimous)

Proposed Solution

The Proposer believes that the Proposed Solution better facilitates BSC Objectives (b) and (c) and is better against the overall BSC baseline (the status quo). As described previously, the Proposer prefers the Alternative Solution.

A majority of Workgroup members believe that the P415 Proposed Solution is positive against objective (c) but detrimental against (d) and detrimental against the overall BSC baseline.

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

As with the Alternative Solution, the Proposer believes the additional revenue stream for demand-side flexibility should lead to more demand-side participation in flexibility in general, including the Balancing Mechanism and other balancing services needed to operate the National Electricity Transmission System. This should lead to greater competition to provide those services, allowing more efficient, economic operation of the system – a positive impact on Objective (b).

The Proposer believes that the Alternative better facilitates this objective than the Proposed, but that the Proposed still offers benefits on this point when compared to the status quo.

[2] Shows the different views expressed by the other Workgroup members – not all members necessarily agree with all of these views.

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 and administration 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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A majority of Workgroup **agree** with this assessment. A minority believe that the Proposed Solution will not unlock enough flexibility to make a material difference to objective (b).

Objective (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

The Proposer believes that the P415 Alternative Solution will create wider market access to the wholesale market, allow more customer loads to participate, increasing the level of competition and thereby facilitating objective (c).

The Proposer believes that the Alternative Solution better facilitates this objective than the Proposed, but that the Proposed Solution still offers benefits on this point when compared to the status quo.

Only a **minority** of the Workgroup agree with this point (for the reasons given above). The **majority** who disagreed maintain concerns about the impact the Proposed Solution could have on competition on the Supply side - by mutualising a risk that Suppliers can't manage, then putting the cost of that risk onto Suppliers to pay for – and therefore believe the Proposed solution is detrimental to competition.

Does the P415 Alternative Solution better facilitate the Applicable BSC Objectives?		
Obj	Proposer's Views	Other Workgroup Members' Views
(a)	• Neutral	• Neutral
(b)	• **Positive**	• **Positive (Unanimous)**
(c)	• **Positive**	• **Positive (Majority)**
(d)	• Neutral	• Neutral
(e)	• Neutral	• Neutral
(f)	• Neutral	• Neutral
(g)	• Neutral	• Neutral

Alternative Solution

A **majority** of the Workgroup believe that the Alternative Solution better facilitates BSC Objectives (b) and (c) and is better against the overall BSC baseline (the status quo).

The P415 Proposer, as described above, aligns to this view and prefers the Alternative Solution.

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

The Workgroup members **unanimously** believe that objective (b) is better facilitated by the Alternative Solution, for the same reasons as given for the Proposed Solution.

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Objective (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

A **majority** of Workgroup members believe that the Alternative solution is better against objective (c) by creating wider market access to the wholesale market. Some members who considered the Proposed to be detrimental against (c) did share the same concern about competition as with the proposed, due to the lack of mutualisation in the Alternative Solution's compensation mechanism.

One member who disagreed did so on the basis that they did not think the Alternative would unlock enough Demand Side Response to better facilitate competition. Another member who disagreed did so on the basis that they did not support any form of compensation and felt this would harm competition.

Which solution should be approved?

For the reasons given above, the majority of the Workgroup (including the P415 Proposer) believe that the P415 **Alternative Modification** would overall better facilitate the Applicable BSC Objectives compared with both the existing baseline and Proposed Modification and so should be **approved**.

Responses to the Assessment Consultation

Do you agree with the Workgroup's initial unanimous view that P415 does better facilitate the Applicable BSC Objectives than the current baseline?			
Yes	**No**	**Neutral/No Comment**	**Other**
8	2	1	1

A majority agreed that Objective (b) would be better facilitated, on the basis that removing market barriers for demand side flexibility in the wholesale market will likely incentivise better participation in local and national balancing services. Additionally, a majority agreed that Objective (c) would be positively impacted as enhanced competition and liquidity, facilitated by a wider pool of participants, would positively facilitate competition.

Of respondents who disagreed, one accepted the rationale for the view that reform is needed to convince policy makers to enable VLPs to draw on DSR for sale in the wholesale electricity market. However this person was unconvinced that there is really a need to compensate Suppliers for their potential losses related to DSR activated by independent aggregators, arguing that, without compensation, Suppliers will learn quickly how to manage their day ahead risks associated with demand response.

One Supplier also disagreed, do not believe P415 achieves this in an efficient way. In this respondent's view, P415 introduces complexity and risk of consumer harm for an unquantified and non-specific benefit.

National Grid ESO also provided a response stating that against objective (b) they did not agree that P415 is better than the current baseline. Following subsequent engagement and discussion, NGESO revised this assessment to state that they felt both the Proposed and Alternative Solutions were positive against (b) during the gathering of final views, as described above.

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8 Panel's Initial Discussions

The P415 Assessment Report was presented to the Panel at its meeting on 13 April 2023 (337/05). The Panel progressed the Modification to the Report Phase.

Initial Recommendations

The Panel **unanimously** agreed that the P415 Proposed Solution **does** better facilitate Applicable BSC Objective (b) and that it **does not** better facilitate Applicable BSC Objective (c) (with a majority believing it to be neutral against this objective).

The Panel **unanimously** agreed that the P415 Alternative Solution does better facilitate Applicable BSC Objective (b) and (c).

A **majority** of Panel members agreed that the P415 Alternative Modification is better than the P415 Proposed Modification and that the Alternative Solution should be approved (with the Proposed Solution rejected).

A minority of members disagree and believe that the P415 Proposed Modification is better than the P415 Alternative Modification, on the basis that it is expected to reduce barriers to entry for VLP participation in the provision of further demand side response.

The Panel **unanimously:**

- agreed that P415 should not be treated as a Self-Governance Modification;
- agreed that P415 does impact the EBGL Article 18 Terms and Conditions;
- agreed the Implementation Date;
- agreed the legal text; and
- agreed that P415 should be submitted to the Report Phase.

Initial Discussions

A Panel member wanted to clarify that, according to the findings of the Cost Benefit Analysis, the total welfare under the Proposed Solution (VLP pays compensation) was found to be lower, with a significantly lower surplus paid to the VLP when they are liable to pay compensation. This led this Panel member to conclude that there would be little to no uptake under the Proposed Solution, if the outcomes of the CBA are to be accepted, as there would not be enough value to the VLP.

Another Panel member who was a P415 Workgroup member clarified that the P415 Proposer was a VLP themselves and strongly supported the VLP paying compensation, on the basis that this seemed the fairest way to apply compensation despite the differences in total welfare predicted in the market.

The Panel noted the wider concerns that some Suppliers had - described in Section 6 'Workgroup discussions' - regarding the lack of mandatory information sharing between VLPS and Suppliers under P415 and any potential risk due to activities that were outside Supplier's control. It was clarified that advance information sharing was minimised to avoid wider concerns over competition that would arise under any mandatory sharing of information by a VLP to a Supplier.

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A Panel member also wanted to confirm that Ofgem were comfortable with the timescales for decision making and would have all the information necessary to avoid a delay or send back. Elexon commented that the Ofgem rep had confirmed in the last Workgroup that they intended to be able to make a decision to support the P415 timescales and had already engaged the Workgroup on additional information to avoid a send back (communicating a desire for multiple variants of the solution) but clarified that they would continue to engage Ofgem and support them in this regard.

The Panel queried whether anything could be done to bring forward the Implementation Date of P415, one year from the point of approval by Ofgem, but acknowledged that the complexity of interactions between the various BSC systems requiring amendment to deliver P415 made it extremely challenging to bring this date forward any more. Elexon also clarified that there was no significant implementation impact difference between the Proposed and Alternative solutions that would mean that one was quicker to implement than the other in this regard.

A Panel member considered the symmetrical nature of P415 and asked whether the Workgroup had considered a scenario whereby a VLP buys power at a price lower than the retail price on the WM but is then compensated by the Supplier at a higher retail price, resulting in a transfer to the VLP. It was clarified that, while the Workgroup had not considered that exact scenario in great detail (the focus of P415 had been on keeping the Supplier whole so that they were not disadvantaged by actions taken by the VLP, also acknowledging that the majority of activity under P415 is expected to be to reduce demand, with the scenario above much less likely), both the P415 solutions propose payment of compensation at an approximation of sourcing cost rather than at retail cost, which while acknowledging there was unlikely to ever be a perfect price to represent this, allayed concerns for the group as it most closely aligns the wholesale price that the Supplier would expect to pay with the realistic methods to achieve this.

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9 Report Phase Consultation Responses

This section summarises the responses to the Panel's Report Phase Consultation on its initial recommendations. You can find the full responses in Attachment E.

Six responses were received, from Suppliers, VLPs and a Trade Body. Aside from one Supplier who had not replied to the Assessment Consultation (but had been present at the P444 Workgroups), all respondents had previously replied to a P415 consultation.

Four of the respondents indicated that their views had not changed since the Assessment Consultation.

Summary of P415 Report Phase Consultation Responses

Question	Yes	No	Neutral/ No Comment	Other
Do you agree with the Panel's initial majority recommendation that the P415 Alternative solution should be approved?	2	3	1	0
Do you agree with the Panel that the redlined changes to the BSC deliver the intention of P415 for the Proposed and Alternative Modifications?	3	1	2	0
Do you agree with the Panel's recommended Implementation Date?	1	4	1	0
Do you agree with the Panel's initial view that P415 should not be treated as a Self-Governance Modification?	1	0	5	0
Do you agree with the Panel's initial consideration that P415 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions related to balancing held within the BSC?	3	0	3	0
Do you have any comments on the impact of P443 on the EBGL objectives?	0	6	0	0
Do you have any further comments on P443?	0	6	0	0

There were mixed views, which are summarised below, on the Panel's initial views.

Views on Panel's initial majority view that P415 Alternative solution should be approved

Two respondents agreed with the view that the P415 Alternative solution should be approved and their arguments were in line with those they had previously given in both the Assessment Consultation and the P415 Workgroup.

One respondent who had not replied to the Assessment Consultation but had been present at the P444 Workgroups repeated the concern raised by a Panel member regarding a situation where a VLP buys power at a price lower than the retail price on the WM but is compensated by the Supplier at a higher price. Elexon noted that the compensation values

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were the same under the Proposed and Alternative solutions, and that this eventual price for compensation was discussed at length but no perfect price that could be implemented efficiently was found. This meant that the group settled on an average cost that is already used as part of the residential price cap as this was considered the best estimation. Additionally, the likelihood of this this scenario was thought to be less material given the majority of activity under P415 will be to reduce demand. As the compensation values will be captured in a Panel-controlled document, it would be possible to amend them in the future should sufficient industry desire for further reform become apparent once P415 goes live.

The same respondent also identified an increased overall complexity and administrative burden for Suppliers, pointing out the likelihood of more complex tariff offerings and a difficulty for accurately pricing contracts due to an increase lack of certainty and an overall increased risk premium due to P415. This respondent disagreed that P415 should be approved at all, feeling it negative towards the BSC Objectives.

Several responses echoed the respondent's preference for the Proposed Solution over the Alternative, and their arguments were in line with those they had previously given in both the Assessment Consultation and the P415 Workgroup.

One respondent remained neutral but felt the CBA analysis insufficient as the basis of such a significant market impact and recommend a Significant Code Review be launched, to consider the various interacting factors. This respondent also voiced some concern over potential risks to settlement following introduction of Deviation Volumes. Elexon replied that a new Risk 25 had been created to track risks related to the provision of information by VLPs, and clarified that this would continue to be tracked and mitigated against where possible.

Redlined changes to the BSC

Most respondents agreed with the Panel that the redlined changes to the BSC deliver the intention of P415, with several respondents declining to give a view (remaining neutral). One respondent replied negatively and explained that this was because they did not support the P415 solution as a whole.

Implementation Date

Most respondents disagreed with the Panel with the Panel's recommended Implementation Date for P415, with reasons echoing those already given in the Assessment Consultation or in the Workgroups (faster implementation preferred, with one respondent believing more time should be allowed for development).

Self-Governance

One respondent agreed with the Panel that the P415 should not be treated as a Self-Governance Modification and should therefore be sent to the Authority for decision, whilst the other respondents remained neutral and did not provide a view.

EBGL impacts

Respondents either agreed with the Panel's initial consideration that P415 does impact the EBGL Article 18 terms and conditions held within the BSC or remained neutral on this point. No further comments were offered.

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10 Recommendations

We invite the Panel to:

- **AGREE** that the P415 Proposed Modification:
    - **DOES** better facilitate Applicable BSC Objective (b);
- **AGREE** that the P415 Alternative Modification:
    - **DOES** better facilitate Applicable BSC Objective (b); and
    - **DOES** better facilitate Applicable BSC Objective (c);
- **AGREE** that the P415 Alternative Modification is better than the P415 Proposed Modification;
- **AGREE** that P415 should not be treated as a Self-Governance Modification;
- **AGREE** that P415 **DOES** impact the EBGL Article 18 terms and conditions held within the BSC but the impact is **positive**;
- **AGREE** a recommendation that the P415 Alternative Modification should be **approved** and that the P415 Proposed Modification should be **rejected**;
- **APPROVE** an Implementation Date for the Proposed and Alternative Modifications of:
    - 7 November 2024 and part of the Standard November 2024 BSC Release if a decision is received on or before 6 October 2023;
- **APPROVE** the draft legal text for the P415 Proposed and Alternative Modifications; and
- **APPROVE** the P415 Modification Report.

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Appendix 1: Workgroup Details

Workgroup's Terms of Reference

Specific areas set by the BSC Panel in the P415 Terms of Reference	Conclusion
Whether a new Trading Party Role is needed for VLPs using P415 (or whether one of the existing Roles is suitable e.g. Non Physical Trader)	Yes, details in the solution
Whether the BSC should include a mechanism for compensating Suppliers for adjustments to their imbalance position (and, if so, the appropriate price)	Yes, several variants are being explored
Consideration of commercial impacts on Supplier business models;	Compensation should cover Suppliers for VLP actions. There will be risks to forecasting and hedging with greater load shifting activities, but CBA say these are coming regardless of P415 when more flexibility is around
Consideration of interactions with licensing around physical trading versus non-physical trading	Out of scope for P415, a consideration for Ofgem
Can power be bought at the site through P415 and if so, who pays the third party charges/BSUoS charges	No
Will VLP's be able to set their Final Physical Notifications (FPNs) to 'No' if P415 is implemented	FPNs still required
Consider models using just operational metering and models using baselining with operational metering	Baselining considered to be the best method
How will P415 impact the BSC Settlement Risks	No direct impact to Settlement risks, but emerging risks will be tracked

Assessment Procedure timetable

P415 Assessment Timetable	
Event	Date
Panel submits P415 to Assessment Procedure	11 October 2020
Workgroup Meeting 1	11 December 20
Workgroup Meeting 2	9 February 2021
Workgroup Meeting 3	25 March 2021
Workgroup Meeting 4	27 May 2021
Workgroup Meeting 5	13 July 2021

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P415 Assessment Timetable	
Event	Date
Workgroup Meeting 6	3 September 2021
Workgroup Meeting 7	28 October 2021
Workgroup Meeting 8	10 December 2021
Workgroup Meeting 9	1 February 2022
Workgroup Meeting 10	22 February 2022
Call for Evidence for P415 to inform cost-benefit analysis	9 April – 9 May 22
Workgroup Meeting 11	30 May
Workgroup Meeting 12	1 July
Workgroup Meeting 13	22 August 22
Workgroup Meeting 14	7 October 22
Workgroup Meeting 15	7 December 22
Assessment Procedure Consultation	January - February 2023
Workgroup Meeting 16	28 February 2023
Workgroup Meeting 17	28 March 2023
Panel considers Workgroup's Assessment Report	By April 2023

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P415 'FACILITATING ACCESS TO WHOLESALE MARKETS FOR FLEXIBILITY DISPATCHED BY VLPS'

DRAFT Solution Summary

Public

Document owner	Document number	Date
Simon Dickie	**V7.1**	**31 March 2023**

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About this document

This document contains the P415 Workgroup proposed solution for Balancing and Settlement Code (BSC) Modification P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'.

The purpose of this document is to formally catalogue the solution requirements that ELEXON has drafted pursuant to the P415 Workgroup's discussions as of its tenth meetings between December 2020 and May 2022.

Background

P415 seeks to amend the BSC to allow Virtual Lead Parties (VLP) to participate in the GB wholesale market. Currently customers (consumers of electricity) who are able to be flexible about their consumption cannot currently obtain any value from that flexibility from the Wholesale Energy Market, except if they work with their Supplier to do so. This is because the BSC assigns all flexibility delivered by a customer to their Supplier, with the exception of flexibility instructed by National Grid in the Balancing Mechanism, which can be assigned to a third party (referred to in the BSC as a "Virtual Lead Party").

As a result, customers can only access power exchanges (and other markets that require notification of contracts under the BSC) though their Supplier. This contrasts with Balancing Services and the Capacity Market, all of which allow a customer's flexibility to be offered by an aggregator without the involvement of the Supplier. This defect should be fixed primarily because it will remove a barrier to customers offering flexibility, and hence should increase participation and the level of effective competition in the wholesale market.

Enel X UK Ltd, raised Modification P415 on 30 September 2020, with a view that the Modification should be implemented as soon as practicable noting that as the proposed solution depends on the baselining methodologies from P376, it cannot be implemented before that without significant duplication of effort.

Solution Principles

The group discussed the proposal and agreed that an economic / efficient solution is needed to allow VLPs to independently operate in the wholesale market and address the P415 defect, but stressed the need for consideration of how it can work with existing Supplier arrangements and imbalances to ensure that it is fair and reasonable across the market.

The group agreed the P415 defect and identified a number of high level principles that the P415 Solution should adhere to:

1. Through independent aggregation a VLP shall be able to trade Deviation Volumes on the wholesale market on behalf of their customer(s). These trades shall be captured in the same manner as existing Parties i.e. via Electricity Contract Volume Notifications (ECVN).

2. Deviation Volumes are a measurable commodity that represent an import/export MWh deviation to the Total System as a result of independent aggregation activity by a VLP.

3. The VLP shall be the Balancing Responsible Party (BRP) for any wholesale market Deviation Volumes traded. Neither the counterparty nor registered Supplier shall bear any liability for delivery of the trade.

4. The registered Supplier at a site where the customer has chosen to use a VLP independent aggregation service shall receive no direct benefit nor detriment from such a service.

5. VLPs shall have no advantage over existing Trading Parties and be subject to same BSC rules and requirements (where appropriate).

6. Through independent aggregation a VLP shall be able to trade Deviation Volumes in the wholesale market and provide other flexibility services during the same Settlement Period on behalf of their customer(s).

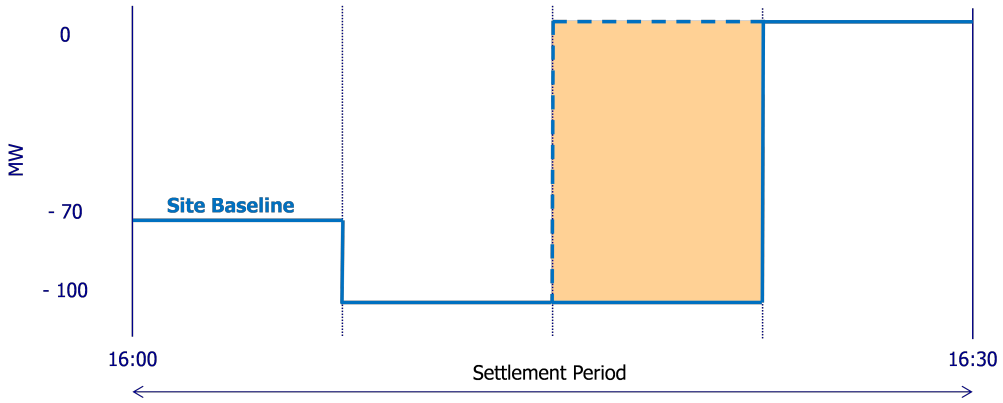
What are Deviation Volumes

Deviation Volumes are a new type of Settlement volume introduced for P415 and represent the difference between what is forecast to be consumed / generated and what was actually consumed / generated (where the difference can be attributed to a VLP action taken at that site.)

Deviation Volumes represent an import/export MWh deviation to the Total System as a result of said action by a VLP.

For Example:

- VLP enacts an Early Shutdown (i.e. reduces demand at site boundary)
- The Early shutdown (i.e. the demand reduction action) effectively results in an additional +11 MWh on the Total System



- Pre VLP action site would have consumed 35 MWh
- Post VLP action site consumed 24 MWh
- Deviation equivalent of + 11 MWh on the Total System

P415 relationship with P344, P375 and P376

ELEXON note that a lot of the settlement functionality needed to achieve a P415 solution had been implemented by P344: 'Wider Access and Project TERRE' which enables VLPs to participate in the Balancing Mechanism. P344 allows the separation of normal supply to the customer and the offering of normal flexibility from the customer.

ELEXON also note that BSC modifications: P375 'Settlement of Secondary BM Units using metering behind the site Boundary Point' and P376: 'Utilising a Baselining Methodology to set Physical Notifications' introduce functionality that facilitates accuracy in determining settlement of actions the VLP has taken.

- P375 allows metering at the flexible asset; and
- P376 also provides baselining methodologies to separating out normal behaviour from flexibility.

Therefore P415 solution will build upon the functionality of P344, P375 and P376 to reduce cost and promote efficiency.

P376: 'Utilising a Baselining Methodology to set Physical Notifications'

Deviation Volume shall be the difference between what a site is forecast to consume / generate and what was actually consumed / generated as a result of a VLP action taken at that site.

In order to calculate Deviation Volumes Settlement needs to be able to accurately forecast an expected BM Unit volume. P376 introduces a new defined item 'Settlement Expected Volume' which represents an expected BM Unit volume based upon historical metered volumes. P415 proposes to utilise this P375 functionality to set the baseline from which Deviation Volumes shall be measured.

Note the consequence of this is that only Baselined Secondary BM Units will have wholesale market Deviation Volumes calculated.

P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'

P375: 'Settlement of Secondary BM Units using metering behind the site Boundary Point'

P375 will allow Metering Equipment situated 'behind' the defined Boundary Point to be used for Settlement purposes in place of the Boundary Point Meter. P375 has been designed to be compatible with P376 so that settlement will be able to use a baselining methodology to set Physical notifications (i.e. calculate a 'Settlement Expected Volume) for secondary BM Units containing asset metering.

Therefore the P415 solution shall be able to calculate Deviation volumes for Baselined BM Units (using the P376 functionality) that contains asset metering (using the P375 functionality).

Workgroup Discussions

The purpose of this section is to formally catalogue the P415 Workgroup member discussions / opinions held throughout the Workgroup meetings over a period of eight meetings between December 2020 and December 2021.

What is a VLP trading in the wholesale market?

Summary:

- Power as a product
- VLP to inherit imbalance volumes its actions create
- Supplier imbalance volumes shall be adjusted for VLP activity
- VLP not to be allocated metered volume

The starting point for discussions was recognising that the wholesale market trades power as product in 30-minute intervals.

The group next considered Ofgem definition of an Independent Aggregators as 'parties who bundle changes in consumer's loads or distributed generation output for sale in organised markets and who do not simultaneously supply the customer with energy.'

Acknowledging that VLPs are not Suppliers, the Workgroup drew a similarity between Non Physical Traders (NPTs) and VLPs (in that the Supplier continues to supply the site but the responsibility for trading those volumes lays with another party).

By acting on a site, a VLP is effectively creating imbalance on a Supplier's account (i.e. the Supplier imbalance position will change). If the VLP action causes the Metered Volume increases then then the Supplier is short and if the VLP action causes the Metered Volume goes down the Supplier is long. Those long and short position changes are to be measured (via a new settlement volume to be known as Deviation Volumes) and allocated to the VLP who will take all the Balancing Responsibility (and can then either close that position through trades or accept the cash out price if desired).

Discussion then turned to the impact on the suppliers imbalance position caused by VLP activity noting that should the VLP be allocated the imbalance volumes it causes the Supplier should be adjusted to reflect the change in Balancing Responsibility. The Proposer agreed and noted that Settlement already does this under the P344 arrangements to settle VLP balancing volumes. Elexon agreed to add solution principle 4 to capture this requirement.

The Workgroup then noted that in this context Metered Volume always remain with the Supplier. The VLP will be responsible for the imbalance volume that the Supplier would have otherwise had (if not for the imbalance adjustment applied by Settlement).

The Workgroup agreed this should be the implicit transaction behind the P415 solution.

What is the role of a VLP in the wholesale market?

Summary:

- Is VLP role equivalent to a Supplier or Generator? **NO**
- Ofgem licence required? **Out of scope**

Could VLPs be considered a Supplier under P415?

The group noted that the role of Supplier is a licenced activity i.e. Ofgem requires a license for any Supplier activity which details a number of requirements including many outside of th scope of the BSC (e.g. interactions with the end consumer).

The group recognised that the Ofgem's definitions of Independent Aggregators as 'parties who bundle changes in consumers loads or distributed generation output for sale in organised markets and who do not simultaneously supply the customer with energy' helps to clarify the role and purpose of VLPs.

The group were comfortable that Independent Aggregators/Virtual Lead Parties function as a service to a customer and are not a Supplier because they don't supply the site as part of their business model and do not charge the customer for the volume that they consume.

Could VLPs be considered a Generator under P415?

After discussion, the Workgroup agreed that Independent Aggregators/Virtual Lead Parties cannot be considered a Generator as they do not legally own assets at site (i.e. the site itself may be a generator which may or may not require a license) but rather provide a service to those sites.

Could VLPs be considered a Non Physical Traders under P415?

The group noted that Non Physical Traders also trade electricity from Generators, Suppliers and other Trading Parties, buying volumes and selling them on to make a margin but also not considered to supply a site and therefore have no Supplier responsibilities or requirements to hold a licence.

After discussion it was agreed that an Independent Aggregators/Virtual Lead Parties are significantly different in function and purpose than Non Physical Traders. Also the group noted the additional settlement and VLP qualification requirements that will be needed to accurately settle any VLP trades. Therefore it was thought best to separate the roles/activities.

Should VLPs operating in the Wholesale Market be a Licensable Activity?

The group raised several questions around licensing, identifying that this would be an important area to discuss and pass feedback and questions on to Ofgem, as this area that sits outside the BSC.

It was noted that licenses create obligations (such as reporting obligations) with wholesale market customers over and above those to do with the BSC, and that several Workgroup members were concerned about this area and the obligation that suppliers have owing to deals with their customers, particularly in forward markets.

A Supplier representative pointed out that they have no problem with VLP having access to the wholesale market, but stressed the need for careful consideration into whether P415 would balance the right rules for VLP to participate versus more onerous ones that are on Suppliers, ultimately making sure that the market is competitive.

It was agreed that licence conditions need to be looked at and carefully considered but this area would not in scope of a BSC Modification, but that the Ofgem representative for P415 would be a good interface to highlight to the Authority the groups thoughts on the matter. The P415 group may not be able to directly impact licensing but agreed that it is important to feed these concerns and discussions back to Ofgem because, if they felt the issue was broad enough and sufficiently worth pursuing, they could subsume P415 into a Significant Code Review.

P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'
Should VLPs comply with REMIT requirements?

The group also questioned whether VLPs would be subject to REMIT reporting requirements under P415.

Noting that REMIT is intended to address potential market manipulation and insider information by placing responsibility on the party to make sure they don't undertake market manipulation, the group considered that contracts such as the Grid Trade Master Agreements (GTMAs) have to be reported by Suppliers in order to trade in forward markets. The group were of the opinion that VLPs shouldn't be absolved from the obligation to report what they've traded and that they would have to comply with all REMIT regulations to avoid any potential for engaging in behaviour that would unduly influencing the price to their benefit.

The group were comfortable with this assumption that VLPs should and would comply with all REMIT requirements. The Proposer confirmed this approach for the proposed solution, noting that his expectation is that if a VLP is engaging in forward trades in its role as a party with an energy account then it will be subject to REMIT.

Should a VLP be liable for non-commodity levies?

Summary

- **No** because levies are calculated using metered volumes and under proposed solution a VLP participating in the wholesale market won't have any metered volumes allocated (much like a NPT)

In the previous discussions some Workgroup members had expressed concern that non-commodity costs paid by Suppliers and Generators could create a non-level playing field as VLPs who don't pay these costs (as they are not allocated metered volumes) receive an unfair advantage in the wholesale market.

To address the question of whether a VLP would receive a benefit under P415 in this regard, the group considered who currently is liable and why.

National Grid currently recover these from Suppliers and Generators as they have a relationship with all consumers, and charges are based on the end customer paying for their usage of the system, whether they be distribution or generation, with rules defined in the CUSC.

It was noted that, under P415, VLP activity could conceivably impact the consumption-based TNUoS, DUoS and BSUoS charges. The National Grid representative highlighted that should a VLP not pay any of these charges, network charges are still being incurred by the asset being used. They did not think that this would constitute an impact on the "level playing field" as whatever metered flow an asset produces will incur network charges, so the contract that the VLP would have with that asset would still have to take into consideration any incurred network charges.

The group agreed with this interpretation – whatever happens the customer will have to pay the Network Charges. If VLPs ask them to deviate in a way that changes their network charges, VLPs would have to make it worth their while and present an attractive contractual proposition for them to deviate.

Should a Supplier receive compensation for VLP wholesale market activity?

Summary

- Is compensation needed? **Proposer view – Supplier compensation is required**
  Alternate view – Supplier could be remunerated through imbalance settlement

Proposer View

The Proposer's view is that Supplier compensation is necessary as Suppliers will be left with a cost from the Wholesale Market they cannot recover in Retail Market due to the imbalance volume adjustment applied by Settlement. Without compensation Suppliers would be participating in the Wholesale at a disadvantage and therefore compensation was required to ensure a level playing field within the Wholesale market.

The Proposer also noted that the compensation should flow both ways e.g. should the VLP activity result in demand turn up then the Supplier can sell power in the Retail Market it hasn't bought in the wholesale market and should

compensate the VLP for costs incurred (i.e. the VLP would have to pay these costs to the customer to incentivise them deviate). In scenarios such as these the VLP is to be compensated for their additional costs by the Supplier.

Alternate View

A Workgroup member with experience operating as a VLP in Europe gave a presentation to the Workgroup outlining the Clean Energy Package requirements and how this relates to the question of whether Suppliers would need to be compensated under P415 and, if necessary, who should pay.

The Workgroup member noted that under the Clean Energy Package GB settlement is not required to apply an adjustment to the Supplier imbalance volumes for VLP activity. Should an adjustment not be applied then the Supplier would be exposed to cash out price for any VLP activity. In the likely scenario of DSR then the Supplier will be left long and so would be receive remuneration through cash out and so compensation was not necessary. It was noted that some EU countries had taken this approach and was fully viable within the Clean Energy Package structure.

Workgroup Discussions

ELEXON note the issue of Supplier compensation is open to interpretation within the Clean Energy Package, however there is a clear direction that mechanisms to achieve this must not present a barrier to entry for flexibility.

Noting that Suppliers will likely be left with a cost from the Wholesale Market they cannot recover in Retail Market due to VLP activity under P415, the group feel that Supplier compensation will be necessary and will be added to the solution principles.

Finally it was noted that further discussion was needed to ensure that the compensation mechanism should not present a barrier to entry for flexibility.

Supplier Compensation Volumes

Summary:

- Suppliers shall only be compensated for Deviation Volumes allocated to VLP Wholesale Market trades

The group considered what volumes should be used to calculate Supplier compensation under P415, also considering whether volumes used to calculate Supplier compensation should include balancing and wholesale market volumes (i.e. should the Supplier be compensated for all VLP activity).

Noting that BSC Modification P344 'Project TERRE' did not include Supplier compensation for balancing volumes, the group desire clarity from Elexon on whether the scope of the P415 defect (as captured in the Proposal Form) is sufficient to encompass both Balancing Mechanism and Wholesale market volumes. Elexon's legal opinion that the scope of P415 is not sufficient to introduce Supplier compensation in the BM, and therefore another Modification would need to be raised to cover this element.

The group considered the timelines and impacts associated with either raising a Modification to run concurrently with P415 (that could unlock efficiencies in implementation) or after P415 has received a decision from Ofgem, preferring to wait until Ofgem makes a positive decision on the issue of Supplier compensation before undertaking any further work on this aspect.

Supplier Compensation Liability

- Who should be liable for Supplier compensated? **Proposer view – VLP, as the Balancing Responsible Party should be liable**
  Alternate view – Liability could be mutualised across all Suppliers as they benefit from lower wholesale market costs

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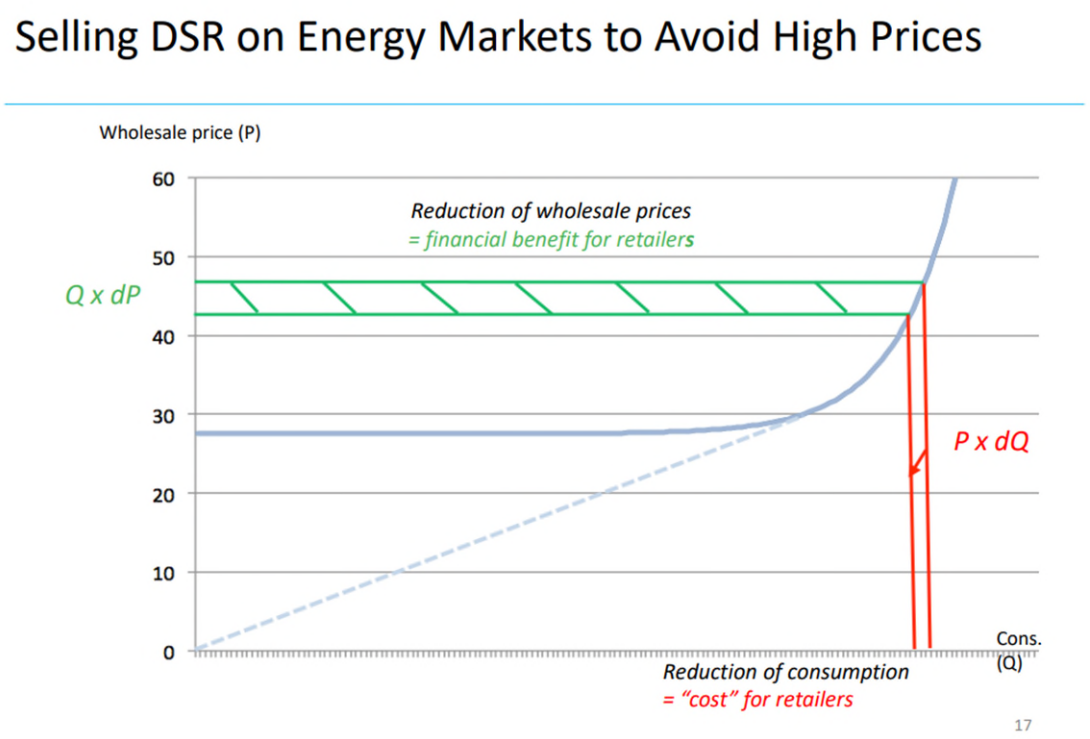
Proposer View

In the Proposers view VLPs should be liable to pay for Supplier compensation as they directly benefit from activity at the Supplier's site (i.e. wholesale market trade or exposure to cash out price). If the compensation mechanism is built into the Solution then the additional cost incurred by the VLP (i.e. the Supplier compensation) is forecastable and therefore can be incorporated in to the VLP business model. It was thought by the Workgroup that this would be the simplest solution to implement and hence was attractive when considering solution efficiencies and implementation costs.

It was noted however that the additional cost to the VLP (i.e. the Supplier compensation) could be viewed as a barrier to entry and the compensation price should be considered carefully to mitigate this.

Alternate View

An alternate view discussed was that all Suppliers should be liable (i.e. mutualised by market share) as they will all benefit from lower sourcing costs due to flexibility in the wholesale market. Noting that flexibility will only be chosen when at a better price point than traditional generation and so both lowers the system demand and the generation costs.



It was argued that the Supplier mutualisation of the compensation costs was more compliant with the Clean Energy Package and provided the correct incentivisation for flexibility to act in the wholesale market.

Workgroup Discussions

Noting that the Proposer's preferred solution is the approach where VLP remains liable for costs incurred by the Supplier under P415, the group discussed whether mutualised compensation by Suppliers should be a required variant within the Cost Benefit Analysis (CBA).

The Workgroup felt uncomfortable with not continuing to explore both options via the CBA and so both variants were recommended be included on the basis that it does not preclude any approaches from further development and potential presentation of both options to Ofgem as the ultimate decision maker for P415.

Supplier Compensation Price

Summary:

- What price should the Supplier be compensated at?
  - o Retail price? **Expensive and difficult to implement**
  - o Imbalance price? **Not appropriate as designed to send market signals to self balance (or not)**
  - o Spot Market price? **Proposer view – Not representative of Supplier incurred costs**
    Alternate view – Represents real time value of energy
  - o Supplier Sourcing Cost price? **Proposer view – Representative of Supplier incurred Costs and adheres to solution principles**

Proposers View on Supplier Compensation

- VLP should be liable to pay Suppliers compensation when Suppliers suffer detrimental impact from any wholesale market activity VLP benefits from (load reduction)
- Conversely Suppliers should be liable to pay VLP compensation when VLP suffer detrimental impact from any wholesale activity Supplier benefits from (load increase)
- Compensation payments to/from Parties should be administered by BSCCo as a BSC Trading Charge
- Supplier compensation should be paid be paid for all VLP activity (i.e. both balancing and wholesale market activity.

The Proposer walked the work group through his view on what would be an appropriate Supplier Compensation price using the table below as an aid:

Supplier compensation scenarios (load reduction)

In each case, just considering 1 MWh that's either consumed as expected or curtailed due to DSR dispatch.

	No DR	Corrected and compensated at				
		No Compensation	retail price	sourcing cost	cash-out	day-ahead
MWh DR	0	1	1	1	1	1
Supplier costs	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S	Sourcing Cost S
Supplier revenues	Retail R (from customer)	0	Retail R (from VLP)	Sourcing costs S (from VLP)	Imbalance I (from VLP)	Day-ahead D (from VLP)
Supplier profit	= R – S	= 0 – S = – S	= R – S	= S – S = 0	= I – S = ?	= D – S = ?
Impact on supplier (principle 4)	Supplier receives retail margin (Base case)	Supplier makes loss	Supplier keeps retail margin Same as base case	Supplier does not keep retail margin Supplier suffers no loss	Supplier exposed to volatility of imbalance price	Supplier exposed to volatility of day ahead price

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The Workgroup agreed that compensation paid at the retail price would ensure that the Supplier is completely unaffected by VLP activity. It was also noted however that a solution using the retail arrangements of individual sites is not feasible given that settlement would need to capture large volumes of commercially sensitive contracting information. This would place requirements not only on settlement systems to process the information but also on Suppliers to provide it in a timely manner. The Workgroup unanimously agreed that such a solution would be overly expensive to implement and operate, introduce onerous processes to the market and therefore was undesirable.

The majority of the Workgroup agreed that an estimation of the Supplier sourcing costs (i.e. reasonable wholesale trades to balance a Supplier portfolio) would be an appropriate price to apply. The group did note that different Suppliers will have different hedging strategies but felt comfortable that as long as the price used was representative of the average sourcing costs it would suffice to ensure Suppliers so not operate at a disadvantage and so the wholesale market remains competitive.

An alternative view was discussed by the Workgroup that the Supplier compensation price should be the day-ahead (i.e. spot market price). The argument presented was that should a Supplier be aware of the deviation at site it when the trade was submitted (i.e. at H-60 GCT) it would have the opportunity to trade these volumes on the intra-day market. By denying the Supplier this opportunity (through imbalance adjustment) the Supplier is due compensation. It was also argued that therefore the real time cost of the energy is <u>not</u> the sourcing cost but the spot market price.

<u>Supplier Compensation Price Methodology</u>

The group considered the proposed methodology governance for calculating a Supplier compensation price. This would define how a reasonable representation for the sourcing costs of a Supplier for a 'given time period' is to be calculated and will be represented by a single £ / MWh value.

The group noted that the methodology should define the required data and the data sources, define how data is to be validated and erroneous / duplicated data is to be removed, define exception scenarios and defaulting rules and be its own Code Subsidiary Document (CSD) and so have appropriate change governance procedures applicable.

Noting that this element would be impact assessed to ensure that it is a cost effective solution, the group wish to better understand indicative costs associated with this approach and Elexon will investigate to see what information can be shared with the Workgroup at this stage.

Non-delivery calculation

Summary:

- No change needed

The non-delivery calculation identifies, per Settlement Period, whether a BMU has delivered against the balancing actions it has received and whether it has benefitted from that non-delivery.

To do so it compares a BMU Expected Metered Volume (QME) against the actual BMU Metered Volumes, and then compares the price the Party will be paid (i.e. Acceptance Price) against the price the party will be charged for non-delivery (Imbalance Price).

It was highlighted to the group that under the current arrangements the BMU Expected Metered Volume (QME) only takes into account FPN and balancing volumes (i.e. for SBMU it won't take into account any WM activity).

QME = FPN + QBS

Where FPN = the physical position of the BMU for a particular settlement period
QBS = balancing volumes

Non-delivery in the Wholesale Market (i.e. an imbalance volume) is calculated at the account level and incorporate WM volumes in BM non-delivery would require knowing the VLP's wholesale position at the SBMU level.

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The VLPs in the group were asked whether providing a BMU view of WM activity (or intended WM activity) would be an onerous requirement. One Workgroup member stated that this would undermine aggregation by "disaggregating the aggregator" and was uncomfortable with this approach, but would support a solution of aggregating actions at an account level and where there's non delivery, paying the highest price within those aggregated volumes. This would only apply in cases where several units in several zones are activated.

At present the Workgroup do not see a need for these changes and are happy that the BOA will be given priority within the balancing volumes and happy that the incentive to deliver their volumes within the Balancing Mechanism/WM will be the imbalance cash out price.

ELEXON asked National Grid if they will need visibility of what VLPs intend to do physically deliver in the wholesale market (i.e. the equivalent of a FPN) to help them balance the system and whether they would be satisfied that issued balancing actions would be sufficiently incentivised under the P415 solution. The National Grid representative agreed to take this away for internal discussion.

Credit Arrangements

The group considered 3 options for VLP Credit Arrangements under the P415 solution.

Under Option 1 VLPs would lodge cover for an estimate of their net exposure, this was felt to best uphold principle 5 'the VLP shall be subject to same rules and requirements where appropriate' and represents (of all the options) the best estimate of debt to be accrued.

Under Option 2 VLPs would have to lodge cover for all contracted volumes. This would be easy to implement but would result in an increase of credit cover needed to be lodged and could be considered a barrier to entry for VLPs.

Under Option 3, the Credit Energy Indebtedness value would be set to zero and therefore result in a reduction of credit cover needed to be lodged. The group did not consider this to be appropriate as in case of VLP default the market shall be liable for any missing credit cover and liability for debt accrued would be placed on other market participants.

Therefore the group unanimously agreed and determined that Option 1 is the preferred P415 Credit Assessment Energy Indebtedness (CEI) solution for P415.

Reporting

The group noted that Ofgem have previously expressed the view that the customer consent model (whereby the customer must consent to the relevant supplier receiving granular data) is preferable to mandatory sharing (whereby customer consent would not be required for suppliers to receive this data) via their decision on P344 'Project TERRE'. This is consistent with a decision on a very similar issue of data sharing for P354 (specifically ABSVD MSID data).

Having considered this information, the group think it would not be prudent to go against Ofgem's previous decision by including mandatory information sharing as a feature of P415.

A majority of the Workgroup agreed that correction and compensation under P415 means that Suppliers would not be impacted by VLP activity and therefore have less need for individual site-level data, although a Supplier representative disagreed that this would not be useful or desired for these organisation. Therefore no changes are proposed for Supplier reporting of VLP activity (to clarify reporting will not distinguish between VLP BM and WM volumes).

Solution Requirements

Due to the breadth of P415, this document has been structured into subject areas. A consolidated table of Business Requirements (BR) is provided in Appendix A. Please note that the following requirements represent the Proposer's solution and do not reflect any alternate solutions discussed by the Workgroup.

Registration

P415 will require minor changes to BSC registration, qualification and communication processes to facilitate wholesale market access for VLPs. To remove barriers to entry P415 shall create a new Trading Party category of Virtual Lead Party to facilitate access to the wholesale market. This effectively means that an Independent Aggregator shall be able to access the wholesale market and balancing markets separately (i.e. via distinct BSC Participation Capacities) removing the qualification and compliance burden on Independent Aggregators who only want access to a single market. **Note** there are no dependencies between the aforementioned Participation Capacities. A BSC Party can one or the other or both.

As a Trading Party (in the new category of VLP) Independent Aggregators will be liable for BSC Cost recovery via Funding Shares.

i. the "Main Funding Share" (FSM_{pm}) of a Trading Party is its proportionate share of Credited Energy Volumes

ii. the "SVA (Production) Funding Share" ($FSPS_{pm}$) of a Trading Party is its proportionate share of Credited Energy Volumes for Production BM Units

iii. the "General Funding Share" of a Trading its proportionate share of the aggregate of certain BSCCo Charges (of which a Trading Party in the category of VLP shall be liable).

iv. The "Annual Funding Share" of a Trading Party is the sum of its General Funding Shares for the 12 consecutive months ending with and including that month, divided by the sum for all Trading Parties of their General Funding Shares for such 12 months.

Note as Deviation Volumes are not metered volumes they do not contribute towards Credited Energy Volumes in the "Main Funding Share" and "SVA (Production) Funding Share" calculations (although any MVRN volumes would be included here).

BR1	
Independent Aggregators shall be able to register as a BSC Trading Party under a new Trading Party role type (Virtual Trading Party).	
1.1	A BSC Party shall be able to register with the Central Registration Agent (CRA) that it intends to act in the Participation Capacity of a Virtual Trading Party (i.e. aggregate deviations of consumer loads to trade on the wholesale market). Note independently of the above: A BSC Party shall be able to register with the Central Registration Agent (CRA) that it intends to act in the Participation Capacity of Virtual Lead Party (i.e. aggregate deviates of consumer loads to provide balancing services to NETSO); **Note** there are no dependencies between the aforementioned Participation Capacities. A BSC Party can one or the other or both.
1.2	For a BSC Party that registers solely as a Trading Party (in the new category of Virtual Trading Party) the CRA shall: a) allocate that BSC Party Energy Accounts, and; b) **not** allocate that BSC Party a Virtual Balancing Account.

	Note such a BSC Party will therefore be a Trading Party and will be able to be subject to Energy Contract Volume Notifications (ECVNs) or a Subsidiary Party in a Metered Volume Reallocation Notifications (MVRNs).
1.3	For a BSC Party that registers solely with the Virtual Lead Party participation Capacity the CRA shall: a) **not** allocate that BSC Party Energy Accounts, and; b) allocate that BSC Party a Virtual Balancing Account. **Note** such a BSC Party will therefore not be a Trading Party and will not be able to be subject to Energy Contract Volume Notifications (ECVNs) or the Subsidiary Party in a Metered Volume Reallocation Notifications (MVRNs).
1.4	For a BSC Party that registers in the participation capacity of a Virtual Lead and in the participation capacity of a Virtual Trading Party the CRA shall: a) allocate that BSC Party Energy Accounts, and; b) **not** allocate that BSC Party a Virtual Balancing Account. Such a BSC Party will therefore be a Trading Party and will be able to be subject to ECVNs and be the Subsidiary Party in a MVRN.
1.5	CRA shall remove Energy Accounts and allocate a Virtual Balancing Account to a BSC Party that: a) is not required to hold Energy Accounts under one of its participation capacities; and b) registers to have its Energy Accounts removed. This removal can only happen if no future dated ECVN or MVRN is in force, in respect of which the Party is a Contract Trading Party and the Party has terminated all ECVNA Authorisations and MVRNA Authorisations made under its authority.
1.6	A BSC Party that has registered solely with the participation capacity of Virtual Trading Party will be required to pay the Base Monthly Charge.
1.7	A BSC Party that has registered solely with the Virtual Lead Party participation capacity (and not as a Trading Party) will be required to pay a Base Virtual Lead Party Monthly Charge (instead of the Base Monthly Charge).
1.8	A BSC Party that has registered with both the Virtual Lead Party participation capacity and as a Virtual Trading Party will be required to pay the Base Monthly Charge only.
1.9	A BSC Party that has registered Virtual Trading Party will have Funding Shares (Main, SVA General or Default) calculated and so will be liable for any BSC cost recovery via the Funding Share allocation method. Such a BSC Party will also be liable for BSC Specified Charges as per BSC Section D.
1.10	A BSC Party that has registered solely with the Virtual Lead Party participation capacity (and not as a Trading Party, Licensed Distribution System Operator or Transmission Company) will not have Funding Shares (Main, SVA General or Default) calculated and so will not be liable for any BSC cost recovery via the Funding Share allocation method. Such a BSC Party will still be liable for BSC Specified Charges as per BSC Section D.

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Performance Assurance Activities

Currently to participate in the Supplier Volume Allocation (SVA) market Parties have to complete Supplier Volume Allocation (SVA) Qualification (including the VLP Participation Capacity) to provide assurance that a Party's systems and processes have been developed in line with BSC requirements and good practice. Qualification also helps check that systems won't pose a risk to Settlement.

Whilst the new Virtual Trading Party is distinct and separate from the existing VLP Participation Capacity it will still operate in the SVA market (i.e. allocate MSID Pairs to Secondary BM Units and submit Delivered Volumes) and therefore SVA Qualification will also be needed.

BR2	
Independent Aggregators wishing to register as a BSC Virtual Trading Party shall be required to demonstrate the ability to perform the activities and obligations under the BSC before it can be registered by the CRA.	
2.1	A BSC Party shall be required to demonstrate the ability to perform the activities and obligations under the BSC before it can be registered by the CRA in the participation capacity of Virtual Trading Party. To do so a BSC Party shall be obliged to meet the Qualification Requirements (please see BSCP537), assessed through the Party Qualification Process, in order to establish: (a) the ability to perform their activities and obligations under the Code; (b) the ability of systems and processes used by such persons to support the aforementioned functions, activities and obligations under the code.
2.2	To clarify the qualification process for the Participation Capacity of Virtual Lead Party (i.e. aggregate deviates of consumer loads to provide balancing services to NETSO) and the qualification process for the Participation Capacity of a Trading Party (in the new category of Virtual Trading Party i.e. aggregate deviations of consumer loads to trade on the wholesale market) are distinct and separate. I.e. a BSC Party may qualify and operate as either or both a Virtual Lead Party and a Virtual Trading Party (Virtual Lead Party)

Currently all BSC Parties and Party Agents must demonstrate the required ability to communicate with BSC Central Systems to provide assurance that a Party is capable of communicating and successfully interpreting the files sent to and from BSC Central Systems. Qualification also helps check that systems won't pose a risk to settlement.

As a Virtual Trading Party is distinct and separate from the existing VLP Participation Capacity therefore CVA Qualification will also be needed.

BR3	
Independent Aggregators wishing to register as a BSC Virtual Trading Party shall be required to demonstrate that they have the use of, and maintain, a Party System in compliance with the BSC Communication Requirements Document before it can be registered by the CRA (please see BSCP70).	
3.1	A BSC Party shall be required to demonstrate that has the use of, and maintains, a Party System in compliance with the BSC Communication Requirements Document before it can be registered by the CRA in the participation capacity of Virtual Trading Party. To do so a BSC Party shall submit to, and submit its Party System to, CVA Qualification testing, in compliance with BSC Communication Requirements Document and BSC Procedure CVA Qualification Testing for Parties and Party Agents (BSCP70), in order to establish that:

	(a) the Party System is compatible with the relevant Communication Medium; the Party is capable of sending and receiving BSC Communications

Secondary BM Units

A Virtual Trading Party shall be able to register Secondary BM Units in the same manner as existing VLP participation capacity. Secondary BM units shall continue to have the same requirements and restrictions as per the existing arrangement.

A Secondary BM Unit must satisfy the following conditions:

a) the Secondary BM Unit does not comprise of CVA Metering System(s);

b) the Secondary BM Unit may only comprise of Half Hourly SVA Metering System(s) and/or flows to and from which are measured by an Asset Metering System;

c) a Secondary BM Unit shall not have a Half Hourly SVA Metering System allocated to it which is allocated to another Secondary BM Unit at the same time;

d) a Secondary BM Unit does not comprise of Half Hourly SVA Metering System(s) and/or Asset Metering Systems in more than one GSP Group.

e) a Secondary BM Unit may have an Asset Metering System allocated to it which is allocated to one other Secondary BM Unit at the same time, provided that the Asset Metering System is used solely for Asset Differencing.

BR4	
A Virtual Trading Party shall be able to register Secondary BM Units.	
4.1	A Virtual Trading Party shall be able to register Secondary BM Units (SBMU) using the existing process.
4.2	A Virtual Trading Party shall be able to notify CRA that a Secondary BM Unit is to be baselined and allocate MSID / AMSID Pairs to that Baselined BM Unit (i.e. it wishes to use the baselining solution (introduced by P375). **Note** only baselined Secondary BM Units shall calculate Deviation Volume and so be used to balance wholesale market trades.
4.3	BSC Cost recovery purposes a Secondary BM Units (SBMU) held by a Virtual Trading Party shall be treated the same as a Primary BM Unit (i.e. costs the same).
4.4	Secondary BM Units registered by Virtual Trading Party shall be required to submit Demand Capacity (DC) and Generation Capacity (GC) where: • GC for a SBMU shall be the maximum positive 'Deviation Volume' expected in that BSC Season • DC for a SBMU shall be the maximum negative 'Deviation Volume' expected in that BSC Season The Secondary BM Units Relevant Capacity is its GC value if its GC+DC is greater than zero. Its Relevant Capacity is its DC value if its GC+DC is less than or equal to zero.

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4.5	A Secondary BM Unit registered by a Virtual Trading Party shall have its P/C Status determined by its Relevant Capacity. I.e. if its Relevant Capacity is GC then P/C Status shall be set to P (i.e. Production) and if its Relevant Capacity is DC then P/C Status shall be set to C (i.e. Consumption)
4.6	GC and DC breach monitoring process shall apply to Secondary BM Units registered by a Virtual Trading Party
4.7	Secondary BM Units shall not be able to be part of a Trading Unit.
4.8	Secondary BM Unit registered by a Virtual Trading Party shall be treated as non-credit qualifying BM Unit for the purposes of calculating Credit Cover.

Credit Cover

Independent Aggregators who register and qualify as a Virtual Trading Party will pay their Trading Charges are paid approximately 29 calendar days after a Settlement Day occurs (like all Trading Parties). Over this period a Parties' Credit Cover ensures it has enough collateral to cover these payments in case of default.

The Credit Cover calculation assesses **Energy Indebtedness (EI)** over a 29 calendar day rolling period. The timing is linked to the timing of our Initial Settlement (SF) Run. The SF Run determines the Trading Charges you need to pay or be paid. Charges are also calculated for information at five Working Days in the Interim Information (II) Run, which you can use as an estimate of your SF Trading Charges.

For each Settlement Period, the Energy Indebtedness is the sum over the previous 29 calendar days (including the current Settlement Day) of:

Credit Assessment Energy Indebtedness (CEI) is an estimate of Energy Indebtedness used until we carry out the Interim Information (II) Run after 5 Working Days. For Primary BM Units the CEI s is based on a comparison of the forecast metered volume and the Aggregated Contract Volume. Under the current arrangements Secondary BM Unit CEI is set to zero. This is not compatible with wholesale market trading which can incur energy imbalance and so will need to be amended for P415

Metered Energy Indebtedness (MEI) uses Central Data Collection Agent (CDCA) metered data to replace FPN data for Credit Qualifying BM Units. The MEI data is available for use in the credit calculations after two Working Days. For all other Primary BM Units (including Interconnector BM Units) and Secondary BM Units, the MEI doesn't apply and these days are part of their CEI;

Actual Energy Indebtedness (AEI) is an estimate of your Trading Charges for a given Settlement Period expressed in MWh. It is calculated from five Working Days after a Settlement Day using the Interim Information (II) Run data. It replaces the CEI (and MEI) for those particular Settlement Days.

BR5

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Secondary BM Units (whose lead party is a Virtual Trading Party) shall be treated as a **Non-Credit qualifying BM Unit**.

Energy Indebtedness (EI_{pj}) for Secondary BM Units shall be the sum over the previous 29 calendar days (including the current Settlement Day) of CEI, MEI and AEI as follows:

5.1 Credit Assessment Energy Indebtedness (CEI) shall be calculated as follows:

CEI_{pj} = – ((∑ Credited Energy Volumes + ∑ Deviation Volumes) – ∑ Contractual Volumes)

- Credited Energy volumes represent any MVRN where the VLP holds the subsidiary Energy Account
- Deviation Volumes represent the actions they have taken as a VLP in the wholesale market
- Contractual volumes represent the bilateral contracts the VLP has entered into

I.e.

$CEI_{pj} = -((\sum_{a,i} CAQCE_{iaj} + \sum_{a,i} CAQDE_{iaj}) - \sum_{a} QABC_{aj})$

where:

(a) summation on 'a' extends to the Production Energy Account and Consumption Energy Account of the Trading Party, and

(b) CAQCEiaj is the Credit Assessment Credited Energy Volume

(b) $CAQDE_{iaj}$ is the Credit Assessment Credited Deviation Volume

(c) $QABC_{aj}$ is the Account Bilateral Contract Volume

The $CAQDE_{iaj}$ is the Credit Assessment Credited Deviation Volume shall be only be calculated for Secondary BM Units registered to a Virtual Trading Party as follows:

a) $CAQDE_{iaj}$ = (0.5 * Relevant Capacity)

Where the relevant capacity is GC $CAQDE_{iaj}$ = (0.5 * BMCAEC)

Where the relevant capacity is DC $CAQDE_{iaj}$ = (0.5 * BMCAIC)

The Secondary BM Unit Credit Assessment Export Capability ($SBMCAEC_i$) shall be the quantity (in MW) determined as follows:

$SBMCAEC_i = SCALF_i * GC_i$

$$SCALF = \frac{\text{average net deviation Production for the BSC Season (MWh)}}{\text{maximum deviation Production for the BSC Season (MWh)}}$$

The BM Unit Credit Assessment Import Capability ($SBMCAIC_i$) shall be the quantity (in MW) determined as follows:

	$SBMCAIC_i = SCALF_i * DC_i$ $SCALF = \frac{\text{average net deviation Consumption for the BSC Season (MWh)}}{\text{maximum deviation Consumption for the BSC Season (MWh)}}$ **Note** CEI / CAQDE / SBMCAIC / SBMCAEC / SCALF shall only be calculated for settlement periods where a 'SBMU Wholesale market activity notification' has been received.
5.2	Metered Energy Indebtedness (MEI_{pj}) shall remain zero for SBMUs in all circumstances.
5.3	Actual Energy Indebtedness (AEI) shall remained unchanged (i.e. AEI represents Trading Charges)

A Party may be in Default of the BSC for a number of reasons. The full list is in Section H of the Code, but the reasons include:

- Credit Default – the Party does not have enough credit lodged to cover its indebtedness;
- Payment default – the Party is unable or refuses to pay charges;
- The appointment of an administrator, receiver or liquidator; or
- A Party informing us that it cannot pay its debts.

As Defaulting Parties debts are ultimately spread across all market participants the BSC Panel has a duty of care to protect other Parties from the Default and will try to minimise the potential debt. It will consider information that we provide and consider the impact on the contracted counter Parties, and on the Defaulting Party.

As a Virtual Trading Party is not exempt from the above and the BSC Panel shall have the same powers and rights in relation to these Parties as it does for existing Trading Parties.

BR6	
The Panel shall be given the right to suspend the right of a BSC Party where they have become a 'Defaulting Party' due to the occurrence of a Default as per BSC Section H.	
6.1	The Panel may suspend the right to submit such Energy Contract Volume Notifications (ECVN) and may disapply (for the purposes of Settlement) any such Energy Contract Volume Notifications as have already been submitted at any time (except to the extent that they relate to Settlement Periods for which the Submission Deadline has occurred prior to the time when the Panel notifies the Parties of such disapplication
6.2	The Panel may suspend the right to submit such Meter Volume Reallocation Notifications (MVRN) and may disapply (for the purposes of Settlement) any such Meter Volume Reallocation Notifications as have already been submitted at any time (except to the extent that they relate to Settlement Periods for which the Submission Deadline has occurred prior to the time when the Panel notifies the Parties of such disapplication

Contract Notifications

P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'
Virtual Trading Parties shall function in the same ways as existing Trading Parties in regards to the submission of wholesale market traded volumes to Settlement i.e. via submission of ECVN and MVRN as per below:

BR7	
A Virtual Trading Party shall be able to be party to a ECVN.	
7.1	A Virtual Trading Party shall be possible to submit Electricity Contract Volume Notification (ECVNs)
7.2	A Virtual Trading Party shall be possible to be the Subsidiary Party Metered Volume Reallocation Notification (MVRNs)

BR8	
SBMU shall remain unable to be included in a MVRN	
8.1	It shall not be possible to submit Metered Volume Reallocation Notification (MVRNs) in relation to Secondary BM Units

Amending the P376 baselining solution for P415

P376 seeks to allow the expected flows at Supplier Volume Allocation (SVA) Metering Systems participating in the Balancing Mechanism (BM) to be calculated using an approved Baselining Methodology.

The new Settlement Expected Volume calculated from the baseline values will be decoupled from the Physical Notification used by the National Electricity Transmission System Operator (NETSO) for dispatch. It will be used in Settlement to calculate Non-Delivery Charges, allowing balancing service providers to be more accurately recompensed for their actual change from normal usage and the impact this change has on the system, thus enabling greater participation.

P375 has been designed to be compatible with P376 so that settlement will be able to use a baselining methodology to set Physical notifications (i.e. calculate a 'Settlement Expected Volume) for secondary BM Units containing asset metering.

How does the baselining work?

VLP notifies settlement that a SBMU is to be a Baselined BM Unit.

However not all MSID Pairs in a Baselined BM Unit may be suitable for using the baselining solution. Parties will need to monitor MSID Pairs in a Baselined BM Unit to ensure that the appropriate statuses are selected for each. The Party will select from the three statuses:

Baselined – MSID Pairs that will have their forecasted volumes determined using a Baselining Methodology.

Included in Party Submission – MSID Pairs in a Baselined BM Unit that will not have their forecast volumes determined using a Baselining Methodology. Instead Parties will submit an aggregate forecast of energy flows for these MSID Pairs.

Inactive – MSID Pairs in a Baselined BM Unit that will not be used to provide any balancing services and whose volumes will not be used in the calculations. Inactive MSID Pairs will not be able to have Delivered Volumes assigned against them.

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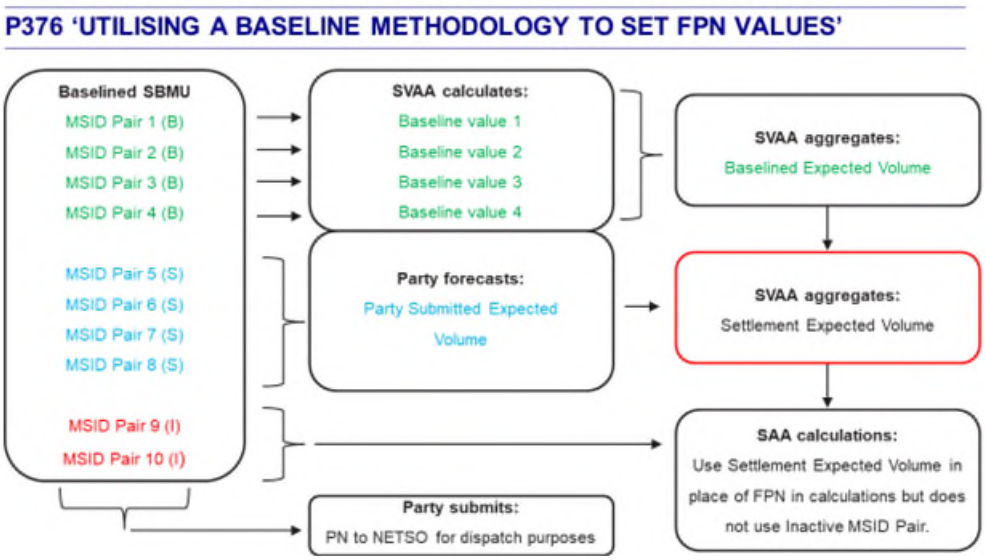

SVAA then calculates a Settlement Expected Volume for Baselined BM Units using an agreed baseline methodology and historical metered consumption.

Why is P376 relevant for P415?

A Deviation Volume is the difference between what a site is forecast to consume / generate and what was actually consumed / generated that can be attributed to a VLP action taken at that site. Deviation Volumes represent an import/export MWh deviation to the Total System as a result of that action by a VLP.

In order to calculate Deviation Volumes Settlement needs to be able to accurately forecast an expected BM Unit volume. P376 introduces a new defined item 'Settlement Expected Volume' which represents an expected BM Unit volume based upon historical volume. P415 proposes to utilise this existing functionality but will require minor amendments to the current arrangements.

Note the consequence of this is that only Baselined Secondary BM Units will have wholesale market Deviation Volumes calculated.

What is an Event Day?

The Baseline Methodology creates a baseline based on normal usage and predicts what the MSID Pair should be doing. Therefore, it needs to discount days where the site is doing something not normal, such as providing a Balancing Service or to fulfil trades on the wholesale market. Current Event Day submissions provisions currently only recognise Balancing Services only and need to be amended.

BR9	
P415 shall amend the notification type options available for event day submissions to Settlement	
9.1	When submitting an event day, it shall be required to choose an option from a predefined list of event day types. These shall be amended to the following two options: • VLP Activation • Other

P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'
The P376 arrangements use the receipt of a BOALF file (i.e. BM instruction) from NGESO to trigger the calculation of Settlement Expected Volume for a BM Unit. Under P415 we want to calculate Settlement Expected Volume for wholesale market activity too. To encompass all trading strategies the WG agreed that a Virtual Trading Party is best placed to inform Settlement of when they are active in the wholesale market.

BR10	
Virtual Trading Parties shall submit a 'SBMU Wholesale market activity notification' per Settlement Period to settlement for each Baselined Secondary BM Unit active in the wholesale market.	
10.1	Virtual Trading Parties shall be able to submit 'SBMU Wholesale market activity notifications' for each Settlement Period until the Gate Closure Time for that Settlement Period (currently 60 minutes prior)

Calculating SBMU Deviation Volumes

As a Virtual Trading Party an aggregator will likely not be active (in either the BM or wholesale markets) in every Settlement Period during a Settlement Day and therefore should only be allocated Deviation volumes when they are active.

- When a Virtual Trading Party is activated in the BM NGESO sends a BOA to settlement.
- When a VLP is activate in the wholesale market the Virtual Trading Party shall be obligated to inform Settlement when they are active in the wholesale market to trigger.

Receipt of either a BOA from NGESO or a wholesale market notification from a Virtual Trading shall trigger the calculation of Deviation Volumes. This ensures that only VLP triggered deviations are attributed to Independent Aggregators and ensures integrity of Settlement.

BR11	
SVAA shall calculate Secondary BM Unit Deviation Volumes for all baselined Secondary BM Units registered to a Virtual Trading Party where either a BOA is received from NGESO or a 'SBMU Wholesale market activity notification' has been received from that Virtual Trading Party.	
11.1	Upon receipt of a BOA for a particular SBMU or a 'SBMU Wholesale market activity notification' SVAA shall trigger the calculation of Secondary BM Unit Deviation volumes.
11.2	SVAA shall calculate Secondary BM Unit Deviation volumes per Settlement Period as follows: SBMU Deviation Volume = SBMU Metered Volume – SBMU 'Settlement Expected Volume'
11.3	Should the SVAA not be able to calculate SBMU Settlement Expected Volumes the SAA shall default to the FPN instead (as in current P376 processing). In such defaulting situation where the FPN is not be available SBMU Deviation Volumes shall be set to zero.
11.4	As part of each SVA Run, SVAA shall calculate the Secondary BM Unit Deviation Volumes (i.e. LLF and GCF adjusted delivered volumes per MSID) for each Secondary BM Unit, and report it to the SAA for subsequent use in settlement.

MSID Pair Delivered Volume

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Under the current BSC arrangements a VLP is obligated to notify Settlement of the load deviations it has actioned at each non-baselined MSID Pair (and Baselined MSID Pair with the status of submitted) within its portfolio when fulfilling a balancing action.

This obligation is to be expanded to include both balancing actions and wholesale market activity. Note that there is no obligation to differentiate between balancing and wholesale market volumes (as the VLP may be active in both at the same time). Therefore the MSID Pair Delivered Volume will represent to total deviation action at a site.

BR12	
Aggregators shall be required to submit Half Hourly Delivered Volumes for each non-baselined MSID Pair (and Baselined MSID Pair with the Submission status) in a Secondary BM Unit to Settlement to which either a balancing action or wholesale market activity (or both) has taken place. SVAA shall be required to calculate Half Hourly Delivered Volumes for each baselined MSID Pair in a Secondary BM Unit to Settlement to which either a balancing action or wholesale market activity (or both) has taken place.	
12.1	The Lead Party of a Secondary BM Unit to which either or both a balancing action or wholesale market activity has taken place shall provide a MSID Pair Delivered Volume submission to SVAA by WD+1
12.2	The SVAA shall validate that SVA Metering System Numbers included in the submission received for a Secondary BM Units are included (on that Settlement Date) in a Secondary BM Unit for which the Lead Party is responsible (and report an exception if not).
12.3	The SVAA shall allocate the MSID Pair Delivered Volume between the composite MSIDs using the existing arrangements.
12.5	As part of each SVA Run, SVAA shall calculate the Secondary BM Unit Supplier Delivered Volumes (i.e. LLF and GCF adjusted delivered volumes per Supplier BMU) for each Secondary BM Unit, and report it to the SAA for subsequent use in settlement.

Within the current arrangements the VLP impacted Suppliers Imbalance adjustments (designated within the BSC as the Period Supplier BM Unit Delivered Volume ($QBSD_{ij}$)) is calculated by aggregating the Period Secondary BM Unit Supplier Delivered Volume (QSD_{iji2}) from all Secondary BM Units that impact the Supplier BM Unit.

$QBSD_{ij} = \Sigma_{i2} QSD_{iji2}$

where $\sum_{i2}$ represents the sum over all Secondary BM Units i2 for which Primary BM Unit "i" is to be allocated a value of QSD_{iji2}.

However QSD_{iji2} is based on the physically delivered VLP Balancing Volumes and the aforementioned VLP MSID Pair Delivered Volumes.

Therefore new arrangements need to be introduced for volumes Trading Party (in the new VLP role) to account for wholesale market activity.

These new arrangements will need to work in parallel with the existing arrangements to that the central systems can settle Suppliers accurately both VLP and Virtual Trading Parties (in the new role of VLP) that impact their imbalance position.

BR13

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The calculation of Period Secondary BM Unit Supplier Delivered Volume (QSD_{iji2}) shall be amended to account for which type of BSC Party (i.e. VLP or Virtual Trading Party is the lead Party of a Secondary BM Unit.	
13.1	For Secondary BM Units where the Lead Party is a **Virtual Lead Party** the Period the Secondary BM Unit Supplier Delivered Volume (QSD_{iji2}) shall continue to be calculated under the existing arrangements e.g. In respect of each Settlement Period, for each Secondary BM Unit "i2", for each Primary BM Unit "i", the Period Secondary BM Unit Supplier Delivered Volume (QSD_{iji2}) is the amount determined as follows: $QSD_{iji2} = QSD_{i2j} * SP_{iji2}$ where QSD_{i2j} represents physically deliver balancing volume SP_{iji2} represents the Supplier BM Unit Proportion of the SBMU Delivered Volumes
13.2	For Secondary BM Units where the Lead Party is a **Virtual Trading Party** the Period the Secondary BM Unit Supplier Delivered Volume (QSD_{iji2}) shall continue to be calculated as follows: In respect of each Settlement Period, for each Secondary BM Unit "i2", for each Primary BM Unit "i", the Period Secondary BM Unit Supplier Delivered Volume (QSD_{iji2}) is the amount determined as follows: $QSD_{iji2} = QDE_{i2j} * SP_{iji2}$ where QDE_{i2j} represents Deviation Volume SP_{iji2} represents the Supplier BM Unit Proportion of the SBMU Delivered Volumes

Supplier Compensation

One of the key principles under which the P415 solution was that Supplier should not benefit nor suffer detriment because of the actions of an Independent Aggregator on site. This is why under the P415 Settlement solution the Suppliers Imbalance position is adjusted to account for any Independent Aggregator activity (this expands on the arrangements introduced in P344 solution that adjusts Suppliers for balancing activity).

However this still leaves the Supplier commercially impacted as in the likely Demand Side Response (DSR) scenario (i.e. the Independent Aggregator reduces demand at a customer's site). In this scenario the Supplier will have bought energy on the wholesale market (that it expected the customer to use) but can't invoice the customer as they hasn't used it. As P415 adjusts the Supplier for any VLP activity (both BM and WM see BR13) this means that they won't receive any spill payments for the bought but unused energy.

As noted previously Supplier shall only be compensated for Wholesale Market volumes and so settlement will need to identify for each SBMU what volumes are to be allocated as balancing volumes and what volumes are to allocated as wholesale market volumes. The work group considered the issue and agreed a set of principles

1. Deviation volumes shall only be allocated to a market where Settlement has received the relevant notifications for (i.e. WM = Wholesale Market Notifications and BM = BOALF)

2. Each site within a SBMU shall contribute towards all notified markets equally

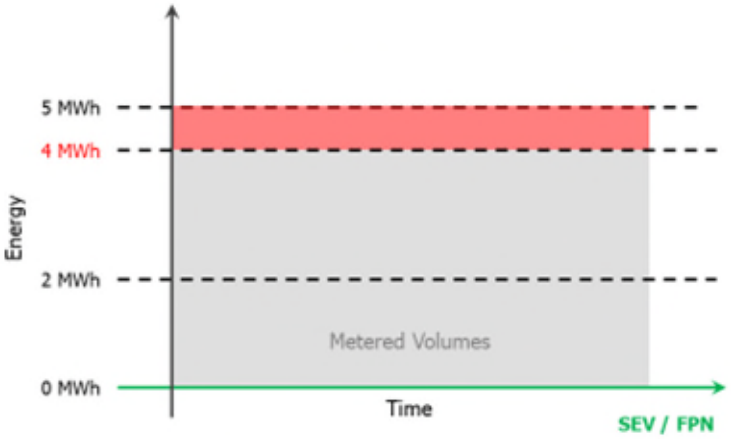
   I.e. if at a SBMU level 25% of the volume is allocated to wholesale market then 25% of the deviation volumes at each site within the SBMU shall be allocated to the wholesale market.

3. Volume allocation at MSID level shall be proportional based on SBMU level

Solution

Consider this scenario again where a SBMU is active in both wholesale and BM markets but under delivers

SEV = 0 MWh WM = Active BOA = 3 MWh QM = 4 MWh



What do we know?

MWh BOA = 3 MWh
MWH Non-Delivery = 0 MWh

Total Deviation Volume = 4 MWh

Therefore

WM SBMU Volumes = 4 – 3 = 1

WM SBMU Proportion = 1 / 4 = 0.25

BM SBMU Proportion = 3 / 4 = 0.75

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BR14	
Supplier shall only be compensated for Wholesale Market volumes and so settlement will need to identify for each SBMU what volumes are to be allocated as balancing volumes and what volumes are to be allocated as wholesale market volumes.	
14.1	For each SBMU settlement shall calculate the proportion of volumes to allocate to the Wholesale market as follows: WM_{i2j} % = Deviation Volume – Delivered Balancing Volumes / Deviation Volumes
14.2	SAA shall calculate the Period Secondary BM Unit Supplier Compensation Volume as follows: $QCV_{iji2} = QSD_{iji2} * WM_{i2j}$ % Where QSD_{iji2} = Period Secondary BM Unit Supplier Delivered Volume
14.3	SAA shall calculate the Period BM Unit Supplier Compensation Volume as follows: $QSV_{ij} = {}^{i2}\sum QCV_{iji2}$ Where QCV_{iji2} = Period Secondary BM Unit Supplier Compensation Volume
14.4	SAA shall calculate the Period Secondary BM Unit Compensation Volume as follows: $QCV_{ji2} = {}^{i}\sum QCV_{iji2}$ Where QCV_{iji2} = Period Secondary BM Unit Supplier Compensation Volume

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As noted previously the P415 workgroup discussed two potential Supplier compensation mechanisms:

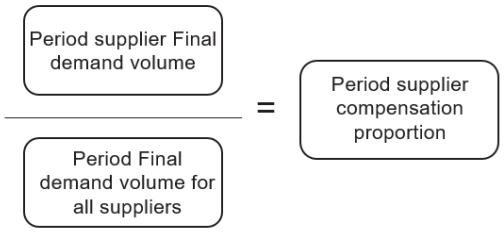
- Proposed solution
  - Proposed solution Compensation costs are mutualised across all Suppliers
  - Compensation paid at a price that represents the average Supplier sourcing costs
- Alternate solution
  - VLPs are liable for compensation costs
  - Compensation paid at a price that represents the average Supplier sourcing costs

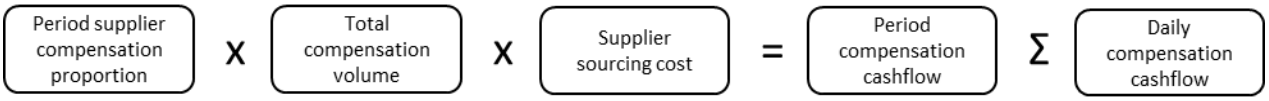
Workgroup felt uncomfortable with not continuing to explore both options via the CBA and so both variants were recommended be included on the basis that it does not preclude any approaches from further development and potential presentation of both options to Ofgem as the ultimate decision maker for P415.

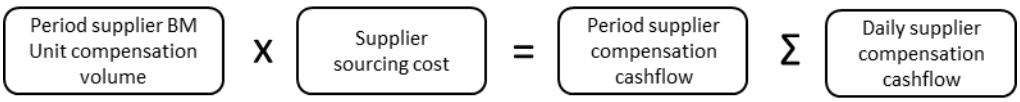
Proposed Solution

In the proposed solution all Suppliers should be liable to pay for impacted Supplier compensation as all Suppliers benefit from reduced sourcing costs due to VLP activity.

If this compensation mechanism is built into the Solution then the additional cost incurred by the Suppliers shall be based on their market share (calculated using Final Demand)







BR15a	
The Daily Compensation Cashflow (SCVp) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to Trading Parties (with the category of Supplier)	
15a.1	In respect of each Settlement Period, for each Energy Account, for each Supplier, SAA shall calculate the Supplier Compensation Proportion (CMP_{aj}) as per a proportion of final demand
15a.2	SAA shall calculate the System Period Compensation Volume as follows: $QCV_j = {}^{i2}\sum QCV_{ji2}$ Where QCV_{ji2} = Period Secondary BM Unit Compensation Volume
15a.3	In respect of each Settlement Period, for each Energy Account, for each Supplier, SAA shall calculate the Supplier Compensation Volume as follows:

	$QCV_{aj} = QCV_j * CMP_{aj}$
15a.4	SAA shall calculate the Settlement Period Compensation Cashflow ($SVCC_{ij}$) by multiplying the Supplier Compensation Volume (QCV_{aj}) by the supplier sourcing cost
15a.5	SAA shall calculate Daily Compensation Cashflow (SCV_p) as the summation of Settlement Period supplier Compensation Cashflow ($SVCC_{ij}$) across all Energy Accounts 'a' for which that Party is the Lead Party and across all Settlement Periods j falling within a given Settlement Date.
15a.6	SAA shall send Daily Compensation Cashflow (SCV_p) to FAA alongside the other Trading Charges.
15a.7	FAA shall include Daily Compensation Cashflow (SCV_p) on invoices and Advice Notes to Trading Parties.

BR16a	
The Daily Supplier Compensation Cashflow (SCCp) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to Supplier impacted by Independent Aggregators	
16a.1	SAA shall calculate the Settlement Period Supplier Compensation Cashflow ($SPCC_{ij}$) by multiplying the Period Supplier BM Unit Compensation Volume (QCV_{aj}) by the supplier sourcing cost
16a.2	SAA shall calculate Daily Supplier Compensation Cashflow (SCC_p) as the summation of Settlement Period Supplier Compensation Cashflow ($SPCC_{ij}$) across all BM Units i for which that Party is the Lead Party and across all Settlement Periods j falling within a given Settlement Date.
16a.3	SAA shall send Daily Supplier Compensation Cashflow (SCC_p) to FAA alongside the other Trading Charges.
16a.4	FAA shall include Daily Supplier Compensation Cashflow (SCC_p) on invoices and Advice Notes to Trading Parties and BSC Parties with the Virtual Lead Party participation capacity.

In order to compensate the Supplier for actions taken by a VLP a Supplier Compensation Price is needed. The proposer believes that the Supplier Compensation Reference Price should represent the average Suppliers sourcing costs and be determined in accordance with an industry agreed and governed document or methodology to which the work group agreed. This sourcing cost will be taken from the Ofgem Price Cap

BR17a	
SAA shall use an agreed methodology to provide a Supplier sourcing cost	
17a.1	The Supplier sourcing cost shall be taken from the published Ofgem price cap covering the same period as prescribed by Ofgem
17a.2	The figure used will be the single rate metering arrangement with the inclusion of an allowance for: 1. shaping, forecast error and imbalance 2. transaction costs 3. basis risk
17a.3	When Ofgem no longer produce a price cap, Elexon will develop the methodology to produce it, so in the event that this cannot be done before the final price cap period expires, the existing price cap will be maintained until such a time that it is no longer required

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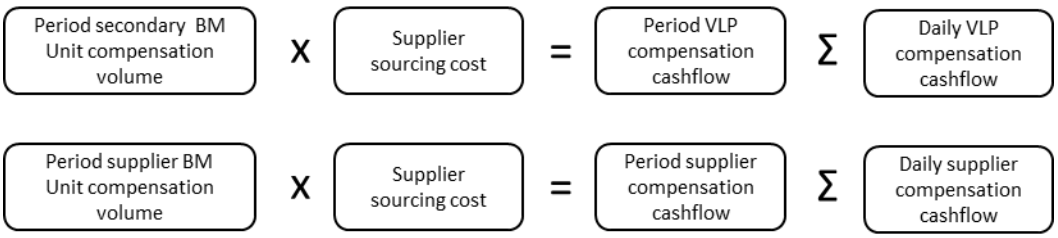
17a.4	The BSC Panel shall agree the Supplier Compensation Price Methodology and which third part service provider should be used to obtain the relevant data for use in settlement.

Alternate Solution

In the Alternate view VLPs should be liable to pay for Supplier compensation as they directly benefit from activity at the Supplier's site (i.e. wholesale market trade or exposure to cash out price). If the compensation mechanism is built into the Solution then the additional cost incurred by the VLP (i.e. the Supplier compensation) is forecastable and therefore can be incorporated in to the VLP business model. It was thought by the Workgroup that this would be the simplest solution to implement and hence was attractive when considering solution efficiencies and implementation costs.

The Daily VLP Compensation Cashflow (SCVp) and the Daily Supplier Compensation Cashflow (SCCp) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to Supplier impacted by Independent Aggregator activity in the wholesale market.



BR15b	
The Daily VLP Compensation Cashflow (SCVp) will be a new Trading Charge	
15b.1	SAA shall calculate the Settlement Period VLP Compensation Cashflow ($SVCC_{ij}$) by multiplying the Period Secondary BM Unit Compensation Volume (QCV_{ji2}) by the supplier sourcing cost
15b.2	SAA shall calculate Daily VLP Compensation Cashflow (SCV_p) as the summation of Settlement Period VLP Compensation Cashflow ($SVCC_{ij}$) across all Secondary BM Units i for which that Party is the Lead Party and across all Settlement Periods j falling within a given Settlement Date.
15b.3	SAA shall send Daily VLP Compensation Cashflow (SCV_p) to FAA alongside the other Trading Charges.
15b.4	FAA shall include Daily VLP Compensation Cashflow (SCVp) on invoices and Advice Notes to Trading Parties.

BR16b	
The Daily Supplier Compensation Cashflow (SCCp) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to Supplier impacted by Independent Aggregators	
16b.1	SAA shall calculate the Settlement Period Supplier Compensation Cashflow ($SPCC_{ij}$) by multiplying the Period Supplier BM Unit Compensation Volume (QSV_{ij}) by the supplier sourcing cost

P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'

16b.2	SAA shall calculate Daily Supplier Compensation Cashflow (SCC_p) as the summation of Settlement Period Supplier Compensation Cashflow ($SPCC_{ij}$) across all BM Units i for which that Party is the Lead Party and across all Settlement Periods j falling within a given Settlement Date.
16b.3	SAA shall send Daily Supplier Compensation Cashflow (SCC_p) to FAA alongside the other Trading Charges.
16b.4	FAA shall include Daily Supplier Compensation Cashflow (SCC_p) on invoices and Advice Notes to Trading Parties and BSC Parties with the Virtual Lead Party participation capacity.

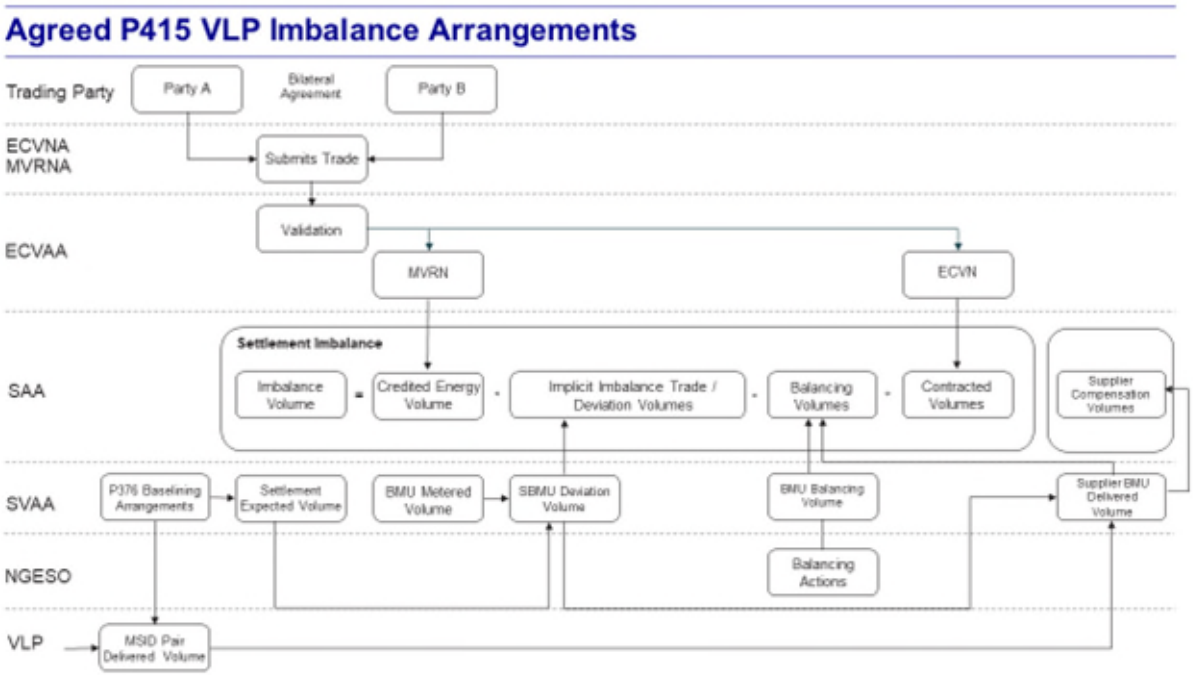
In order to compensate the Supplier for actions taken by a VLP a Supplier Compensation Price is needed. The proposer believes that the Supplier Compensation Reference Price should represent the average Suppliers sourcing costs and be determined in accordance with an industry agreed and governed document or methodology to which the work group agreed. This sourcing cost will be taken from the Ofgem Price Cap

BR17b	
SAA shall use an agreed methodology to provide a Supplier sourcing cost	
17b.1	The Supplier sourcing cost shall be taken from the published Ofgem price cap covering the same period as prescribed by Ofgem
17b.2	The figure used will be the single rate metering arrangement with the inclusion of an allowance for: 1. shaping, forecast error and imbalance 2. transaction costs 3. basis risk
17b.3	When Ofgem no longer produce a price cap, Elexon will develop the methodology to produce it, so in the event that this cannot be done before the final price cap period expires, the existing price cap will be maintained until such a time that it is no longer required
17b.4	The BSC Panel shall agree the Supplier Compensation Price Methodology and which third part service provider should be used to obtain the relevant data for use in settlement.

Imbalance Settlement

- Trading Parties who are VLPs shall not be allocated metered volumes from Secondary BM Units.
- Secondary BM Units shall be allocated Deviation Volumes
- Credited Energy Volumes represent metered volumes and as Deviation are not Metred Volumes cannot be allocated here
- Therefore a new entry is needed in the energy imbalance volume calculation to represent Deviation Volumes

P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'



BR18	
SAA shall include Deviation Volumes in the Energy Imbalance Volume calculation when calculating imbalance volumes for Virtual Trading Parties	
18.1	For each Trading Party the Account Period Deviation Volume ($QADE_{ij}$) shall be calculated as follows: $QADE_{aj} = (\sum_i QDE_{ij} * TLM_{ij})$ Where QDE_{ij} is the Secondary BM Unit Deviation Volumes
18.2	In respect of each Settlement Period, for each Energy Account and Virtual Balancing Account, the Account Energy Imbalance Volume ($QAEI_{aj}$) will be determined as follows: $QAEI_{aj} = QACE_{aj} + QADE_{aj} – QABS_{aj} – QABC_{aj}$ Where $QAEI_{aj}$ is the Account Energy Imbalance Volume $QACE_{aj}$ is the Account Period Supplier BM Unit Credited Energy Volume $QADE_{aj}$ is the Account Period Supplier BM Unit Delivered Volume $QABS_{aj}$ is the Account Period Balancing Services Volume $QABC_{aj}$ is the Account Bilateral Contract Volume

NGESO Notification

Under current arrangements, the NGESO highlighted that P415 would bring more uncertainty to the BM and costs may occur due to this with the purchase of more reserve to cover this. The solution is that the Virtual trading party will provide a new dataflow to NGESO, which states the deviation volume expected and will update this under the same timescales as a PN.

P415 'Facilitating access to wholesale markets for flexibility dispatched by VLPs'
This was the preferred approach as the alternate would be to make changes in Grid Code and the structure of PNs, which would take more time and effort.

BR19	
Virtual Trading Parties shall inform NGESO of their deviation volume per settlement period for each baselined secondary BM Unit in which they are active in the wholesale market	
19.1	Virtual Trading Parties shall send a notification to NGESO of their deviation volume for each baselined secondary BM Unit up until gate closure using the same timescale as PNs

Requirements Table

Area	Ref	Business Requirement
Registration	BR01	Independent Aggregators shall be able to register as a BSC Trading Party under a new Trading Party role type (Virtual Lead Party).
Registration	BR02	Independent Aggregators wishing to register as a BSC Trading Party (in the new category of Virtual Lead Party) shall be required to demonstrate the ability to perform the activities and obligations under the BSC before it can be registered by the CRA.
Registration	BR03	Independent Aggregators wishing to register as a BSC Trading Party (in the new category of Virtual Lead Party) shall be required to demonstrate that has the use of, and maintains, a Party System in compliance with the BSC Communication Requirements Document before it can be registered by the CRA.
Registration	BR04	Secondary BM units shall no longer be only used for balancing services and can be registered to a Trading Party (in the new category of Virtual Lead Party)
Credit Cover	BR05	Energy Indebtedness (EI_{pj}) for Secondary BM Units shall be the sum over the previous 29 calendar days (including the current Settlement Day) of CEI, MEI and AEI as follows.
Credit Cover	BR06	The Panel shall be given the right to suspend the right of a BSC Party where they have become a 'Defaulting Party' due to the occurrence of a Default as per BSC Section H.
Contract Notification	BR07	Trading Party (in the new category of Virtual Lead Party) shall be able to be party to a ECVN.
Contract Notification	BR08	SBMU shall remain unable to be included in a MVRN
Amending the P376 solution for P415	BR09	P415 shall amend the notification type options available for event day submissions to Settlement
Amending the P376 solution for P415	BR10	Trading Parties (in the new category of Virtual Lead Party) shall submit a 'SBMU Wholesale market activity notification' to settlement when active in the wholesale market
Deviation Volumes	BR11	SAA shall calculate Secondary BM Unit Deviation Volumes for all baselined Secondary BM Units where a a 'SBMU Wholesale market activity notification' has been received
MSID Pair Delivered Volume	BR12	Aggregators shall be required to submit Half Hourly Delivered Volumes for each non-baselined MSID Pair (and Party Submission Baselined MSID Pair) in a Secondary BM Unit to Settlement to which either a balancing action or wholesale market activity (or both) has taken place.
MSID Pair Delivered Volume	BR13	The calculation of Period Secondary BM Unit Supplier Delivered Volume (QSD_{iji2}) shall be amended to account for which type of BSC Party (i.e. VLP or Trading Party (in the new VLP role) is the lead Party of a Secondary BM Unit.

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Supplier Compensation	BR14	Supplier shall only be compensated for Wholesale Market volumes and so settlement will need to identify for each SBMU what volumes are to be allocated as balancing volumes and what volumes are to allocated as wholesale market volumes.
Supplier Compensation	BR15a/b	The Daily VLP Compensation Cashflow (SCVp) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to Trading Parties (with the new category of VLP)
Supplier Compensation	BR16a/b	The Daily Supplier Compensation Cashflow (SCCp) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to Supplier impacted by Independent Aggregator activity in the wholesale market.
Supplier Compensation	BR17a/b	SAA shall calculate / receive the Supplier Compensation Reference Price using an agreed methodology.
Imbalance Settlement	BR18	SAA shall include Deviation Volumes in the Energy Imbalance Volume calculation when calculating imbalance volumes for Trading Parties with the new Virtual Lead Party role
NGESO Notification	BR19	Virtual Trading Parties shall inform NGESO of their deviation volume per settlement period for each baselined secondary BM Unit in which they are active in the wholesale market

P415 – Impact Assessment

Elexon

22 September 2022

FINAL REPORT

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1. EXECUTIVE SUMMARY

1.1. CONTEXT AND SCOPE

BSC Modification P415 (P415)[1] was raised in late 2020 and proposes to allow Virtual Lead Parties (VLPs) to trade flexible energy volumes directly in the wholesale market. These flexible energy volumes will be procured from electricity demand customers by VLPs. Deployment of flexibility will not require any involvement from the supplier to the customer who provides the flexibility.

P415 is intended to create benefits to consumers by enhancing flexibility of demand to meet periods of high and low RES output. This additional flexibility could reduce the demand-weighted average annual wholesale market price, flowing through to customers via lower bills. It could also help to reduce carbon emissions, avoid some level of generation capacity otherwise needed to meet demand at peak periods, and reduce curtailment of RES/low-carbon generation in periods when demand is too low for the system to accommodate it.

However, P415 could also introduce new costs and risks. The solution will require new systems and processes to measure VLP flexibility volumes. The modification may also have a range of positive and negative impacts on multiple market participants, and on consumers.

1.2. THE PROPOSED SOLUTION AND COMPENSATION VARIANTS

The proposed solution introduces the concept of a Deviation Volume. The Deviation Volume represents the difference between forecast consumption (measured using a baselining methodology) and actual consumption, where the difference can be attributed directly to a VLP action taken at the relevant site. This allows the VLP to take responsibility for the Deviation Volume and trade it in the wholesale market.

The proposed solution involves the payment of compensation to affected suppliers to reimburse them for the energy that they no longer supply to a customer when the VLP takes a downwards energy action. The imbalance position of the supplier is also kept unchanged in the event of a Deviation Volume.

The P415 Workgroup has developed two alternative compensation mechanisms for consideration in the impact assessment. These compensation mechanisms each lead to a different set of liabilities for VLPs, consumers and suppliers. They therefore have important differences in terms of the potential extent of costs and benefits and for the market participants on which these costs and benefits fall.

We summarise the compensation variants in Table 1.1.

Table 1.1: Description of Compensation Variants

Variant	Terminology in this report	Who pays compensation?	Price of compensation per unit of energy
Proposer	Compensation 1	The VLP who is taking the action.	An estimate of the cost to the supplier of sourcing the energy[2] (the 'Sourcing Cost').
Alternative	Compensation 2	Compensation payments are recovered from all energy suppliers.	The wholesale day ahead market spot price at the time of the action.

[1] The Elexon modification proposal page is here: https://www.elexon.co.uk/mod-proposal/p415/

[2] Elexon and the Workgroup are continuing to finalise the details of the methodology.

Impacts of compensation variants on incentives to deploy flexibility

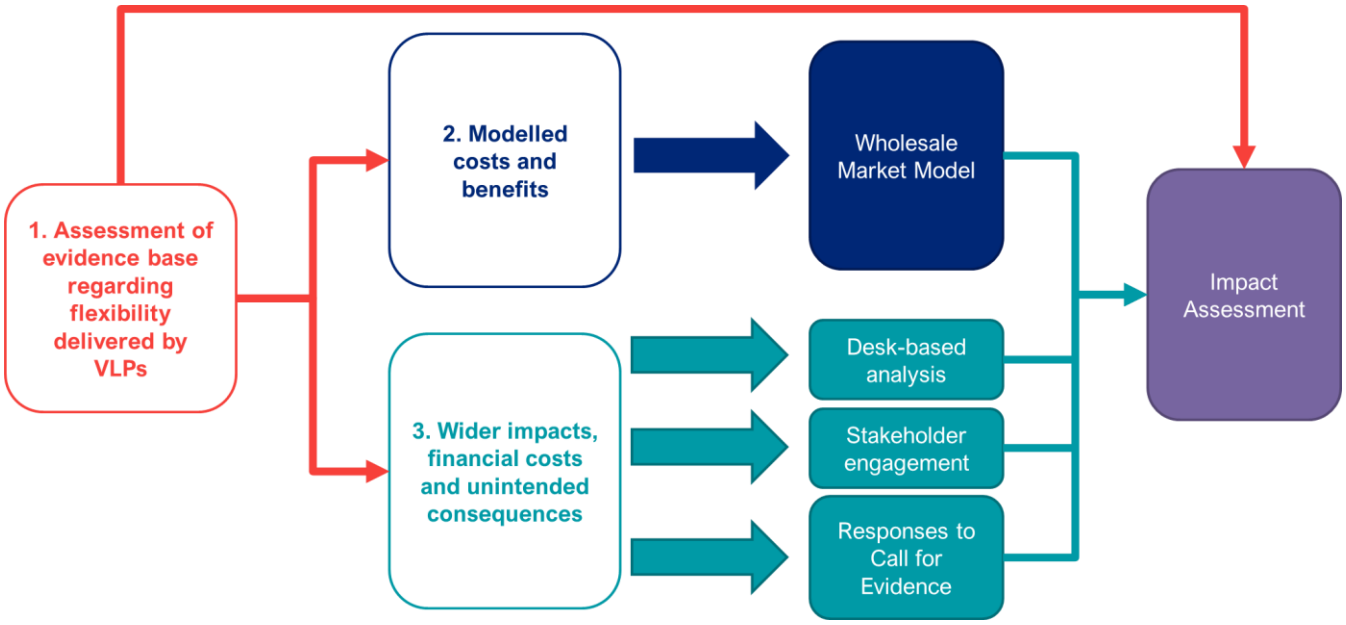
We have assessed the impacts of the compensation variants on incentives of VLPs to deploy flexibility relative to a supplier deploying flexibility from its own customers. We find that:

- Compensation 1 aligns VLP and non-VLP variable costs when deploying peak reduction flexibility. However, Compensation 1 may introduce a variable cost on VLPs that non-VLPs do not face when deploying load shifting flexibility.
- Compensation 2 aligns VLP and non-VLP variable costs when deploying load shifting flexibility. However, Compensation 2 allows VLPs to deploy peak reduction flexibility without internalising the same variable costs as a supplier would if they were taking a peak reduction action themselves.

1.3. Methodology for assessment

Figure 1.1 summarises the three main elements of our overall framework for the impact assessment:

Figure 1.1: Framework for impact assessment



We have undertaken a substantial amount of stakeholder engagement to inform our analysis. This has included:

- **Five sessions with the P415 modification workgroup**: These sessions have been used to discuss our impact assessment methodology, gather views on assumptions and to discuss draft and final analysis.
- **Three meetings with the BSC Panel**: Used to discuss our modelling methodology, interim and final results.
- **Three dedicated sessions with VLPs**: These sessions were used to gather information and data from VLPs, discuss our understanding of the proposed modification methodologies – e.g., in relation to compensation variants, and to inform our assumptions of VLP behaviour in the modelling.

- **Bilateral discussions**: We have engaged directly with more than 10 interested stakeholders to understand their perspectives on the impacts of P415. This has included discussions with VLPs, energy suppliers, the ESO, distribution network companies [3], BEIS and Ofgem.
- **A call for evidence**: We supported Elexon to develop a formal call for evidence to which they received nine responses. These responses have primarily helped to inform our analysis of financial costs of implementation, benefits, risks and unintended consequences.

1.4. CONCLUSIONS FROM ASSESSMENT OF HOW MUCH FLEXIBILITY COULD BE DEPLOYED

P415 will provide an additional route for specialist flexibility providers to trade demand-side flexibility in the wholesale electricity market without the need to partner with electricity suppliers. This could add incremental opportunities and innovation in the flexibility space, helping to achieve the levels of flexibility envisaged in future decarbonisation scenarios. Additional volumes of flexibility may also be delivered by stimulating suppliers to develop more competitive and innovative flexibility propositions to consumers to allow them to compete with VLPs.

We have observed the contributions that aggregated DSR can make to wider markets from some of our international assessments – e.g., to the PJM capacity market. We consider it possible that implementation of P415 could lead to significant contributions of independent aggregation from VLPs to flexibility and be an important enabler of the transition to net zero.

However, we do not rule out the possibility that P415 could deliver only small volumes of additional flexibility. In the absence of P415, existing routes to market already exist for the provision of flexibility in the wholesale market with evidence of customer propositions being actively developed by suppliers, including partnerships with specialist flexibility providers. Over time, it is possible that residential and small commercial customers may reveal a preference for an integrated energy and flexibility service from suppliers, eliminating a significant growth market for VLP delivered flexibility. Considering international examples, evidence does not yet exist of independent aggregators delivering volumes of flexibility into the wholesale market at the kind of volumes included in our modelled scenarios.

The extent of flexibility delivered by both VLPs and non-VLPs will also depend on wider trends, in particular on future energy system and demand conditions, take up of flexible technologies and behaviour/societal change.

Conclusions from our assessment of the evidence therefore highlights significant uncertainty regarding the extent of flexibility that would emerge under the status quo regardless of P415; and even more uncertainty about the extent to which P415 could contribute further volumes.

We account for this uncertainty in our modelling of the impacts in two ways:

- We place our modelled analysis into the context of three FES scenarios, each of which adopts a different pathway for the electricity system and flexibility.
- We adopt a range of assumptions for the additional volume of flexibility that VLPs could deliver to help understand how this affects the magnitude of potential benefits.

1.5. BENEFITS AND INSIGHTS FROM MARKET MODELLING

Figure 1.2 shows the main results of our modelling, which provides useful insights regarding the total welfare benefits and how benefits and costs may be distributed across market participants.:

[3] We held a short workshop with the Energy Networks Association at which several distribution companies were in attendance.

Total welfare benefits

- Greater volumes of flexibility deliver larger benefits in several ways, so long as this flexibility is deployed efficiently. Our results regarding the benefits of flexibility align with findings from other studies and modelling of flexibility in the future electricity system.
- Our assessment identifies the potential for significant benefits where P415 leads to deployment of significant volumes of additional flexibility. While benefits hold with lower volumes, they are more marginal.
- As opportunities for load shifting grow with technological change, Compensation 2 allows for greater volumes of deployment of flexibility and hence, greater total welfare benefits compared to Compensation 1.

Distributional implications

- However, Compensation 2 introduces a cost burden on energy consumers from socialised compensation costs. In our modelling, this can result in a transfer from those consumers who don't provide flexibility to consumers that do.

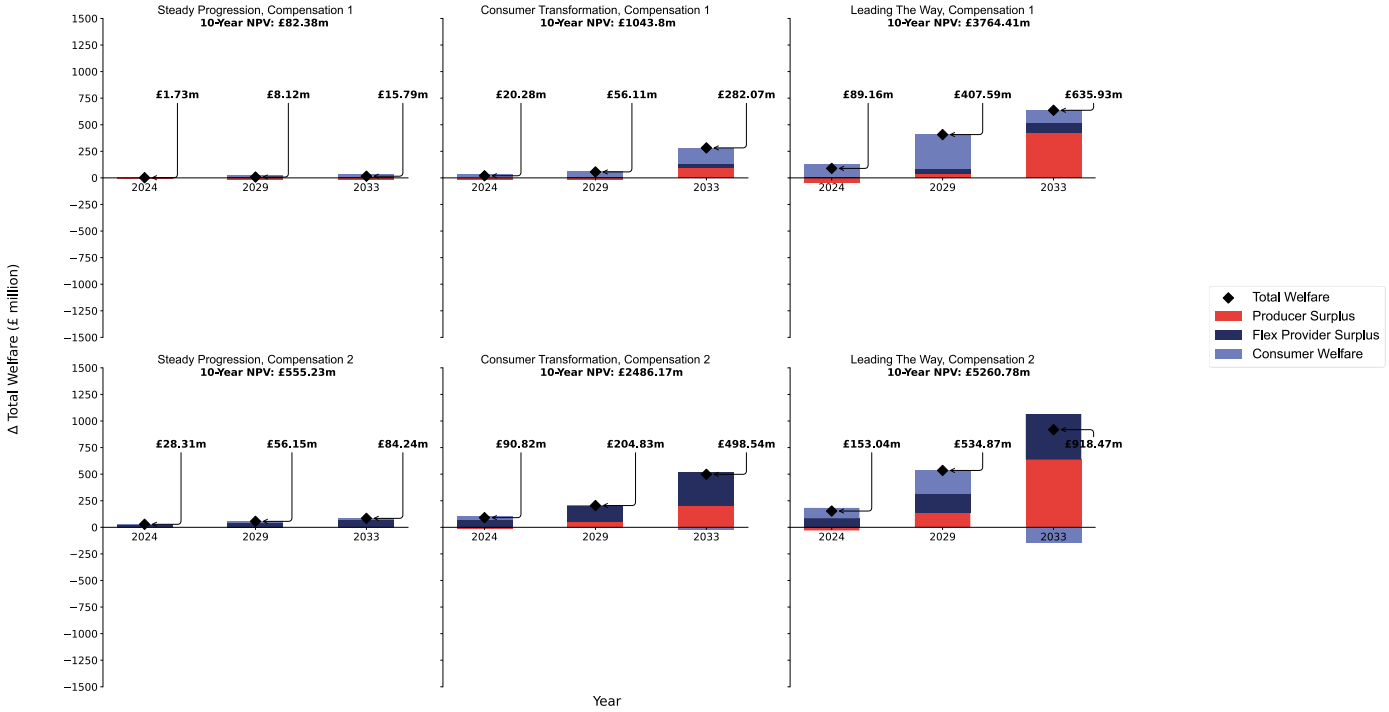
Funding entry of the flexibility capability deployed by VLPs

- Not surprisingly, VLPs earn larger revenues under Compensation 2 than Compensation 1.
- Under Compensation 2, our modelling suggests that VLPs could cover even higher estimates of fixed costs from wholesale market revenues. They would also have more surplus to share with flexibility providers to develop a more attractive customer proposition.
- Under Compensation 1, VLPs would cover lower estimates of fixed costs but may be more dependent on other markets to stack required revenues to cover higher estimates. However, stakeholder engagement and evidence from other markets suggests that revenue stacking across markets is a common business model for flexibility providers.

Value of initial units of flexibility

- Comparison against a 'no flex' sensitivity allows us to test our assumptions of the level of flexibility enabled by VLPs. The initial units of flexibility deployed under our counterfactual deliver substantial levels of benefit.
- This illustrates the sensitivity of our results to assumptions about flex deployment under the counterfactual. To the extent that P415 enables more or less flexibility, we would expect benefits to increase/decrease accordingly.

Figure 1.2: Breakdown of total welfare



1.6. POTENTIAL FOR WIDER BENEFITS

We also considered a range of non-modelled benefits suggested by stakeholders. Table 6.1 presents a summary of our assessment of non-modelled benefits.

Table 1.2: Summary of assessment of non-modelled benefits

Benefit	Considerations	Impact level
Spillover impacts on balancing market	Flexibility providers will seek to stack revenue and opportunities from the wholesale market which could lead to greater levels of flexibility overall. We would expect at least some of this flexibility to enhance competitiveness of the balancing market.	Medium
Spillover impacts on CM and system services	While spillover benefits may also be present in the CM, the extent of benefit will be dependent on whether flexibility provision from VLPs is likely to represent the marginal price setting unit in the CM. System services have stricter requirements than the wholesale market. There may be less natural crossover with the nature of flexibility deployed in the wholesale market.	Low-medium
Security of supply and resilience	In our modelling, we observe the potential for flexibility to reduce the reliance on fossil-fuel generation at times of system peak. This should help to avoid stress on the system during such periods though the magnitude of this impact may be relatively limited and unreliable, at least in initial years.	Low-medium
Wider benefits	There are several wider benefits suggested by stakeholders that are likely to have small/negligible impact in isolation but when taken together may introduce some additional benefit.	Low-medium
Local network benefits	The ENA stressed the localised nature of flexibility markets in comparison to the ability of VLPs to aggregate volumes of flexibility over large areas for participation in the wholesale market. At least in the near term, they suggest that this may reduce the scope for spillover effects in relation to local network benefits.	Low

1.7. Costs of P415

To enable greater volumes of flexibility VLPs will need to invest in flexible capability. This will require incurring upfront fixed costs to develop the customer proposition, systems and processes. Fixed costs may vary significantly depending on whether the VLP needs to install any enabling technology to allow for flexibility provision from the customer. Likewise, ongoing fixed costs will depend to a large extent on whether the VLP is responsible for any ongoing operation and maintenance costs of enabling technology.

Costs will also need to be incurred to implement the P415 solution. The solution will require new approaches to measure VLP flexibility volumes and ensure appropriate settlement for the suppliers of participating customers. This will require the BSCCo to develop new IT systems and processes and may require other market participants to incur costs to allow for the envisaged data and monetary flows. Our assessment of implementation costs is based on information provided to us by market participants. This suggests non-negligible costs, but which are outweighed by estimated welfare benefits so long as P415 results in deployment of a reasonable additional level of flexibility.

1.8. Risks and unintended consequences

P415 may also introduce a range of risks and unintended consequences for multiple market participants. To provide flexibility to VLPs, customers will need to enter into new forms of contractual relationships and engage in a new type of market activity. Given this, we have considered the potential for consumer detriment and impacts on effective competition.

Consumer detriment

While some risks of consumer detriment may exist, we believe that the materiality is relatively low due to the context of the relationship between the VLP and the customer. In particular:

- **A VLP is not responsible for delivering a critical service** as VLPs do not take responsibility for energy supply but only for energy deviation volumes, i.e., flexibility.
- **An energy customer does not need to enter into an agreement with a VLP**: All energy consumers in GB must have an agreement with a supplier to receive energy. The same is not true for VLPs as customers can enter and exit from such agreements depending on the value they receive from them.
- **Suppliers are able to compete directly with VLPs to offer customer flexibility propositions**
- **In general, the flow of payments will be from VLPs to customers rather than the other way round**: As a result, VLPs are unlikely to build up the same level of credit balances and customer debt risk as a supplier.

Impacts on suppliers

The design of the P415 solution protects the supplier from some of the impacts of the downwards energy action. Under the solution, the action should not affect their imbalance position and the supplier receives compensation for the volume of energy they cannot sell.

However, suppliers are more likely to face challenges where the downwards action results in a different level of demand from the customer in a different period – i.e., a load shifting flexibility action. In this case, the supplier may be exposed to demand forecasting and hedging risk from the VLP activity. To some extent, demand side flexibility is likely to create new challenges of a similar nature regardless of P415. While P415 may exacerbate these challenges, the need for increasing sophistication of demand forecasting and hedging in the presence of growing volumes of flexibility may exist anyway. Improvements and learning regarding demand forecasting and hedging in the presence of larger flexibility volumes may provide some mitigation against such impacts.

Gaming risk

We identify a potential gaming risk under the Compensation 2 mechanism. In this case, we consider it possible that a supplier could benefit from becoming a VLP to make use of flexibility from its own customers. Under such an arrangement, the supplier could benefit twice – once from trading flexibility in the wholesale market as a VLP and a second time from the receipt of compensation as a supplier. Under Compensation 2, the compensation received by the supplier would be socialised across the rest of the market. It is not clear to us whether a mechanism exists to prevent such an arrangement.

Baselining challenges

P376[4] defines the baselining methodology that is used to measure Deviation Volumes under P415. The P376 approach appears to be better designed for large, industrial customers with relatively consistent, predictable demand profiles.

Indeed, P376 notes that *'…not all sites will be suitable to use a Baselining Methodology; some sites may not follow any normal behaviour patterns or may be too variable for a Baselining Methodology to provide a useful estimate.'*

As dynamic loads like EVs and heat pumps allow residential and small commercial customers to become an increasingly important source of flexibility, the accuracy of the baselining methodology for such sources of flexibility may become an increasingly important driver of costs and benefits. Inaccurate baselines could lead to sub-optimal investment in flexibility and deployment of flexibility and introduce gaming risk from 'beating the baseline' without deployment of actual flexibility.

Assuming symmetric risk of baseline inaccuracy, we expect that VLPs would value accuracy of the baseline and may seek to develop baselining methodologies that can be applied more effectively for residential and small commercial customers. However, there could be an asymmetric incentive for VLPs to seek to correct baseline

[4] See: https://www.elexon.co.uk/mod-proposal/p376/

inaccuracies that work against them while being less proactive about correcting baselining methodologies that may work in their favour.

Baselining methodologies for smaller customers with more dynamic and less predictable loads are by nature likely to be challenging. Without an appropriate baselining methodology which can reflect the particular characteristics of demand profiles and flexibility characteristics of smaller residential and commercial customers, we identify some potentially significant risks of baselining inaccuracies and possible gaming opportunities relating to the baseline for such customers.

2. SCOPE AND CONTEXT

2.1. PURPOSE OF THIS REPORT

BSC Modification P415 (P415)[5] was raised in late 2020 and proposes to allow flexible energy volumes to be sold by Virtual Lead Parties (VLPs) directly in the wholesale market with no involvement from suppliers. This is designed to enhance the flexibility of demand to help the electricity system better manage variations over time in the level of RES/low-carbon generation.

The purpose of this report is to provide information to the BSC Panel, P415 Proposer and P415 Workgroup on the potential benefits and costs of the implementation of the P415 solutions. It is also intended to support Ofgem's decision on whether to approve one of the P415 solutions for implementation, if and when the modification is submitted to Ofgem for decision.

The impact assessment is informed by both qualitative and quantitative assessment that explores the potential for P415 to increase the level of demand-side flexibility in the electricity system; thereby reducing the costs of decarbonisation. We also explore the potential downsides of P415, including the costs of implementation and associated risks and unintended consequences. Two compensation variants have been proposed under P415. The impact assessment also explores the differences between these variants to evaluate how the costs and benefits are impacted by each design.

2.2. THE ROLE OF FLEXIBILITY IN THE ENERGY TRANSITION

Flexibility can lower the costs of energy system decarbonisation. For example, a 2021 analysis by Carbon Trust and Imperial College estimated potential savings of £10-17 billion per annum across the GB economy from making effective use of flexible energy resources[6].

The Government's own modelling of the benefits delivered by flexibility for its Smart Systems and Flexibility Plan[7] identified the potential for system costs to be reduced by up to £10 billion per year with higher levels of flexibility on the system.

Flexibility will take several forms, including interconnection, storage and possibly hydrogen power plant. However, demand side response may also play an important role. For example, the take-up of technologies such as electric vehicles and heat pumps will provide a new untapped source of flexibility from residential and commercial customers who until now have had relatively fixed demand profiles.

National Grid Electricity System Operator's (NGESO's) Future Energy Scenarios include four scenarios for the development of the energy system. Three of these scenarios achieve or exceed the Government's Net Zero objectives. A common theme across these three scenarios is the need to deploy significant amounts of flexibility, including from DSR[8], in order to accommodate high volumes of non-dispatchable RES generation.

In its response to the call for evidence we issued as part of this project, NGESO stated that a range of initiatives, regulatory and policy developments will be needed to achieve the levels of flexibility envisaged in the FES.

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[5] The Elexon modification proposal page is here: https://www.elexon.co.uk/mod-proposal/p415/

[6] See: https://www.carbontrust.com/resources/flexibility-in-great-britain

[7] See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003778/smart-systems-and-flexibility-plan-2021.pdf

[8] We use DSR and 'demand side flexibility' interchangeably in this report.

2.3. SUMMARY OF THE P415 SOLUTION

A draft summary of the P415 solution is available on Elexon's website[9] and is not reproduced in full here.

Key to the solution is a new type of Settlement volume named a Deviation Volume. The Deviation Volume represents the difference between forecast consumption and actual consumption where the difference can be attributed directly to a VLP action taken at the relevant site. This allows the VLP to take the responsibility for the Deviation Volume and sell it into the wholesale market.

P415 makes use of two other modifications (P375[10] and P376[11]) to support accuracy in determining settlement of VLP actions.

To measure the forecast consumption/generation at a particular site, a baselining methodology is required to estimate what the consumption/generation volume would have been had the VLP not taken an action. P376 defines the baselining methodology that is used for such purposes.

P375 allows for the flexibility deployed by VLPs at a particular asset to be measured using metering behind the site Boundary Point. P375 was designed with P376 in mind such that settlement can make use of the baselining methodology to set Physical Notifications for such assets.

Compensation variants

Where the VLP takes an action, the supplier of the relevant customer has their imbalance position corrected to account for that action so that supplier's imbalance position remains as it was before any VLP action. However, where VLPs take downwards energy actions, suppliers also face a reduction in the volume of energy that they sell to their customers in that period. The P415 Workgroup determined that suppliers require compensation where the VLP takes a downwards energy action as they may have purchased energy to cover a unit of demand that no longer exists due to the VLP action[12].

The Workgroup developed two variants for this compensation mechanism as summarised in Table 2.1.

Table 2.1: Description of Compensation Variants

Variant	Terminology in this report	Who pays compensation?	Price of compensation per unit of energy
Proposer	Compensation 1	The VLP who is taking the action.	An estimate of the cost to the supplier of sourcing the energy[13] (the 'Sourcing Cost').
Alternative	Compensation 2	Compensation payments are recovered from all energy suppliers.	The wholesale day ahead market spot price at the time of the action.

[9] See: https://www.elexon.co.uk/documents/change/modifications/p401-p450/p415-draft-solution-summary/

[10] See: https://www.elexon.co.uk/mod-proposal/p375/

[11] See: https://www.elexon.co.uk/mod-proposal/p376/

[12] The inverse would be true for upwards energy actions taken by the VLP. Here, the supplier would sell a volume of energy to the customer while the supplier would not be exposed to such volumes through imbalance. Under such arrangements, the Workgroup determined that compensation should flow from the supplier to the VLP as the supplier can sell power for which they do not take imbalance responsibility.

[13] Elexon and the Workgroup are continuing to finalise the details of the methodology.

2.4. Structure of this Report

We structure the remainder of this report as follows:

- In **Section 3** we set out our methodology for the impact assessment – covering our qualitative and quantitative assessment of impacts.
- In **Section 4** we discuss the evidence base regarding the potential contribution of VLPs to the level of demand-side flexibility capability in the wholesale market if P415 is approved and implemented.
- In **Section 5** we summarise the findings from our wholesale market modelling, particularly in relation to the assessment of benefits in different scenarios for the increase in flexibility capability resulting from the implementation of P415.
- In **Section 6** we appraise the potential for wider benefits that are not captured in our wholesale market modelling.
- In **Section 7** we draw on stakeholder responses to assess the financial costs of the implementation of P415.
- In **Section 8** we consider the potential for risks and unintended consequences.

We include three appendices:

- In **Appendix A** we provide further detail on our modelling methodology.
- In **Appendix B** we provide detailed analysis of the market dynamics when VLPs deploy flexibility.
- In **Appendix C** we provide a breakdown of the changes in overall welfare under our 'no flex' sensitivity.

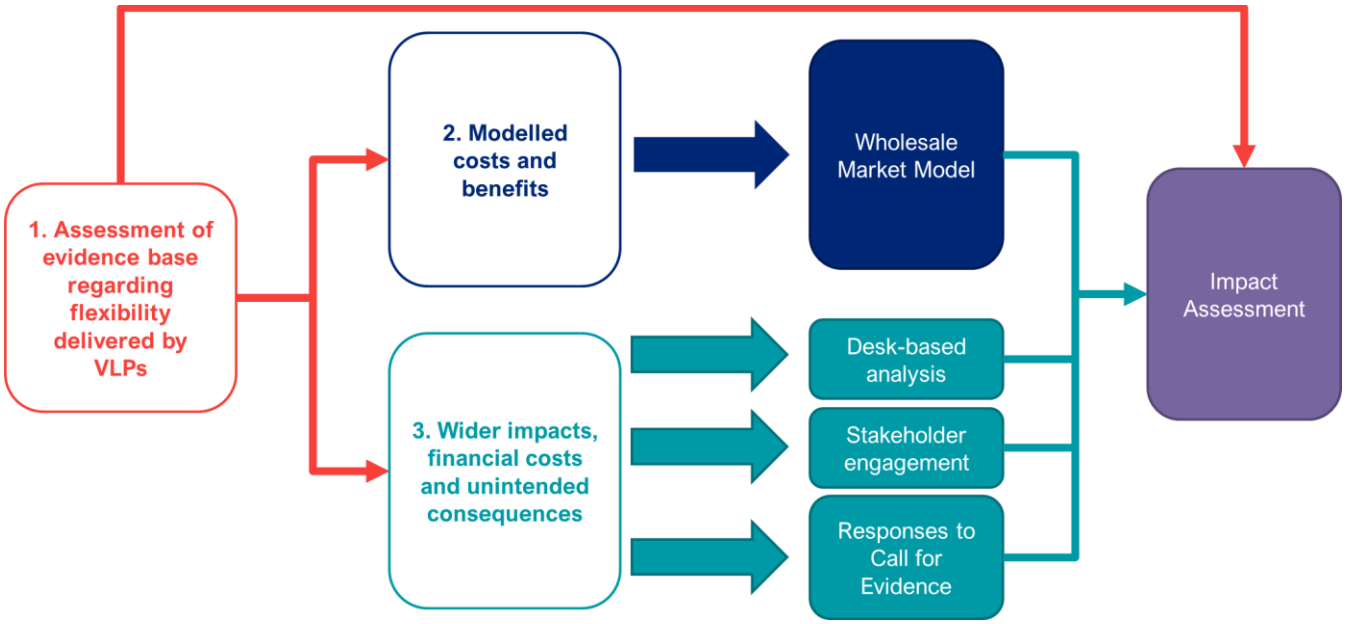
3. METHODOLOGY

3.1. ELEMENTS OF OUR ASSESSMENT

Figure 3.1 summarises our overall framework for the impact assessment which includes three overarching elements:

- **Assessment of evidence base for the flexibility that could delivered by VLPs**: We have assessed several sources of evidence that provide insight into the potential volumes of additional flexible capability that may be delivered by VLPs if P415 is implemented. We explore the enablers and barriers for the evolution of flexibility in the GB market over the next decade and consider how flexibility is likely to evolve under the counterfactual (i.e., if P415 is not implemented). We also assess international examples of participation of independent aggregation in energy markets. Our analysis informs our understanding of the extent of flexibility provision which could be stimulated by the implementation of P415.
- **Modelling of key costs and benefits:** We use CEPA's energy market model to estimate the key impacts of P415 on consumers, flexibility providers and producers. We manage uncertainty by carrying out modelling under three 'Cases', taking into account different potential future electricity systems and varying levels of flexibility deployment from VLPs. We also model a sensitivity in which we compare results against a hypothetical scenario in which no flexibility is deployed. The modelling provides qualitative insights as well as quantitative outcomes.
- **Analysis of wider, non-modelled impacts, financial costs of implementation, risks and unintended consequences:** Several potential benefits were suggested by stakeholders that are not captured in our market modelling. We assess these separately, drawing on stakeholder input and our own analysis. We also assess the financial costs of implementation of P415 and the potential and risks for consumer detriment resulting from unintended consequences.

Figure 3.1: Framework for impact assessment



3.2. STAKEHOLDER ENGAGEMENT TO INFORM OUR ANALYSIS

We have undertaken a substantial amount of stakeholder engagement to inform our analysis. This has included:

- **Five sessions with the P415 modification workgroup**: These sessions have been used to discuss our impact assessment methodology, gather views on assumptions and to discuss draft and final analysis.

- **Three meetings with the BSC Panel**: Used to discuss our modelling methodology, interim and final results.
- **Three dedicated sessions with VLPs**: These sessions were used to gather information and data from VLPs, discuss our understanding of the proposed modification methodologies – e.g., in relation to compensation variants, and to inform our assumptions of VLP behaviour in the modelling.
- **Bilateral discussions**: We have engaged directly with more than 10 interested stakeholders to understand their perspectives on the impacts of P415. This has included discussions with VLPs, energy suppliers, the ESO, distribution network companies[14], BEIS and Ofgem.
- **Call for evidence**: We supported Elexon to develop a formal call for evidence to which they received nine responses. These responses have primarily helped to inform our analysis of financial costs of implementation, benefits, risks and unintended consequences.

3.3. Assessment of evidence base regarding flexibility delivered by VLPs

We base our assessment of the potential volumes of flexibility that could be deployed by VLPs on several sources of evidence:

- **Future development of demand-side flexibility in the GB electricity system**: We consider published scenarios and pathways set out in publicly available documents[15], noting the factors which are likely to influence the deployment of flexibility most heavily.
- **Supplier delivered flexibility, particularly under the counterfactual in which P415 is not implemented:** An electricity supplier currently provides the main route for its customer to provide demand-side flexibility for trading in the wholesale market. We consider activities of suppliers in relation to flexibility and what this suggests for the deployment of flexibility under the counterfactual. This is important because P415 is only likely to deliver benefits if it leads to additional flexibility being deployed, beyond that which would have been delivered anyway.
- **Views of stakeholders**: We draw on our engagement with a range of stakeholders to consider their views on the contribution of P415 to flexibility deployment. Our stakeholder engagement included eight workshops, multiple bilateral meetings with interested stakeholders and a call for evidence[16].
- **International examples of the independent aggregation of demand-side flexibility**: We reviewed evidence on the participation of independent aggregators in energy markets in three international examples:
    - the Pennsylvania, New Jersey and Maryland (PJM) market;
    - the French energy market; and
    - the Australian National Energy Market.

3.4. Modelled costs and benefits

We used CEPA's proprietary wholesale market model to perform our assessment of the key impacts of P415 that were possible to model. We summarise the approach taken below and provide further detail in Appendix A.

[14] We held a short workshop with the Energy Networks Association at which several distribution companies were in attendance.

[15] Including the FES, the Smart Systems and Flexibility Plan and Flexibility in Great Britain published by The Carbon Trust.

[16] Responses to the Call for Evidence are published on the Elexon P415 website.

3.4.1. Modelling framework

Our model is 'deterministic' and simulates day-ahead market prices for the GB wholesale market. For this assessment, we set up our wholesale market model as follows:

- **A single GB market with no zonal configuration**[17]: Our modelling used a national representation of the wholesale market. Given the existing national representation of the wholesale market, our modelling was not intended to capture any impacts on network reinforcement or constraint management which were considered to be second order.
- **Endogenous dispatch, demand and price formation**: In Section A.1 we set out the generation and demand technologies that we included in the model. Dispatch of each generation type, demand and the use of flexibility vary in response to the day-ahead market (DAM) electricity price which is itself determined by the interaction of supply and demand curves[18]. This endogeneity allowed us to consider the impacts of the P415 variants on dispatch and wholesale market prices in comparison to the counterfactual. The exception is where there is good reason to assume that dispatch and/or demand profiles are generally independent of prices (e.g., for non-dispatchable renewable generation, nuclear generators and inflexible demand). For these technologies and customers, we model fixed dispatch profiles but allow for these generators to be curtailed where total system dispatch exceeds demand.
- **Hourly granularity with sample 'spot years'**: Our model includes hourly resolution of the wholesale market with modelling of dispatch, demand and DAM prices across 8760 hours in each calendar year (24 hours a day for 365 days of the year). We modelled the wholesale market in three spot years over the ten-year horizon of the impact assessment – 2024, 2029 and 2033. We interpolated the results between these years to allow for assessment of the costs and benefits over the full period.

3.4.2. Assessment period and spot years

Elexon specified a time horizon for the impact assessment of 10 years. We agree that this represents a sensible appraisal period as there may be several market designs, technological and societal changes beyond this period that introduce an additional level of uncertainty as to the costs and benefits of P415.

When P415 was raised, the requested Implementation Date was 'as soon as possible'. However, at the time Elexon had not assessed both the central and industry implementation timescales and interactions with other industry changes. Due to large volumes of industry change and the complexities associated with P415, we understand from discussions with Elexon that P415 is unlikely to be implemented before 2024. We therefore modelled 2024 as the initial spot year with 2033 as the final year of the assessment (to allow for a ten-year period). To inform the interpolation between these two years, we modelled an interim spot year of 2029.

Within a window of 2-3 years, we would expect the insight from our analysis to hold irrespective of the implementation date. Beyond this, it is possible that some of the assumptions regarding deployment of flexibility under the counterfactual may begin to be overtaken by feedback from the market, e.g., in relation to policy or technological developments which provide better information about the evolution of demand side response. In the case that our analysis is used to inform future development of this modification or others related to it beyond the

[17] Under its Review of Electricity Market Arrangements (REMA), BEIS is considering whether the fundamental structure of the wholesale electricity market should be reformed to support the transition of the system. This includes consideration of the bidding zone formulation and whether the wholesale market should become zonal or nodal rather than the existing national model. Reform of this nature would have fundamental impacts on the electricity market and on the value delivered by flexibility. Our analysis and modelling have been developed in the context of the existing market structures with consideration of fundamental reform out of scope.

[18] Our wholesale market model takes as an input gas, carbon and hydrogen prices. Gas and carbon prices are taken directly from the FES 2021. Hydrogen prices are calculated based on our own analysis of BEIS Hydrogen Production Costs 2021. We take the costs of Steam Methane Reformation with CCUS and update them for FES 2021 assumptions for CO2 and gas prices.

suggested 2-3 year timeframe, we would advise consideration of the assumptions underpinning our analysis to help inform any future decision making.

3.4.3. Welfare assessment

To fully consider the impacts of P415 on various market participants, we separate our welfare assessment into three groups:

- Energy consumers
- VLPs, non-VLPs and providers of flexibility
- Producers

Energy consumer welfare

This group captures costs and benefits falling on all energy consumers in relation to their consumption of electricity, i.e., not taking into account any additional costs or benefits falling on those consumers that provide flexibility. We assume that the supply market is competitive such that suppliers fully pass on any change in costs or revenues to their customers.

Table 3.1 summarises the cost and benefit components that are allocated to energy consumers in our welfare assessment.

Table 3.1: Consumer welfare impacts

#	Component	Description
1	Wholesale market price	The impact the change in the spot price in each period on total wholesale market costs faced by consumers.
2	Carbon emissions	Any reduction in carbon emissions from avoided dispatch of fossil fuel generation.
3	Spare generation capacity	Flexibility may allow for avoided use of generation capacity, allowing for savings from ongoing fixed costs.
4	CfD top-up payments	Any impact on the top up payments needed to make CfD payments at the strike price when CfD supported generators are dispatched – i.e., not during periods where they are curtailed; or during negative price periods for CfD supported generation post TR4.
5	Avoided curtailment	Any impacts on balancing market payments due to the need for, and costs of, curtailment. We assume that any additional balancing market costs are passed through to consumers.
6	Compensation cost (Compensation 2 only)	We assume that suppliers will pass on the costs of compensation that they need to pay under the Compensation 2 mechanism when VLPs deploy flexibility. Compensation costs under Compensation 1 are captured in the VLP's variable costs of deploying flexibility.
7	Supplier compensation surplus (Compensation 2 only)	Under Compensation 2, suppliers are compensated at the prevailing wholesale market spot price where the VLP makes use of their customers' load. After covering the costs falling on the supplier, we estimate that this is likely to result in a surplus above such costs (see Section 4.5). We assume that suppliers pass on this surplus to their own customers.

Flexibility provider surplus

To deliver flexibility, both non-VLPs and VLPs will need to contract with flexibility providers. They will need to share the benefits derived from providing flexibility into the wholesale market to obtain these services.

Under our assumption of a competitive market, VLPs and non-VLPs would need to recover fixed costs and earn a reasonable return on investment. Beyond this, we assume that any change to costs and benefits would be passed onto the customer who provides the flexibility. We explore the revenues of VLPs and how these may compare against estimates of fixed costs in Section 5.7.

Table 3.2 summarises the costs and benefits falling on flexibility providers.

Table 3.2: Flexibility provider impacts

#	Component	Description
1	Non-VLP revenues shared with flexibility providers	The revenues accruing to non-VLPs from utilising flexibility of their own customers. After recovering fixed costs and a reasonable return on investment, we assume that revenues are paid to customers who provide the flexibility. Non-VLPs may also need to pay customers to activate this flexibility as a variable cost. Where the supplier deploys their own customers' flexibility, demand of the customer is reduced. The supplier therefore foregoes the opportunity to sell the unit of energy to the customer, without receiving the compensation that it would do had a VLP activated the reduction in demand under P415.
2	VLP revenues shared with flexibility providers	The revenues accruing to VLPs from utilising flexibility of the customer of a supplier. After recovering fixed costs and a reasonable return on investment, we assume that revenues are paid to customers who provide the flexibility. VLPs may also need to pay customers to activate this flexibility as a variable cost. Under Compensation 1, the VLP would also need to pay compensation to the supplier of the customer whose flexibility they have used.

Producer surplus

Table 3.3 lists the types of producer who will be affected by the outcomes of P415.

Note that CfD-supported generators who continue to receive the strike price where they dispatch in periods of negative prices will remain net neutral under P415 relative to the counterfactual in our modelling. Where they continue to dispatch, they will receive top up payments to the strike price regardless of the market price. Where they are curtailed, we assume they bid into the BM such that they continue to receive the strike price.

Table 3.3: Producer impacts under P415

#	Component	Description
1	Producers exposed to the wholesale market	Revenues captured by generators who are exposed to the wholesale market price.
2	CfD supported producers	In our modelling, only generators who do not receive the CfD in negative price periods (TR4 onwards) will be affected. All other CfD supported generators will either be paid or the strike price, or when curtailed will be paid the equivalent in the BM.
3	Interconnectors	Revenues captured by interconnectors based on arbitrage between markets – we only assign half of the value to GB interconnector ownership.
4	Producer-retailer contracting factor	We assume that retailers have contracted forward to cover the demand of their customers before flexibility is deployed which changes their demand position. However, in our market model, any reduction in demand is met by a fall in generation dispatch, therefore reducing producer surplus. Elsewhere in our welfare analysis, we have already taken account of the cost to suppliers of contracting forward for energy that is then not supplied. To avoid double counting of the impact of a reduction in demand, we introduce a 'producer-retail contracting factor' which reflects the forward contracting position. This reflects the assumption that producers still receive their contracted position when flexibility is deployed.

3.5. WIDER IMPACTS, FINANCIAL COSTS AND UNINTENDED CONSEQUENCES

Wholesale market modelling is not able to capture the full range of impacts that have been proposed as possible costs and benefits of P415.

3.5.1. Non-modelled benefits

There are several benefits that have been put forward by stakeholders that cannot be included in a market modelling assessment:

- **positive externalities** of additional DSR availability for balancing market participation, CM prices (where additional to capex benefits of capacity reduction) and wider system services;
- **local network benefits**, e.g., for localized flexibility markets and/or deferred reinforcement**;**
- **security of supply** and resilience from diversification of the market;
- benefits related to **consumer engagement and satisfaction;**
- providing **choice** and **competitive pressures** for customers looking to provide flexibility in the wholesale market;
- additional source of DSR which can support **distributed energy and renewables integration**;
- additional source of DSR which can support **electrification** of heat and transport; and
- benefits in the **supply chain** for demand side response services and products.

Our assessment of the potential magnitude of these benefits is informed by our stakeholder engagement, responses to our call for evidence and our own analysis.

3.5.2. Financial costs of implementation

Delivery of the systems and processes needed for implementation of P415 will require resource and time investment from BSCCo, and from several other market participants. We draw on responses to our call for evidence in our assessment of the potential costs of implementation.

3.5.3. Risks of consumer detriment and other unintended consequences

P415 would be a material change to market arrangements and would establish a new form of relationship between VLPs and energy consumers when they act as flexibility providers. It is therefore important to consider the potential for any detriment to consumers, whether financial, related to engagement and understanding of the market or through implications for retail market and flexibility market competition.

Our assessment of these issues is informed by stakeholder engagement, responses to the call for evidence and our own analysis.

4. EVIDENCE BASE: FLEXIBILITY AND INDEPENDENT AGGREGATION IN THE WHOLESALE MARKET

The potential for P415 to provide benefits depends on the extent to which it can deliver additional volumes of flexibility that would not have existed without its implementation. It aims to achieve this by providing a new route to market for flexibility providers, and more choice for customers who can provide flexibility into the wholesale market.

In this section we consider the evidence base that exists regarding the deployment of flexibility by independent aggregators to help us consider the potential magnitude of additional flexibility volumes that P415 may deliver.

The compensation variant will also impact on the extent of deployment of flexibility if P415 is implemented. In this section, we also consider the competitive dynamics between VLPs and suppliers under P415 and how these differ between the two compensation variants.

4.1. FUTURE DEVELOPMENT OF FLEXIBILITY IN GREAT BRITAIN

A key challenge in assessing the impact of P415 is that past and present experiences of overall demand-side flexibility provision within the GB electricity system are unlikely to represent strong predictors of the future. The volumes of DSR which exist within scenarios such as the FES and the Smart Systems and Flexibility Plan far exceed the levels currently of flexibility currently deployed. New sources of flexibility will be driven by a mixture of the following factors:

- **Social change**: Customers may become more used to 'energy as a service', caring less about when and how they consume energy and more about the services that energy provision allows for. This may facilitate flexibility providers to access customers' flexible loads in return for payment.
- **Regulatory and policy change**: Ongoing regulatory change such as Market Wide Half-Hourly Settlement (MWHHS) will support the value proposition of flexibility. Stakeholders have also told us that several wider changes to regulation and policy are required if the levels of flexibility envisaged in future scenarios are to be achieved.
- **Technological change**: Electrification of heat and transport coupled with automation technologies will introduce large, controllable sources of energy demand into homes and businesses. While there is some potential for flexibility which does not depend on technological change and which may be delivered today, take-up of new technology, particularly by residential and small commercial customers are likely to be a key driver of the step-change in flexibility that is envisaged under energy decarbonisation scenarios.

The evolution of these trends will affect the volumes of deployed flexibility, whether or not P415 is implemented. There is therefore significant uncertainty regarding how flexibility develops in general, as well as the success of P415 in delivering additional volumes.

4.2. DSR UNDER THE COUNTERFACTUAL

Many of the existing electricity suppliers publicise examples of developing customer value propositions that would allow them to access emerging flexibility opportunities. A selection of these examples is listed below.

- Octopus Energy[19] offers several flexibility offerings into the market including:
  - Agile Octopus – which passes through Day Ahead prices to customers.
  - Octopus Go – a traditional two-tier tariff.

[19] https://octopus.energy/

- Intelligent Octopus – allowing scheduling against day ahead, intraday, balancing mechanism and capacity markets.

- Ovo Energy[20] has partnered with Kaluza[21], a flexibility platform which incorporates Kaluza Flex[22], designed to intelligently charge smart home devices.
- Shell has acquired Limejump[23], a technology platform provider that aims to maximise revenue streams from decentralised asset owners.
- Ecotricity has partnered with Next Kraftwerke[24], providing access to a software platform that allows it to regulate and balance demand across the country in real time.

Some of these initiatives are already bringing flexibility to the market. For example, Octopus suggests that Octopus Go is already shifting around 350 MW of EV charging out of the evening peak to overnight periods. Projecting forward, they would expect multiple GW to be participating in wholesale markets by 2034.

As the importance and potential of flexibility services develop over time, we would expect this market activity to turn into increasing volumes of flexibility capacity. Some of this flexible capacity is likely to participate in the wholesale market directly through the supplier.

4.3. VIEWS OF STAKEHOLDERS

We used a formal call for evidence, bilateral meetings, and workgroup discussions to gather views of stakeholders regarding the additional flexibility that could be delivered by the implementation of P415. Views differed substantially between stakeholders.

Two existing suppliers believed that P415 would add little additional flexibility. They referenced several blockers to the deployment of flexibility which they considered to be significantly more important than facilitating direct VLP access. They drew attention to the initiatives set out in the previous section, including partnerships between suppliers and dedicated flexibility providers, as evidence of the development of flexibility without P415.

A further two suppliers identified potential for P415 to deliver additional volumes of flexibility but urged caution in ensuring that the appropriate regulations were put in place to ensure a level playing field between different types of flexibility providers and to protect consumers. We consider these issues in Section 8.

VLPs considered P415 to be essential to unlock the full potential of flexibility in the wholesale market. They expected direct potential of new and innovative customer propositions to emerge from specialist flexibility businesses. In addition, they stated that (potential) entry by VLPs would significantly increase competitive pressures on suppliers to provide better and more innovative flexible procurement offerings to their own customers. VLPs emphasised that suppliers had not delivered significant volumes of flexibility from DSR in the past, despite their ability to do so. They suggested this as evidence that suppliers would not deliver the potential from DSR without competitive pressure from VLPs.

NGESO also believed that P415 could unlock additional volumes of flexibility in the market and identified potential benefits from enhanced competition. While they did not comment specifically on the potential volumes of flexibility that P415 could contribute, they welcomed the potential benefit delivered by VLPs as an additional tool to manage the transition to a net zero emission energy system. NGESO also noted that the FES acknowledge the importance

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[20] https://www.ovoenergy.com/

[21] https://www.kaluza.com/the-kaluza-platform/

[22] https://www.kaluza.com/demand-response/

[23] https://www.limejump.com/knowledge-hub/limejump-acquired-by-shell/

[24] https://www.ecotricity.co.uk/our-news/2018/ecotricity-and-next-kraftwerke-partner-to-create-a-greener-grid#:~:text=Britain's%20greenest%20energy%20company%20has,the%20country%20%2D%20in%20real%20time.

of market mechanisms to incentivise and enable the magnitude of DSR that is required to manage a high-RES system.

4.4. INTERNATIONAL CASE STUDIES

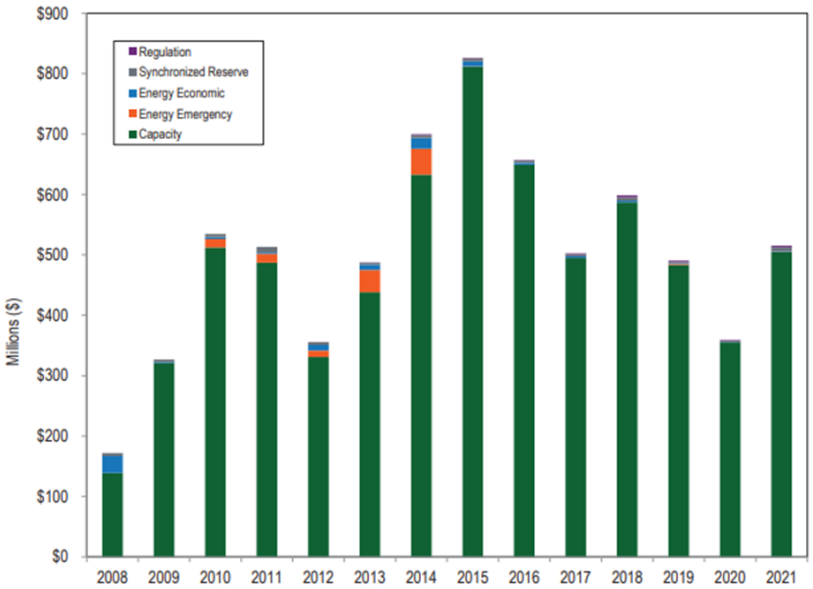
To inform our consideration of the potential for P415 to deliver volumes of flexibility, we explored a small number of international examples of DSR deployment by independent aggregators. We have applied caution in drawing direct conclusions from these examples given the specific contextual factors existing within each. As with the emergence of flexibility in GB, we also believe that the future of flexibility in each of these examples is likely to be somewhat different from the present as the customer proposition develops.

4.4.1. The Pennsylvania, New Jersey and Maryland market (PJM)

The PJM is often cited as a success story for DSR. Indeed, we understand that PJM has largest registered capacity of DSR in any electricity market. As of 2017, 9.8 GW of DSR capacity was registered in the PJM[25]. All markets in the PJM are open to DSR and allow for aggregator participation (known as 'Curtailment Service Providers' (CSPs)). There are several regulatory arrangements designed to encourage participation from the demand side based and allow it to compete with supply on a technology neutral basis. The PJM also has relatively high penetration of smart meters.

Despite the energy market being open to DSR since at least 2007, the vast majority of DSR participation and revenue comes from the capacity market (See Figure 4.1). High, stable and transparent revenues from the capacity market have meant that this represents the primary revenue stream for most DSR providers who may be able to support a business case based on capacity market revenues alone. In contrast, low prices and price volatility in the wholesale market may have limited DSR participation in those markets.

Figure 4.1: Demand response revenue by market (PJM)

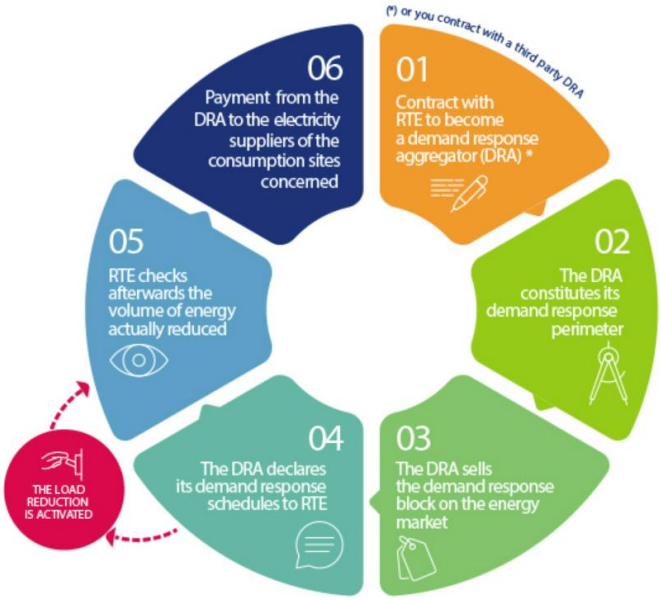


[25] See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/657142/DSR_research_Country_case_studies_report.pdf

4.4.2. France

France opened up the wholesale market to independent aggregator participation in 2014. The Block Exchange of Demand Response ('NEBEF') mechanism[26] allows all consumption sites in mainland France to provide demand response and to be remunerated in the wholesale market (either over-the-counter or via day-ahead and intraday power exchanges). Sites above 100 kW can participate directly by becoming an aggregator themselves while sites below 100 kW have to participate through a third- party aggregator with all aggregators requiring a contract with the transmission operator (RTE).

Figure 4.2: Process for participation in the NEBEF mechanism



Source: RTE

The NEBEF includes a mechanism to compensate suppliers for the volumes of energy they can no longer sell following the downwards energy action. Compensation is targeted at the VLP responsible for then energy actions, similar to Compensation 1 under P415 (see Table 2.1).

Deployment of DSR in the NEBEF mechanism

RTE publishes data on the deployment of DSR under the NEBEF mechanism. At the time of writing, there were 12 registered DSR operators in the NEBEF mechanism[27].

Between 2016 and 2020, realised and declared volumes were less than 40 GWh over the course of the year. However, partly driven by the increase in the global gas price, RTE data[28] suggests that volumes of DSR have been increasing since then. Around 59 GWh was deployed in 2021 and almost 172 GWh was deployed in the first 5 months of 2022 (i.e., by the end of May)[29].

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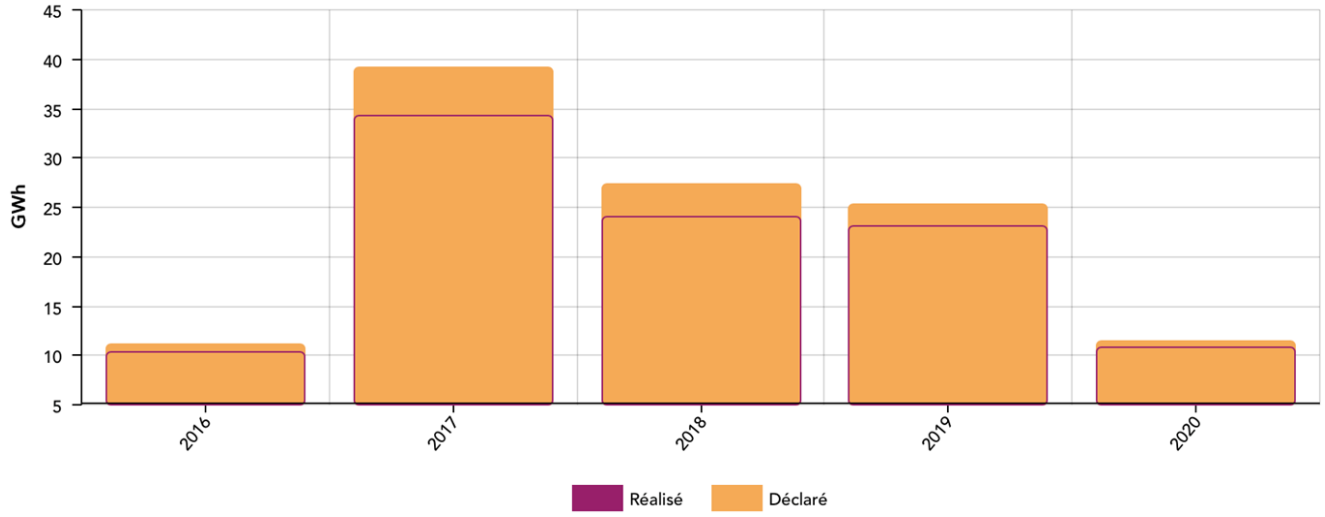
[26] See: https://www.services-rte.com/en/learn-more-about-our-services/participate-nebef-mechanism#:~:text=All%20consumption%20sites%20connected%20in,this%20without%20the%20agreement%20of

[27] Data available on RTE website. User login required: https://www.services-rte.com/en/view-data-published-by-rte/nebef-mechanism-demand-response.html

[28] See: https://www.services-rte.com/en/download-data-published-by-rte.html?category=market&type=demand_response&subType=volumes

[29] Note that seasonality in DSR deployment is likely to mean higher volumes are deployed in winter than in summer.

Figure 4.3: Volumes of DSR deployed in France through the NEBEF mechanism (Déclaré = Declared, Réalisé = Delivered)



4.4.3. Australia

Wholesale market participation

In October 2021, the Australian Energy Market Commission (AEMC) introduced a market rule change to allow industrial and commercial customers to sell demand side response into the wholesale market, either directly or through specialist aggregators[30].

The rule change has been in place for less than a year and stakeholders have mentioned other policy developments that they believe are needed to complement the rule change and facilitate more independent aggregation. Therefore, the conclusions that can be drawn from the evidence are limited.

As of March 2022, a single participant had registered a total of 58 MW of capacity. Around 16 MW of capacity had been dispatched for approximately two – four hours at a time.

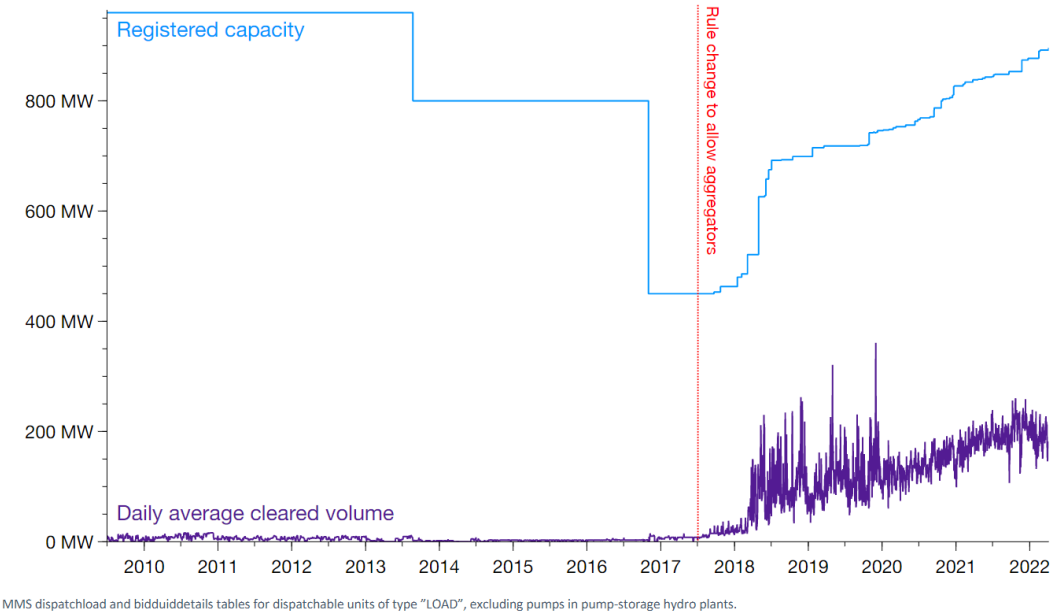
Frequency control ancillary services (FCAS) market

A similar rule change allowed aggregators to start participating in Australia's FCAS market in 2017. The rule change was made in response to reductions in capacity participating in the FCAS as thermal generation exited from the market. Combined with attractive prices in the market, this provided a potential source of additional revenue for aggregated DSR.

From the date of the rule change, aggregated DSR started to participate in the market, growing in volume and replacing a proportion of the lost capacity from thermal generation (Figure 4.4).

[30] See: https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechanism

Figure 4.4: Participation of demand side response in the Australian FCAS market



Source: Courtesy of Enel X

When drawing conclusions from this example we consider it important to take into account the very different nature of the FCAS market to the wholesale market. Frequency response requires providers to demonstrate specific technical capabilities in very short timescales requiring advanced metrology and thus limiting the number of potential providers. In addition, the size of the FCAS market is orders of magnitude smaller than the wholesale market – which means that cleared volumes of aggregator participation in FCAS are also much smaller than the flexibility included within the FES pathways.

4.5. VLP AND NON-VLP COMPETITION

Below, we consider the nature of competition between VLPs and non-VLPs and how this differs depending on whether flexibility provided takes the form of peak reduction or load shifting. We consider how the variable costs of deploying flexibility compare between VLPs and non-VLPs when they are deploying flexibility. We also assess the position of a supplier where a VLP deploys flexibility from one of its customers.

In practice, the exact dynamics will be complex and dependent on several contextual factors. Our analysis is necessarily simplified and reflects our approach to modelling of these forms of flexibility. We apply several assumptions:

- Suppliers contract forward for energy with generators and with consumers.
- The Sourcing Cost, as defined by the P415 workgroup, represents a good proxy for the 'cost of energy' included in a consumer's retail bill.
- Where the demand of a supplier is reduced as a result of a downwards flexibility action by a VLP, the supplier would have their imbalance position corrected under P415 such that they do not face any resulting imbalance.

- Where a supplier faces an increase in demand from one of their customers as a result of load shifting, we assume they can estimate this demand increase perfectly and purchase the additional volumes from the spot market[31].
- While the P415 solution allows for VLPs to take upwards flexibility actions, the workgroup do not expect this to account for a significant volume of VLP actions, at least in initial years. For this reason, we assume that where load shifting results in an increase in demand in a given period, the supplier takes responsibility for meeting that additional unit of demand.

Below, we provide a summary of the findings regarding market dynamics under peak reduction and load shifting. We set out the analysis which leads to these conclusions in full in Appendix B.

Peak reduction

When a supplier acts as a non-VLP and deploys its own flexibility, we find that it is able to benefit by the arbitrage between the prevailing spot price and the sourcing cost that it would be paid by the customer.

In the case of peak reduction, we find that the internalised variable cost of deploying flexibility is equivalent between VLPs and non-VLPs under Compensation 1. Both VLPs and non-VLPs internalise the Sourcing Cost when deploying peak reduction flexibility.

As compensation under Compensation 2 is socialised, VLPs do not internalise any variable cost of compensation when deploying peak reduction. Non-VLPs therefore internalise a variable cost into their deployment of flexibility that VLPs would not face.

Under Compensation 1, when a VLP deploys flexibility, the compensation payment at Sourcing Cost remunerates the supplier for the lost potential to sell a unit of energy to its customer. The imbalance position of the supplier is corrected under the P415 solution such that the supplier is made whole for energy volumes[32]. It does not make any profit or loss from the foregone opportunity to sell the unit of energy.

Under Compensation 2, when a VLP deploys flexibility, the supplier receives a compensation payment at the spot price. After taking into account the lost opportunity for the supplier to sell a unit of energy, we find that the supplier's position is the same as if it had deployed the flexibility itself – i.e., it benefits by the arbitrage between the prevailing spot price and the Sourcing Cost. This implies that both the VLP and the supplier of the customer who has flexibility deployed both benefit from the VLP's deployment of flexibility.

Load shifting

In the case of load shifting, we find that the internalised variable cost of deploying flexibility is higher for VLPs than for non-VLPs under Compensation 1. While the VLP internalises the Sourcing Cost included in the compensation payment, a non-VLP who is deploying its own load shifting flexibility may expect to sell an additional unit in a future/earlier period, thus balancing the loss of potential to sell a unit of energy in the initial period.

As compensation under Compensation 2 is socialised, VLPs face equivalent variable costs as we estimate that a supplier would face for the costs of energy sold when deploying load shifting flexibility. Non-VLPs therefore internalise a variable cost into their deployment of flexibility that VLPs would not face.

Where load shifting takes place, we assume that a VLP takes responsibility for the downwards flexibility action, but not for the additional unit of demand in a later/earlier period. In the case of the downwards energy action, the imbalance position of the supplier would be corrected so they would not face any change to their position.

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[31] We consider implications if the supplier is not able to estimate the upwards demand shift perfectly and so are left with an imbalance position in Section 8.

[32] We note that there may be several wider costs for the supplier resulting from the VLPs deployment of flexibility – e.g., hedging and demand forecasting costs. We explore these potential costs in Section 8, and they are not included here.

However, in the period of increased demand, a supplier would be liable for purchasing the additional unit of energy from the spot market or would need to take a short imbalance position. In either case, we assume they would face the prevailing spot price in the period of the increased demand.

Under the assumption that the load would be shifted to a period in which spot prices are likely to be low, we find that the net position to the supplier is likely to be positive under either compensation variant. The supplier faces an additional cost of the spot price in the period of increased demand but sells a unit of energy in that period. It also receives compensation from VLPs for the downwards adjustment, either at the Sourcing Cost or at the spot price in the period of the downward energy action (when the market price is likely to be relatively high).

Under Compensation 1, we calculate the benefit to the supplier at the difference between the Sourcing Cost and the spot price in the period of increased demand. We would expect this to be lower than the benefit to suppliers under Compensation 2 which we estimate to be the arbitrage value between the spot price at the time of the downward energy action (in which we assume the spot price is generally higher than the Sourcing Cost) and the spot price at the time of increased demand (in which we assume the spot price is generally lower than the Sourcing Cost).

5. MODELLING OF KEY BENEFITS

In this section, we summarise the outcomes from our modelling. Before doing so we provide some guidance on how to interpret these outcomes and discuss how we have managed two key sources of uncertainty in our modelling framework.

5.1. INTERPRETATION OF MODELLED IMPACTS

An important conclusion from our assessment of the evidence available on flexibility deployed by independent aggregators is that there is a significant level of uncertainty regarding the extent of flexibility that P415 may deliver relative to the counterfactual. Layered on top of this is uncertainty regarding how the system will evolve in future.

This uncertainty has implications for the interpretation of the modelled costs and benefits. As with any modelling, outcomes will be influenced by the assumptions which are included. Revising assumptions regarding the extent of additional flexibility delivered by VLPs and/or the set of system scenarios used for analysis will inevitably produce a different set of estimates.

When interpreting the modelled outcomes in the remainder of this section, we encourage the reader to focus on the insight from the modelling rather than the precise outcomes. We expect the insight to hold under a much broader set of assumptions, even if the precise numerical estimates would change.

5.1.1. Scenarios and Cases

Before presenting our findings, we discuss how we have managed two key sources of uncertainty in our modelling framework.

These two key sources of uncertainty are:

- Future energy system and demand conditions, including generation deployment, technology take-up and demand outlook.
- Contribution of P415 to the deployment of flexible capability relative to the counterfactual.

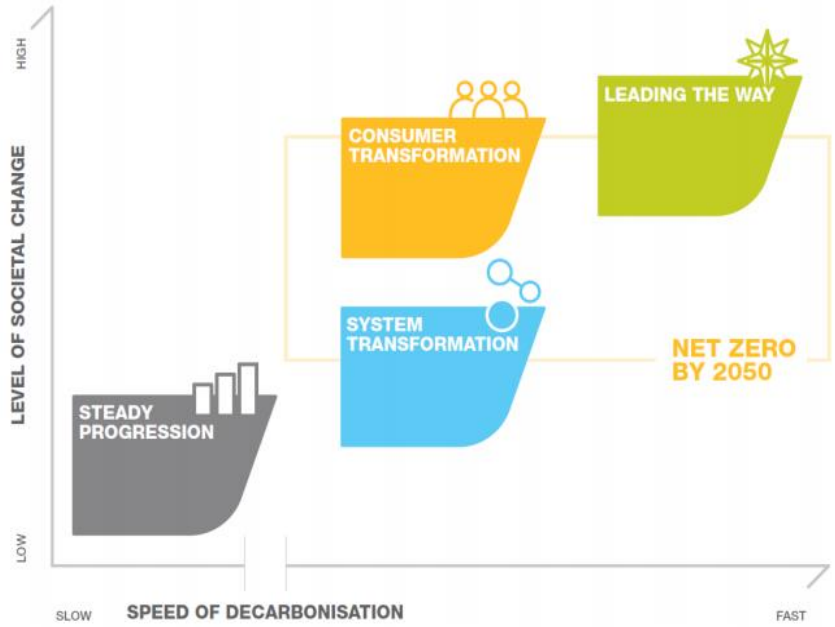
Energy system and demand conditions

To accommodate the first source of uncertainty, we have used National Grid's Future Energy Scenarios, 2021 (FES)[33][34]. The FES are well-established, publicly available scenarios developed with the help of intensive stakeholder engagement. The scenarios differ in two dimensions: the speed of decarbonisation of energy sources, and the level of societal change. The speed of decarbonisation will affect the value of flexibility in the modelling; while the level of societal change generally reflects the level of decentralisation and the extent of flexibility which consumers have the capacity to deliver.

[33] https://www.nationalgrideso.com/future-energy/future-energy-scenarios/fes-2021

[34] The FES 2022 is now available. However, our model development began too early to incorporate these new scenarios. The fundamental structure of the scenarios remains similar but with the 'Steady Progression' scenario now re-labelled to 'Falling Short'. The FES 2022 is available here: https://www.nationalgrideso.com/document/263951/download

Figure 5.1: FES 2021 scenarios



Source: National Grid

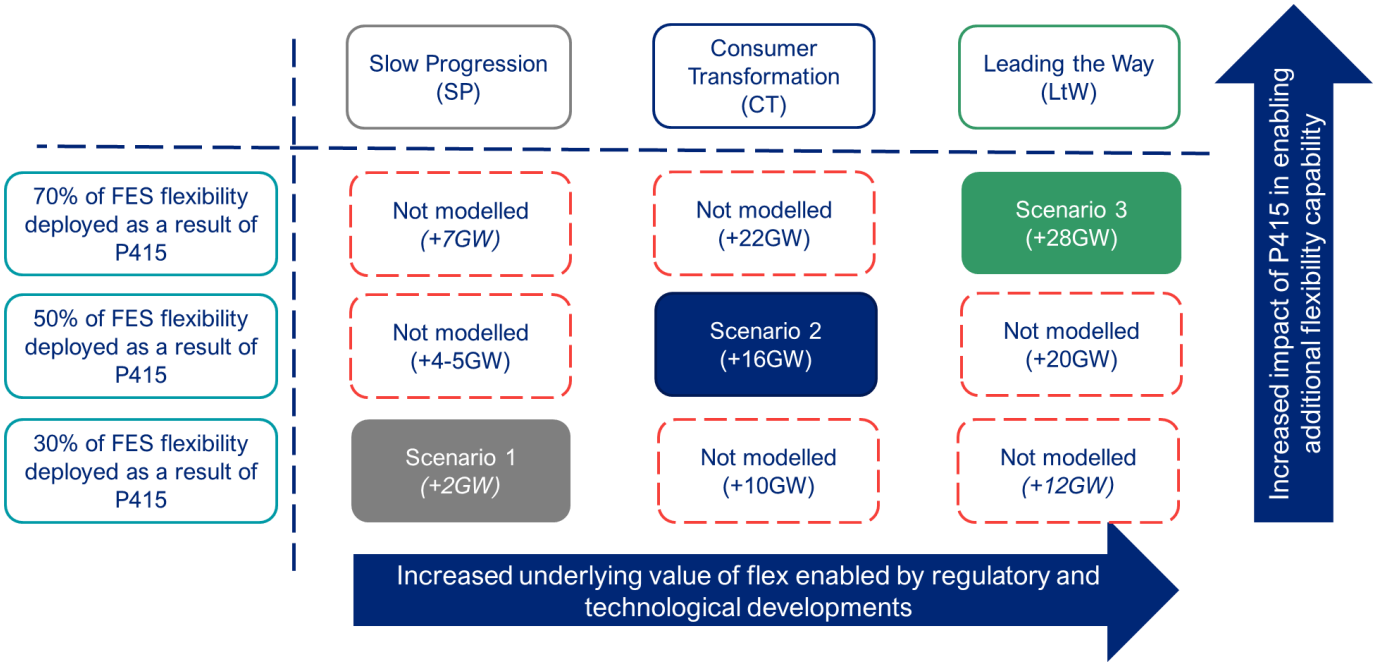
To reflect a sufficient range of potential future systems, we have modelled P415 against three FES scenarios: 'Steady Progression' (SP), 'Consumer Transformation' (CT) and 'Leading the Way' (LtW).

'Steady Progression' represents the slowest decarbonisation scenario modelled by National Grid. 'Consumer Transformation' provides a high electrification, decentralised scenario in which 2050 decarbonisation objectives are met with a high level of societal change. 'Leading the Way' represents the fastest possible decarbonisation scenario, going beyond achievement of the Net Zero targets.

Modelled Cases

The combination of three FES scenarios and three conditions for VLP flexibility contributions lead to nine possible modelled 'Cases'. We selected three of these Cases for our modelling, designed to reflect a range of possible outcomes. We illustrate the three modelled Cases in Figure 5.2 – the numbers in brackets reflect the peak flexibility contributions enabled by VLPs under the respective Case in 2033.

Figure 5.2: Modelled Cases



As a new category of market participant, there is some uncertainty regarding the extent to which flexibility would be deployed by VLPs or non-VLPs if P415 is implemented. As well as developing assumptions for the total additional level of flexibility deployed as a result of P415, we separate deployment between VLPs and non-VLPs. In doing so we have taken several factors into account:

- Energy suppliers can become VLPs. By doing so, they will be able to access flexibility from customers other than their own. For this reason, those suppliers who are active in deploying flexibility could become a VLP themselves to benefit from such opportunities. This would imply a lower level of non-VLP flexibility capability after the implementation of P415.
- Some of the flexibility accessed by VLPs may have already come to the market in any case under the counterfactual. I.e., a customer who provides flexibility to a VLP under P415 may have provided flexibility through their own supplier if P415 was not implemented. This suggests that a proportion of the flexibility deployed by VLPs may be 'cannibalising' flexibility which already exists. This would imply a lower level of non-VLP flexibility capability after the implementation of P415.
- P415 may stimulate non-VLPs to enhance their flexibility customer propositions in the presence of new competition for their customers' flexibility. This would imply a higher level of non-VLP flexibility capability after the implementation of P415.

Given the opportunities available to suppliers from becoming VLPs, we expect that many suppliers who are active in deploying flexibility would become VLPs if P415 was introduced. In response to our Call for Evidence, even some suppliers who were opposed to P415 were planning/considering becoming a VLP. Considering the balance of potential outcomes, we developed the assumptions included in Table 5.1.

Table 5.1: Deployment of flexibility capability in each scenario

Scenario	Modelling run	Non-VLP percentage of FES flex capability	VLP percentage of FES flex capability	Total deployed FES flex capability
Steady Progression	*Counterfactual*	*70%*	*0%*	*70%*
	P415	**50%**	**50%**	**100%**
Consumer Transformation	*Counterfactual*	*50%*	*0%*	*50%*
	P415	**25%**	**75%**	**100%**
Leading the Way	*Counterfactual*	*30%*	*0%*	*30%*
	P415	**20%**	**80%**	**100%**

'No flex' sensitivity

The extent of flexibility that will be deployed under the counterfactual is a key uncertainty within our impact assessment. It will be particularly important if flexibility deployment demonstrates decreasing marginal benefits because the first units of flexibility help to eliminate the highest price spikes and periods of very low/negative prices.

To test the value delivered by the first units of flexibility, we modelled a condition in which no flexibility is deployed – i.e., where demand profiles are fully fixed and without the implementation of P415. We do not expect this to represent a realistic outcome whether or not P415 is implemented. However, it allows us to comment on the extent to which P415 may add more or less value than we have modelled if the extent of flexibility delivered under the counterfactual is lower than included in our modelled Cases.

5.2. TOTAL WELFARE

We summarise the overall total welfare results under each scenario and compensation variant in Figure 5.3.

We observe positive total welfare benefits in all years of all scenarios and under both Compensation 1 and Compensation 2. Total welfare benefits are generally larger where more flexibility is deployed. This leads to greater benefits under scenarios with high take up of flexible technologies, and where we assume greater deployment of flexibility capability by VLPs as a result of P415.

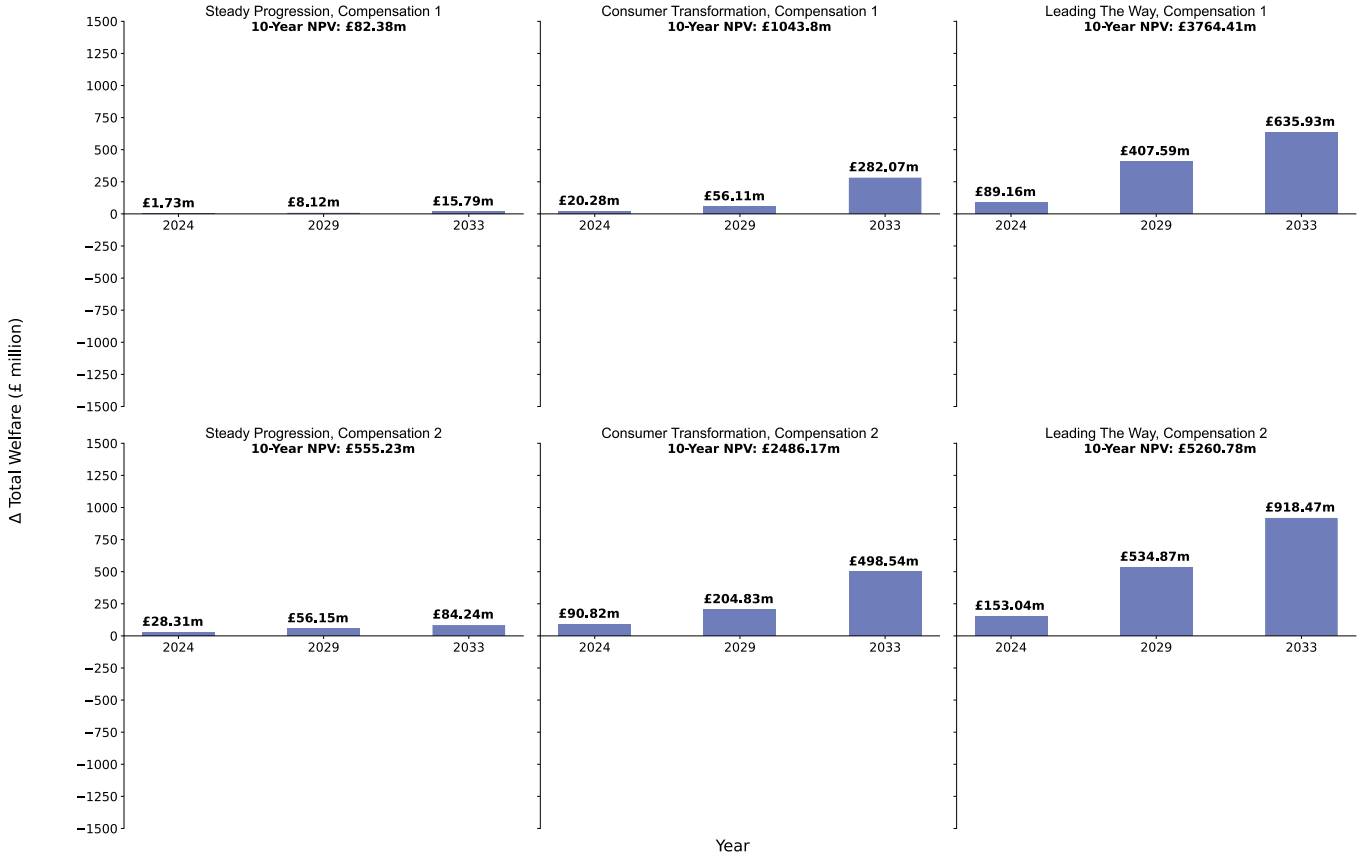
This also leads to greater total welfare benefits under Compensation 2 across all scenarios. Available flexible capability is used more extensively by VLPs under Compensation 2 given the lower variable costs that exist for deployment of flexibility by VLPs.

In the remainder of this section, we break down these total welfare impacts to appraise the impacts on energy consumers, flexibility providers and producers, developing important insight into the effects of P415 compensation variants as we do so.

It is important to note that a proportion of the welfare benefits accruing to flexibility providers would be passed through to consumers who provide flexibility to VLPs and non-VLPs. When considering consumer welfare, both the 'energy consumer' and 'flexibility provider' categories need to be considered. We separate these welfare impacts for two reasons:

- Not all consumers will have the technology and capability to provide flexibility services. Therefore, the set of consumers who make up the 'flexibility provider' category will only represent a proportion of the total energy consumer population. Separating welfare impacts into each group helps to identify distributional impacts of P415 compensation variants across consumers.
- Some of the welfare benefits accruing to flexibility providers will be used to recover the fixed costs of VLPs and non-VLPs and to allow for a return on investment. While we consider the fixed costs of VLPs in Section 5.7, these costs are uncertain and context specific. Therefore, the extent of flexibility provider welfare which will be passed through to consumers is less certain than 'energy consumer' welfare which is considered separately.

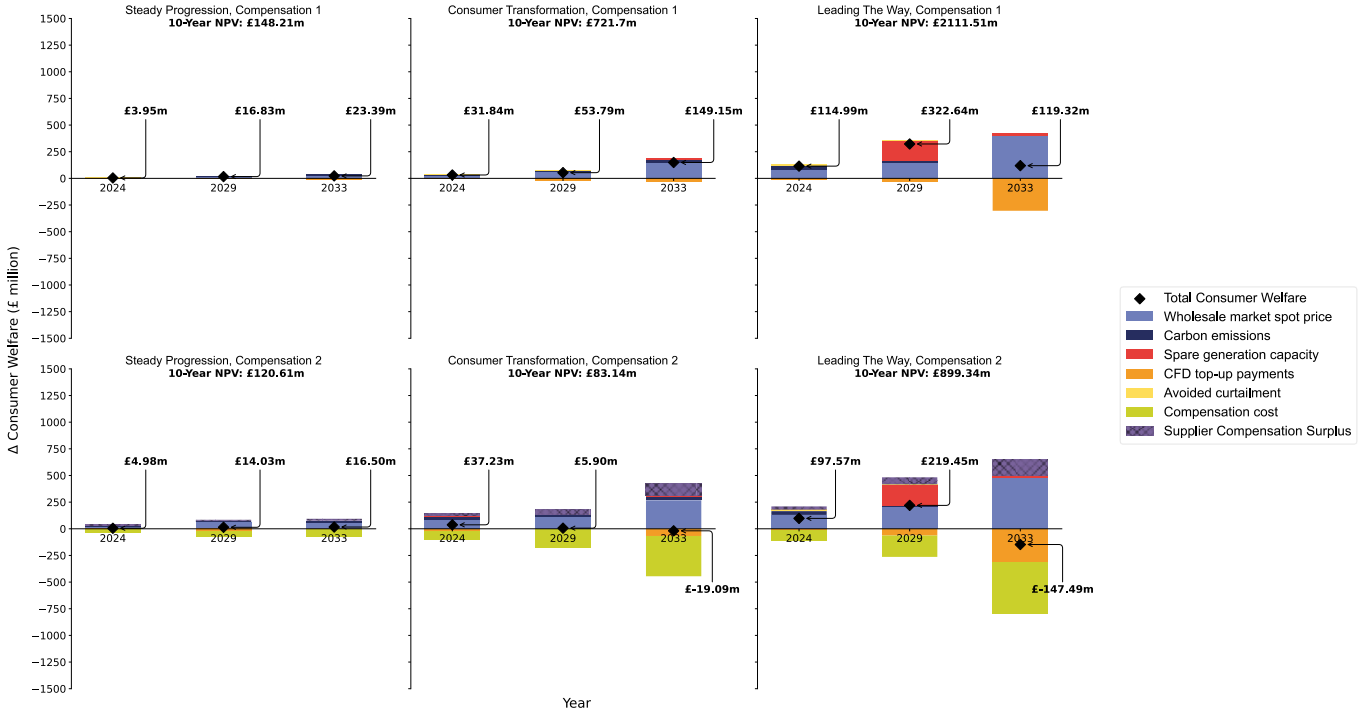
Figure 5.3: Total welfare



5.3. CONSUMER WELFARE

We summarised the components of consumer welfare in Section 3.4.3 and present findings from our modelling in Figure 5.4.

Figure 5.4: Consumer Welfare impacts



We summarise the range of impacts affecting energy consumers in Table 5.2.

Table 5.2: Breakdown of consumer welfare impacts

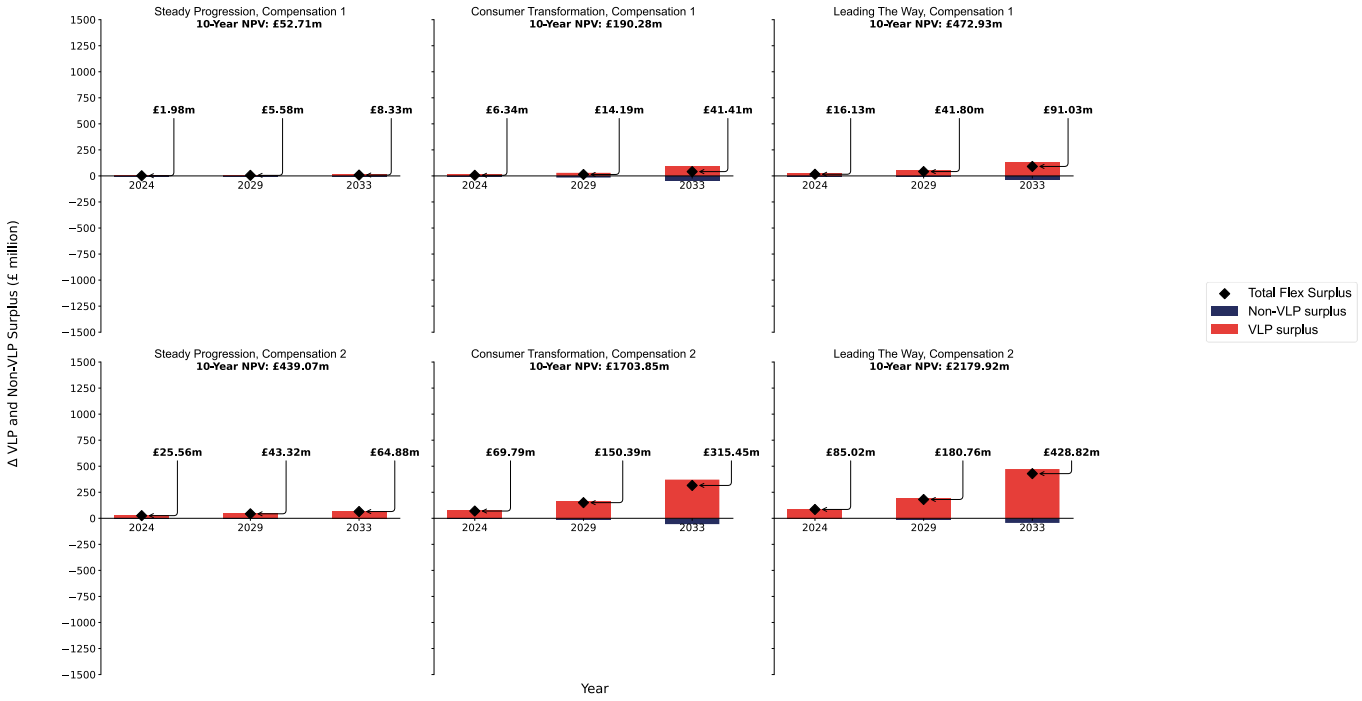
#	Component	Impact
1	Wholesale market price	Additional flexibility deployment following P415 reduces the demand-weighted wholesale market spot price under all scenarios, years and compensation variants. We assume that these reductions are passed through to consumers through lower bills. Reductions in the spot price become more pronounced over time as flexibility deployed by VLPs increases. Reductions are generally larger under Compensation 2 as more load shifting flexibility is deployed over time.
2	Carbon emissions	The deployment of flexibility under P415 is able to shift demand away from system peak periods and to periods with higher deployment of RES. This reduces the dispatch of conventional fossil fuel generation, leading to reductions in carbon emissions. This impact is less evident under the LtW scenario as RES is deployed rapidly over the modelling period, meaning that there is already low dependence in the counterfactual on fossil fuel generation to meet demand. Much of the benefit relating to displacement of fossil fuel generation is achieved by peak reduction flexibility deployment by I&C customers. As we observe similar volumes of this type of flexibility under both compensation variants, there are not significant differences in carbon emission benefits between compensation variants.
3	Spare generation capacity	While carbon emission benefits are less pronounced under the LtW scenario, we do observe some spare capacity resulting from deployment of flexibility in the 2029 spot year. The ability to reduce demand in peak periods leads to less of a need for generation capacity to meet peak demand periods. This benefit is only observed to a small degree in other years and scenarios suggesting that the same level of generation capacity is needed as exists under the counterfactual even if it is dispatched less often.
4	CfD top-up payments	While the overall reduction in the average spot price leads to lower bills, it results in a lower captured price by RES generators supported by CfDs. The impact is generally proportional to the size of the spot price benefits. However, as VLP flexibility deployment can shift demand to periods of higher RES dispatch, in those periods CFD-supported generation is able to capture more revenue. The benefit to consumers from the lower wholesale market price (Benefit 1) outweighs the additional costs of CfD support under all scenarios.
5	Avoided curtailment	By shifting demand into periods of high-RES dispatch, deployment of VLP flexibility leads to avoided curtailment of RES generators that would otherwise be compensated in the balancing market.
6	Compensation cost (Compensation 2 only)	Under Compensation 1, the costs of compensation are internalised by VLPs within their variable cost of flexibility deployment. Therefore, consumers only face the costs of compensation under Compensation 2. In this case, whenever a VLP deploys flexibility, compensation to the relevant supplier is at the prevailing spot price and is spread across suppliers. We assume suppliers pass these costs onto consumers. The magnitude of the cost of compensation falling on consumers is relative to the level of flexibility deployment. It is therefore more significant under the CT and LtW scenarios and becomes larger over time as more flexibility is deployed by VLPs.
7	Supplier compensation surplus (Compensation 2 only)	A proportion of these compensation costs cover the supplier's lost opportunity to sell a unit of energy. However, as we explored in Section 4.5, under Compensation 2, we would expect the compensation at the spot price to go beyond meeting the costs of this lost opportunity. There is therefore an additional surplus that we assume is passed onto a sub-set of consumers; namely the consumers who have a contract with the supplier who has its customer's flexibility deployed by the VLP. This will result in a transfer from all consumers who pay the compensation cost to a sub-set of customers who receive any compensation surplus. We explore these implications further in Section **Error! Reference source not found.**.

5.4. FLEXIBILITY PROVIDER SURPLUS

We summarised the components of VLP and non-VLP surplus in Section 3.4.3 and present results from our modelling in Figure 5.5.

A proportion of this surplus would be used to cover the fixed costs of VLP and non-VLP deployment of flexibility and allow for a return on investment. We assume a competitive flexibility market in which the remainder of surplus not required to cover these costs would be passed through to those consumers who provide flexibility. Under this assumption, VLPs and non-VLPs would offer this surplus to consumers to remain competitive and to ensure an attractive commercial offering. We consider the contribution that revenues would make to VLP fixed costs in Section 5.7.

Figure 5.5: VLP and non-VLP surplus



We summarise the range of impacts affecting providers of flexibility to these participants in Table 5.3.

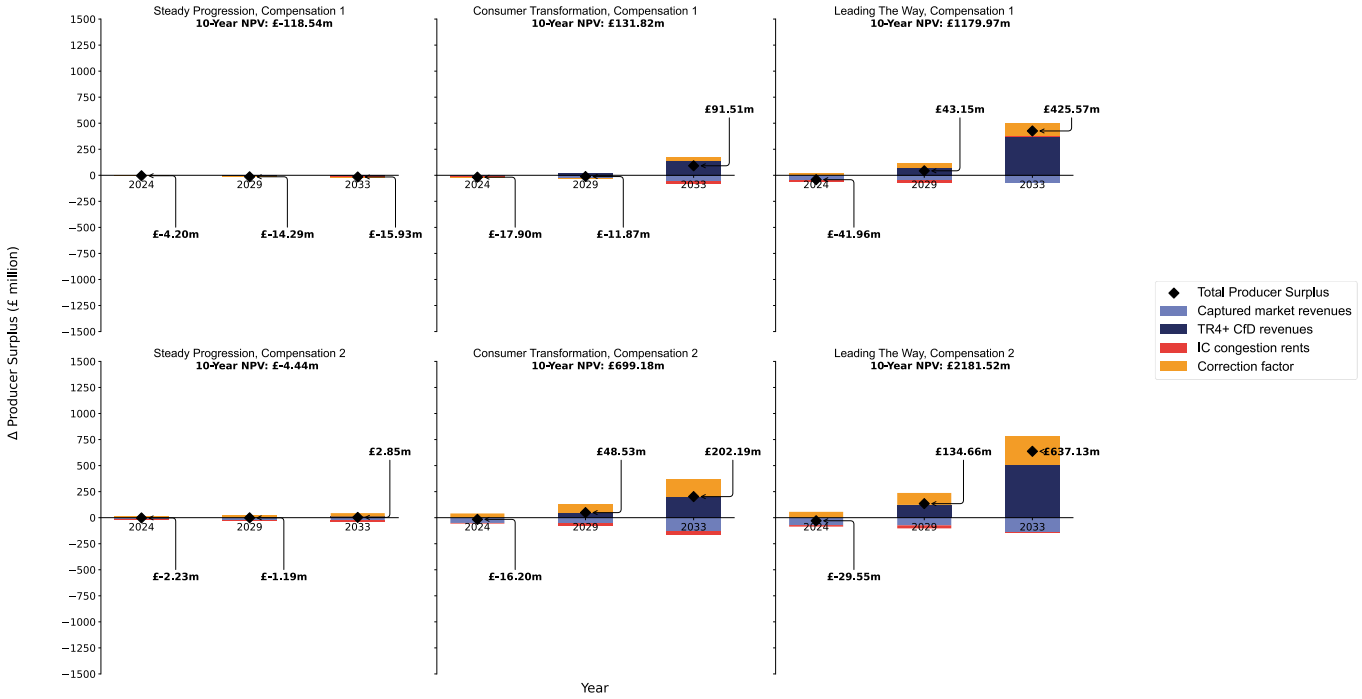
Table 5.3: Breakdown of Non-VLP and VLP surplus shared with flexibility providers

#	Component	Impact
1	Non-VLP surplus	Non-VLP surplus decreases relative to the counterfactual in all model runs as we assume that VLPs take a proportion of non-VLP market share. The impact is relatively consistent across Compensation 1 and Compensation 2. As we showed in Section 4.5, under Compensation 1, VLPs and non-VLPs have the same variable costs for peak shaving deployment but VLPs face additional costs for load shifting. Under Compensation 2, VLPs face less significant variable costs for peak reduction. However, as we observe that peak reduction deployment is generally used at its capacity, non-VLPs continue to deploy the potential peak reduction flexibility they retain in any case. For load shifting flexibility, VLPs and non-VLPs face equivalent variable costs and hence, non-VLPs deploy a similar level of load shifting flexibility to VLPs.
2	VLP surplus	VLPs earn greater revenues over time as they deploy increasing volumes of flexibility. Revenues are significantly higher under Compensation 2 for two related reasons: • **Revenue per unit of flexibility deployed is higher** under Compensation 2 as VLPs do not face any variable cost of compensation when they deploy flexibility. • **Volumes of deployed VLP flexibility are higher**. As VLPs do not need to take into account variable costs of compensation, they are able to profitably deploy flexibility more often at lower wholesale market spot prices.

5.5. PRODUCER SURPLUS

We summarised the components of producer surplus in Section 3.4.3 and present results from our modelling in Figure 5.6.

Figure 5.6: Producer surplus



We summarise the range of impacts affecting producers in Table 5.4.

Table 5.4: Breakdown of producer surplus impacts

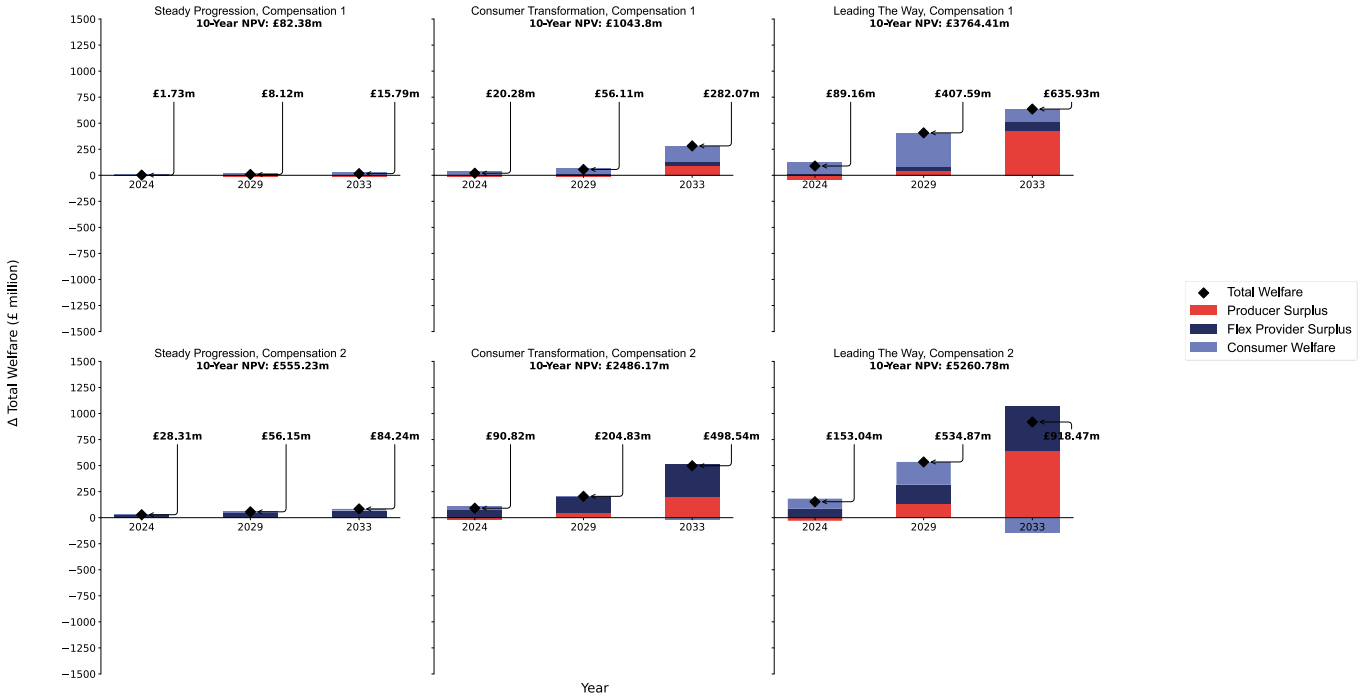
#	Component	Impact
1	Captured market revenues	The downwards impact of flexibility deployed by VLPs on the wholesale market price benefits consumers. But this trend leads to lower captured market revenues for those producers who are exposed to wholesale market prices without any form of CfD support. The impact is larger where the downwards impact on prices is more significant and under scenarios in which a greater proportion of generation is from conventional technologies with no CfD support.
2	TR4+ CfD revenues	We include a set of generators who receive CfD support under contracts issued from CfD TR4 onwards. These generators do not receive the CfD strike price in periods of negative pricing and when they are curtailed. As P415 helps to avoid curtailment of these generators, we observe producer welfare benefits from the prices they capture in the wholesale market. The additional deployment of load shifting under Compensation 2 allows for a more significant reduction in curtailment volumes, therefore resulting in a greater benefit for these producers than Compensation 1. The impact is larger under CT and LtW. Benefits increase over time as RES generation is deployed at scale and VLPs access more flexibility which can be shifted into high-RES periods.
3	IC congestion rents	We assume that ICs are also exposed to the wholesale market price given the impact on their ability to capture rents from the arbitrage in prices between countries[35]. We observe a similar direction of impacts as is observed for generators who are exposed to the wholesale market price but with lower magnitude.
4	Producer-retailer contracting factor	Although we assume retailers contract forward for energy from generators, our model reduces dispatch of generators when flexibility is deployed. The correction factor therefore represents the value to the producer of contracting forward for expected volumes of demand such that they are not exposed to volume risk for downward flexibility actions in our modelling. The correction factor is proportionate to the amount of flexibility deployed and is relative to the difference between the Sourcing Cost and the spot price in the periods in which flexibility is deployed. We observe an increase in this correction factor over time and a higher correction factor in Compensation 2 relative to Compensation 1.

5.6. BREAKDOWN OF TOTAL WELFARE IMPACTS

We break down total welfare impacts by each type of market participant in Figure 5.7.

[35] For the avoidance of doubt, we do not include any cap and floor mechanism in our modelling, and we assign 50% of all impacts on rents to the GB side of the interconnector.

Figure 5.7: Total welfare



While total welfare benefits are smaller under Compensation 1, we observe that most market participants benefit to some degree although there may be some exceptions within welfare groups (e.g., we observe lower revenues for non-VLPs under P415).

Under Compensation 2, the results are more nuanced. While total welfare benefits are larger, the flows of welfare between market participants and different consumer groups are affected by the presence of compensation payments and receipts.

Under Compensation 2, VLPs do not face any costs of compensation which is instead spread across suppliers who we assume pass these onto their consumers. Compensation receipts flow to those suppliers who have customers with flexibility deployed by VLPs, representing only a sub-set of the full consumer population.

This effectively results in two transfers of surplus:

- Relative to Compensation 1, VLPs deploy more flexibility and capture and share larger revenues as they don't face any compensation costs when deploying flexibility. This creates a transfer of surplus from energy consumers to those customers who provide flexibility to VLPs. This transfer is at the Sourcing Cost, i.e., the cost of compensation under Compensation 1.
- Under Compensation 2, we expect compensation receipts to exceed the Sourcing Cost. Therefore, even after recovering the Sourcing Cost, the supplier has a surplus which we assume they share with their customers. This surplus will equal the volume of VLP flexibility deployment multiplied by the difference between the compensation price and the Sourcing Cost (i.e., 'Volume of VLP flexibility deployment' * ('Spot Price' – 'Sourcing Cost')). As only a sub-set of consumers will receive these compensation payments, this will result in a transfer of surplus from the general population of energy consumers to the set of energy consumers that are with suppliers who have more flexible customers.

The extent of transfer between consumer groups will depend on the separation of the market into suppliers with and without significant volumes of customers who provide flexibility to VLPs.

If flexibility is spread evenly across suppliers, then compensation receipts will flow to suppliers, and onto consumers, in a similar proportion to the costs of compensation. As the costs of compensation will scale with the deployment of flexibility, where compensation costs are higher (e.g., under CT and LtW), it is likely that an increasing proportion of costs will be covered by suppliers who deploy increasing amounts of flexibility.

However, under any scenario, there will be a proportion of consumers who do not have technologies which enable flexibility, particularly in early years. If certain suppliers take on more customers who provide a flexible response to VLPs while other suppliers focus on a different sector of the market, then the transfer will be more significant. There is likely to be some segmentation of supplier and consumer types in initial years. This may continue to be the case if some suppliers specialise in supplying customers with flexibility capability while other suppliers focus on customers who are less interested/able to provide flexibility.

5.7. VLP RECOVERY OF FIXED COSTS

We explored VLP surplus under Compensation 1 and Compensation 2 in Section 5.4. Here, we consider the extent to which this surplus is able to cover the anticipated up-front and ongoing fixed costs of a VLP. This is important for two reasons:

- If VLPs find it easier to recover fixed costs, we are more likely to observe greater levels of entry of VLPs into the market.
- Where VLPs recover revenues above fixed costs we assume they share additional surplus with the providers of flexibility.

5.7.1. Estimates of fixed costs of a VLP

We requested information from VLPs regarding the estimated up-front and ongoing fixed costs of deploying flexibility. To turn these figures into the estimates of annual fixed cost recovery requirements shown in Table 5.5., we annuitize the up-front capital costs and ongoing costs over a 10-year period using an assumed hurdle rate of 7%.

Table 5.5: VLP fixed cost estimates

Cost	Residential customers	I&C customers	Cost
Up front fixed costs (£/MW)	Dependent on whether the VLP needs to pay for the installation of standalone enabling technology: If not: c. £4k/MW If they do: Up to £160k/MW	c. £2.5k – 6k/MW	Up front fixed costs (£/MW)
Ongoing fixed costs (£/MW/yr)	Dependent on whether the VLP needs to pay for the ongoing maintenance of standalone enabling technology. If not: May only be admin and settlement costs. If they do: Up to c. £30k/MW/yr	c. £1.2k – 5k/MW/yr	Ongoing fixed costs (£/MW/yr)
Assumed annuitized fixed costs (£/MW/yr)	c. £0.6k- £53k/MW/yr	c. £1.6k/MW – 5.9k/MW/yr	Assumed annuitized fixed costs (£/MW/yr)

5.7.2. Comparison of VLP revenues against fixed costs

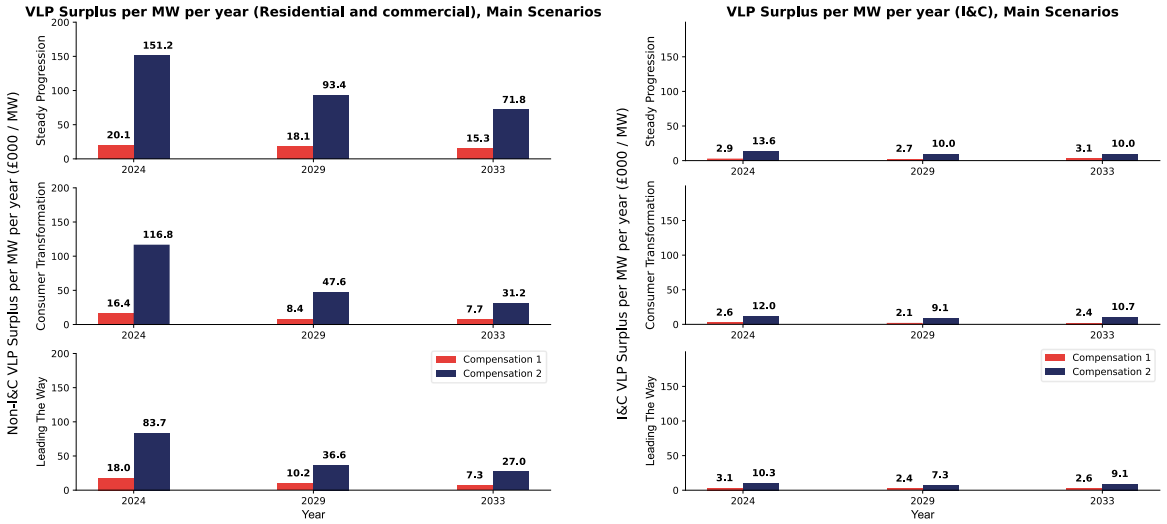
We summarised overall VLP surplus in Section 5.4. In this section, we estimate VLP revenue per unit of capacity contracted. We then assess the extent to which VLPs are likely to be able to recover fixed costs and enter into the market given estimated revenues.

There are two important considerations that are not captured in our modelling:

- **Revenue stacking**: Flexibility providers generally seek to stack revenues across multiple markets to support their business case. Our model only captures revenues that VLPs would capture from trading flexibility in the wholesale market. In practice, they may cover costs and earn returns from the capacity market, balancing market, local flexibility markets and system services.
- **Sharing of surplus**: Consumers who have the capability to provide flexibility will only contract with a VLP if the customer offer is sufficiently attractive. In a competitive market, we would expect VLPs to share all surplus with consumers other than that needed to cover fixed costs and earn a reasonable return on investment. When considering VLP revenues in the following text, we do not incorporate the percentage of revenue that is passed through to customers.

We summarise VLP revenues per unit of capacity in Figure 5.8.

Figure 5.8: VLP surplus per MW per year for residential and commercial customers and for I&C customers



VLP revenues per MW are significantly higher under Compensation 2 than Compensation 1. This reflects a combination of the lower costs of deployment as VLPs do not pay any costs of compensation, and higher levels of deployment from contracted flexibility as flexibility is deployed profitably at lower market prices.

This means that VLPs are generally able to cover even our higher estimates of fixed costs from revenues in the wholesale market under Compensation 2 in 2024. Over time, we observe falling revenues per MW as the additional value of increasing volumes of flexibility diminish with scale, and driven by wholesale market prices which fall over time in our modelling.

In later years, revenues for VLPs are not able to cover our higher estimates of fixed costs of residential and commercial customer flexibility deployment from the wholesale market alone. However, we expect that fixed costs would also fall over time given learning over time and economies of scale.

Under Compensation 1, VLPs are able to recover the lower estimates of fixed costs for both residential and commercial customers and for I&C customers in all years and scenarios. However, they are only able to cover a proportion of the higher estimates of fixed costs – a maximum of 38% of the higher estimates of residential and commercial fixed costs, and a maximum of 54% of the higher estimates of I&C fixed costs.

This implies that under Compensation 2, VLPs would be less dependent on revenue stacking across markets to enter volumes of flexibility into the wholesale market. They may be able to cover fixed costs from wholesale market revenues alone and may be able to share more surplus with consumers to get them to provide flexibility.

Estimates of fixed costs at the lower end of the range provided to us suggest that VLPs with a certain business proposition may be able to cover much/all of their fixed costs through wholesale market revenues alone, even under Compensation 1 where recovered revenues are lower. However, other VLP business models are likely to be more dependent on revenue stacking across multiple markets, particularly under Compensation 1. After covering

fixed costs, they may have less surplus available to share with potential flexibility providers and to attract them into the market.

5.8. RESULTS FROM SENSITIVITY OF 'NO FLEXIBILITY'

We summarise total welfare impacts relative to the 'no flex' sensitivity in

Figure 5.9 and Table 5.6. This demonstrates that our assumptions of the deployment of flexibility under the counterfactual deliver a significant proportion of the overall potential benefit of flexibility under each scenario.

This demonstrates the relevance of the assumptions we include in each Case (see Section 5.1.1) and gives a sense of the potential upside/downside impacts if we were to revise these assumptions. This implies that if we assumed a higher or lower level of flexibility under the counterfactual, we would continue to observe benefits of P415 implementation under all scenarios.

Figure 5.9: Total Welfare compared to the "No Flex" scenario

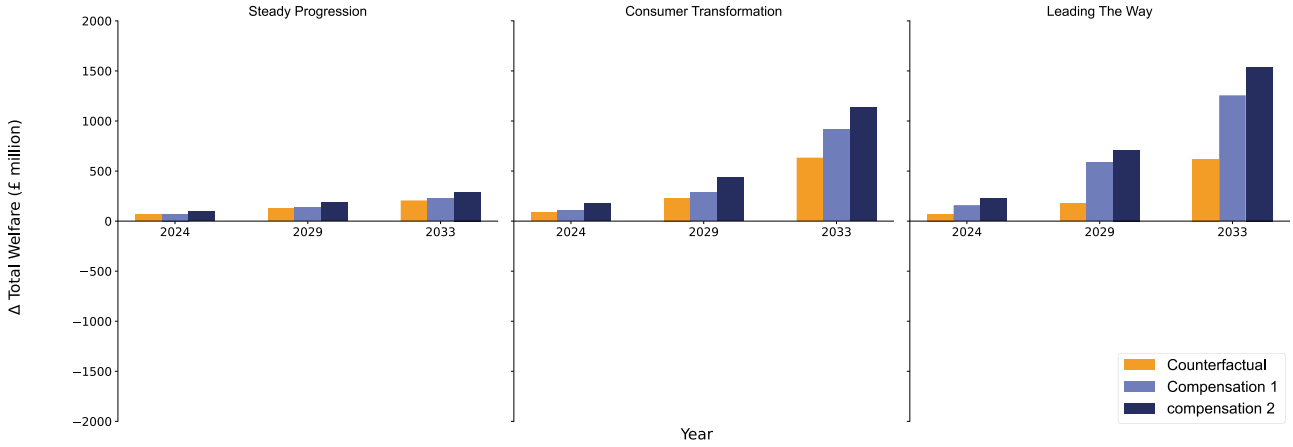


Table 5.6: 10-Year NPV total welfare impact relative to 'No Flex'

	Steady Progression	Consumer Transformation	Leading The Way
Counterfactual	£1,319.48m	£2,944.80m	£2,605.57m
Compensation 1	£1,401.85m	£3,988.60m	£6,369.98m
Compensation 2	£1,874.71m	£5,430.97m	£7,866.35m

A full set of welfare impacts against the 'no flex' sensitivity, broken down by consumer welfare, flexibility provider welfare and producer surplus are included in Appendix C.

6. APPRAISAL OF POTENTIAL FOR WIDER NON-MODELLED BENEFITS

Our modelling methodology was designed to capture the most significant potential benefits of P415 that stakeholders communicated to us when scoping the modelling and developing the modelling methodology. However, stakeholders also identified a range of potential benefits that are not captured within the modelling framework. In this section, we explore each of these hypothetical benefits and consider their magnitude. We do not seek to develop a quantitative assessment of these benefits but classify them based on the following:

- **Large impact**: Comparable to modelled impacts. Likely to be relevant for impact assessment evaluation.
- **Medium impact**: Small compared to modelled impacts. May be somewhat relevant for impact assessment evaluation.
- **Low impact**: Negligible in comparison to modelled impacts. Unlikely to affect impact assessment evaluation.

6.1. SUMMARY

We discuss our rationale for our evaluation of each of the wider potential benefits in the remainder of this section. Table 6.1 presents a summary of our assessment

Table 6.1: Summary of assessment of non-modelled benefits

Benefit	Considerations	Impact level
Spillover impacts on balancing market	Flexibility providers will seek to stack revenue and opportunities from the wholesale market could lead to greater levels of flexibility overall. We would expect at least some of this flexibility to enhance competitiveness of the balancing market.	Medium
Spillover impacts on CM and system services	While spillover benefits may also be present in the CM and system services markets, the extent of benefit will be dependent on whether flexibility provision from VLPs is likely to represent the marginal price setting unit in the CM. System services have stricter requirements with less natural crossover with the nature of flexibility deployed in the wholesale market.	Low-medium
Security of supply and resilience	In our modelling, we observe the potential for flexibility to reduce the reliance on fossil-fuel generation at times of system peak. This should help to avoid stress on the system during such periods though the magnitude of this impact may be relatively limited and unreliable, at least in initial years.	Low-medium
Wider benefits	There are several wider benefits suggested by stakeholders that are likely to have small/negligible impact in isolation but when taken together may introduce some additional benefit.	Low-medium
Local network benefits	The ENA stressed the localised nature of flexibility markets in comparison to the ability of VLPs to aggregate volumes of flexibility over large areas for participation in the wholesale market. At least in the near term, they suggest that this may reduce the scope for spillover effects.	Low

6.2. SPILLOVER IMPACTS ON THE BALANCING MARKET

6.2.1. Stakeholder views

Some stakeholders identified the potential for P415 to result in positive externalities for balancing market participation and prices. Sources of flexibility tend to build a business case on stacking revenue across multiple markets. Some stakeholders expected that by providing an additional source of revenue for flexibility providers, the market for flexibility would grow across multiple markets.

NGESO manage the balancing market and agreed with the hypothesised benefit. They suggested that the participation of VLPs and the value delivered in the balancing market could be maximised if VLPs could also provide a locational service to help address localised constraints on the transmission network.

However, other stakeholders suggested that evidence of participation of VLPs in the balancing market thus far suggests that volumes may be low. They argued that the additional revenues from the wholesale market would be relatively small in comparison to the hurdle rate of many projects. One stakeholder also noted barriers to entry for DSR resources in the balancing market would prevent VLPs from bringing benefits to the balancing market.

6.2.2. Our evaluation

DSR providers generally seek to stack revenues from multiple markets, and we would expect VLP entry to also be dependent on such a commercial proposition. We therefore expect that should entry into the wholesale market be observed, it is likely that this will support delivery of flexibility volumes into other markets.

While VLP participation in the balancing market has been low, this may increase with the implementation of P376, the take-up of flexible technologies, and the emergence of more attractive customer propositions.

Several stakeholders noted the importance of regulatory developments to unlock access to the balancing market for several flexibility business models. While there may be barriers to VLP participation in the near term, if and when barriers are removed, the additional revenue potential for VLPs may support entry into the balancing market. NGESO set out several thoughts on the removal of barriers to DSR provision in the balancing market, identifying the need for system development and data management processes.

We conclude that spillover effects in the balancing market are unlikely to be of a similar order as the impacts assessed through our modelling. However, if barriers to entry for DSR can be removed, P415 may enable revenue stacking which delivers additional volumes into the balancing market. Overall, we consider the potential for spillover effects in the balancing market to be **medium impact**.

6.3. SPILLOVER IMPACTS ON THE CM AND SYSTEM SERVICES

6.3.1. Stakeholder views

The mechanisms for benefit in the CM and system services are theoretically similar to the balancing market effect considered above. By allowing for additional revenue stacking, P415 may encourage greater volumes of DSR participation which enhance competition in the CM and system services markets.

Stakeholders differed in the extent to which they believed that greater VLP participation would allow delivery of lower CM clearing prices. Several cited existing barriers to participation for DSR such as the existing baselining criteria. Another stakeholder noted that DSR participation in the capacity market has stayed relatively level (c. 1 GW) regardless of the clearing price, suggesting limits on the capacity that can participate under the current rules.

Some stakeholders suggested that any change to competition in the CM would be unlikely to have a material impact on clearing prices. However, another stakeholder suggested that DSR is often a marginal resource in capacity markets. Therefore, they would expect that revenue stacking would allow for DSR resources to reduce the revenues they need to recover in the CM, thereby reducing clearing prices.

Considering wider system services, stakeholders have provided examples of where entry of certain forms of DSR has replaced a proportion of volumes of conventional generation who traditionally provided such services (e.g., frequency response).

NGESO welcomed the provision of additional tools with which to manage the system, particularly as energy system transition requires greater flexibility close to real time.

6.3.2. Our evaluation

As with impacts on the balancing market, we recognise the mechanism for spillover effects into other markets. As with the balancing market, the emergence of these benefits may be dependent on wider changes to rules and processes to allow for more effective participation of DSR resources. In this case, the impact on clearing prices will depend on the extent to which DSR represents the marginal price setting unit of capacity in the CM.

While the specific requirements of wider system services may restrict the proportion of VLP delivered DSR that could participate in certain services, there may also be spillover effects from the emergence of additional volumes of DSR around the margins.

Overall, we consider the potential for spillover effects in the balancing market to be **low-medium impact**.

6.4. LOCAL NETWORK BENEFITS

6.4.1. Stakeholder views

As energy generation and demand profiles become increasingly localised, the ability to flex demand and generation at a local level is becoming increasingly important. Distribution system operators are responding to this need with the development of local flexibility markets, providing them with tools to manage local supply and demand mismatches and allowing them to defer some need for network reinforcement.

Similar to the spillover effects identified regarding the balancing market, some stakeholders have suggested that by providing additional potential revenues in the wholesale market, P415 could also result in greater volumes of flexibility being able to participate in localised flexibility markets. One stakeholder suggested that it is rare for participants to be able to develop a business case based on revenues from these markets alone. They expected that providers of local flexibility services would most likely develop the proposition based on stacking of revenue across multiple markets such that access to the wholesale market would support this.

We held a workshop with the Energy Networks Association[36] (ENA) to get their views on the potential for such benefits. ENA members were somewhat sceptical about the potential for benefits, at least in the near term. They noted that the need for flexibility could be very localised, and that aggregation of multiple consumer volumes may be more dispersed, at least before significant volumes had been accessed. They therefore expected the spillover effect from wholesale market participation (a national market) to very localised flexibility markets to be relatively limited. They also noted the level of confidence that they would need in the provision of flexibility to allow them to defer network reinforcement and the time it may take to develop this confidence in aggregated flexibility volumes.

6.4.2. Our evaluation

Similar to the potential for balancing market benefits, we recognise the potential mechanism for benefits at distribution network level. However, we also acknowledge comments from network companies that these benefits may only materialise over a longer time period as aggregated volumes reach a threshold within more localised network zones and as confidence is developed in their deployment.

Overall, we consider the potential for spillover benefits in the local network to be **low impact**.

[36]See: https://www.energynetworks.org/

6.5. SECURITY OF SUPPLY AND RESILIENCE

6.5.1. Stakeholder views

Some stakeholders believed that P415 would enhance security of supply and resilience. Some stakeholders proposed that P415 would allow for enhanced integration of renewables by providing flexibility to shift demand close to real time, depending on resource availability. Another suggested that additional volumes of flexibility delivered by P415 would allow the electricity system to draw on additional national flexibility resources, reducing dependence on international gas and electricity supplies.

6.5.2. Our evaluation

One of the benefits identified in our modelling is the ability of additional flexibility to reduce reliance on fossil fuel generation at periods of high demand relative to renewables output. Our modelling estimated the beneficial impacts this could have on price and carbon emissions. Additional to these benefits, the ability to provide demand reduction at peak could provide additional mitigation against extreme peak periods in which electricity resources would otherwise struggle to meet demand. As noted by stakeholder this would provide an additional form of national response, reducing dependence on international gas and electricity supplies to some extent.

The extent of this benefit would be highly correlated with the additional volume of flexibility delivered by VLPs. At low volumes, the benefit would be marginal and NGESO is unlikely to build potentially uncertain volumes into its assessment of any capacity margin during extreme events. However, over time there is some potential for such benefits to become less marginal.

Overall, we consider the potential for spillover benefits for security of supply and resilience to be **low-medium impact**.

6.6. WIDER BENEFITS

6.6.1. Stakeholder views

Stakeholders proposed several other potential benefits that they considered could be delivered by P415. These included:

- **Supply chain benefits**: If P415 leads to an increase in volumes of aggregated flexibility services, stakeholders suggested the potential for aggregation businesses and equipment suppliers to increase scale, resulting in cost reductions.
- **Increased liquidity in the intraday market**: One stakeholder identified the potential for greater participation in intraday markets to increase bids and offers in the spot market and thus stimulate liquidity close to real time.
- **Consumer engagement**: One stakeholder identified the potential for consumers who are encouraged to provide DSR developing a better understanding of their consumption and the potential for wider revenue streams from energy and system services management. It may also lead to an additional focus on energy efficiency for example. Another stakeholder identified the potential for enhanced competition, choice and innovation for customers to participate in flexibility as a result of VLP entry into the market.
- **Acceleration of electrified transport and heat**: One stakeholder noted the potential for the additional opportunities for consumers to provide flexibility to stimulate greater uptake of electric vehicles, heat pumps and other low carbon technologies.

6.6.2. Our evaluation

We note the potential for wider benefits, several of which have crossovers with some of the benefits identified previously. There may be scope for several of these wider benefits to emerge if and when P415 allows for

additional flexibility volumes to enter into the market. However, we would not expect these benefits to fundamentally impact on the P415 impact assessment case.

Taken together, we consider the potential for contribution from the range of wider impacts to be **low-medium impact**.

7. FINANCIAL COSTS OF IMPLEMENTATION

We considered the financial costs of implementing P415 based on submissions of stakeholders in response to Elexon's Call for Evidence. We identified four sets of stakeholders who may need to incur costs to implement the P$15 solution:

- **BSCCo**: New systems and processes will be needed to allow for effective data and settlement flows regarding deviation volumes to account for VLP flexibility actions, to reflect imbalance settlement arrangements and to introduce the relevant compensation flows and procedures.
- **VLPs**: VLPs may need to introduce new systems and processes to align with BSCCo's own systems. Note that we do not include compensation payments under Compensation Variant 1 within our consideration of financial costs as these are already reflected in our welfare analysis.
- **Suppliers**: Suppliers may need to introduce new systems and processes to align with BSCCo's own systems. Note that we do not include socialised compensation payment requirements under Compensation Variant 2 within our consideration of financial costs as these are already reflected in our welfare analysis.
- **National Grid Electricity System Operator (NGESO)**: We do not expect NGESO to incur any significant direct costs to allow for the P415 solution. However, NGESO may need to develop systems and processes to allow for additional volumes of participation by VLPs in the balancing market if P415 results in such positive externalities.

7.1. COSTS FALLING ON BSCCO

Elexon commissioned a 'Rough Order of Magnitude' impact assessment from its service providers regarding the likely implementation costs for BSCCo. These cover the costs that it expects to incur to deliver the required systems and processes to implement P415. These costs are expected to depend to some extent on the compensation variant that is chosen and would include 'up front' costs of systems development and ongoing costs to manage new systems. Elexon notes some uncertainty regarding the exact systems changes that would be required as well as a complex pipeline of systems change. They therefore estimate implementation costs within a range that remain subject to some refinement as the detailed P415 solution continues to be developed.

Elexon has also signalled that the costs of implementation may be dependent to some degree on the chosen compensation variant. For example, Elexon expected that they may need to procure a third-party service provider for additional data to calculate supplier compensation under Compensation 1, though noted that the exact requirements are not clear at this stage.

Elexon also expected implementation of P415 to impact on its operational teams, for example requiring new processes, team members, deliverables, user acceptance testing and additional customer support for VLPs.

Noting this uncertainty, Elexon estimates up front and ongoing costs as set out in Table 7.1.

Table 7.1: Estimate of costs falling on BSCCo

'Up front' costs (£m)	Ongoing annual costs (£/year)
c. £2.7 – 3.7 million, but with potential to exceed the upper range depending on finalisation of the solution.	c. £10k per year

7.2. COSTS FALLING ON VLPS

7.2.1. Call for Evidence responses

Direct implementation costs

We received three responses from stakeholders who would consider becoming a VLP if P415 is implemented that commented on the expected implementation costs falling on VLPs.

One respondent noted that much of the cost of introducing systems and processes for VLP participation has been or is already being incurred by VLPs who want to participate in the balancing market as reflected in the requirements of P375 and P376. They believe that much of the functionality required for participation in the wholesale market is therefore already in place, with new functionality limited to coupling with wholesale market trading systems, providing volume notifications and activity notifications in the wholesale market and calculating supplier compensation payments. They expected the complexity of such changes to be low in comparison to functionality that has already been developed.

Another respondent considered that VLPs would only incur costs if they chose to participate in the wholesale market, therefore implying that the revenues they expected to recover would exceed the up front and ongoing costs.

Only one respondent provided any numerical estimates of costs. They estimated costs of registration at approximately £40k with approximately £10k of annual ongoing costs to maintain registration.

7.2.2. Our view

Direct implementation costs

While we acknowledge that VLPs would only incur additional incremental costs of participation in the wholesale market if the expected additional revenues would be likely to exceed the additional cost, these costs should still be taken into account as part of the impact assessment.

We understand the views raised by potential VLPs regarding the extent of change relative to that which has been/is being incurred to participate in the balancing market. We would expect potentially significant economies of scale/scope for VLPs regarding provision of services into the wholesale market if they have already incurred costs to participate in the balancing market.

For example, we expect that the costs set out by one stakeholder regarding registration costs for a VLP would be needed for VLP registration to act in the balancing market regardless of whether the VLP also wanted to participate in the wholesale market. We would expect that any incremental cost regarding participation in the wholesale market - e.g., to reflect coupling of systems with the wholesale market - would take into account relevant economies of scale/scope in service provision.

In summary, based on the responses submitted to us, we would not expect the direct implementation costs for VLPs to be excessive given the expected potential size of benefits to the system of increased flexibility. We consider that the system provider registration costs of £50k up front costs and £10k annual ongoing costs may represent an upper bound on direct implementation costs.

Beyond direct implementation costs, we agree that VLPs would need to incur ongoing costs to grow and manage their customer portfolio. These costs would scale with the number of VLPs operating in the market.

Wider fixed costs

Engagement with VLP participants as part of our assessment has highlighted the diverse range of business models of VLP entrants. Each has a different customer proposition and business model, potentially targeting use of different customer technologies and customer types for the provision of flexibility. Estimates of up front and ongoing operational fixed costs are therefore wide ranging.

At a minimum we would expect that all VLPs would need to invest time and resource in developing a customer proposition, marketing and managing their customer portfolio. While some proportion of these costs may allow for economies of scale/scope from customer engagement for VLP services in the balancing market, potential volumes could be substantially larger in the wholesale market while may also allow for different types of customers to participate. We therefore expect that costs would scale with the extent of volume of participation in the market, regardless of the business proposition of the VLP.

7.3. COSTS FALLING ON SUPPLIERS

We received four responses from suppliers that made reference to potential implementation costs. Suppliers noted the potential for up-front system costs to reflect the need for additional monitoring of asset dispatch and imbalance. They also identified the potential need for additional resource to maintain data requirements and operational efficiency of system changes. One respondent noted the potential for additional costs to educate and engage with customers regarding the changes to service provision, e.g., due to a lack of clarity regarding responsibilities between the supplier and VLP.

Only one supplier provided numerical estimates of potential implementation costs, providing a range of estimates to reflect remaining uncertainty regarding the solution. This supplier identified potential up front implementation costs of £100k - £1m and ongoing costs of between £50-100k per annum.

As part of further discussion on these estimates, VLPs disputed the level of additional costs to suppliers, noting that the solution is intended to ensure that the imbalance position of the supplier is not affected by any VLP action, and that compensation should flow directly to the supplier.

However, suppliers argued that some level of system change would be needed to reflect payment flows under either compensation mechanism – e.g., to incorporate costs of socialised compensation on the supplier community as new cost item.

While the scale of change may be relatively limited, the magnitude of implementation costs is likely to be related to the nature of supplier systems. Those suppliers who remain on legacy systems may incur larger costs for relatively small adjustments to their systems while those on more modern 'agile' systems are likely to face significantly lower systems costs of reform. It was noted that the numerical estimates provided reflected change to legacy systems.

We expect that the costs of £100k - £1m and ongoing costs of between £50-100k per annum, estimated based on legacy systems are therefore likely to represent an upper bound for suppliers.

Suppliers may face wider indirect costs as a consequence of P415. We consider these in Section 8.2.

7.4. COSTS FALLING ON NGESO

NGESO provided us with a view on the potential costs falling on it as a result of P415. NGESO did not expect any direct or short-term costs to implement the P415 modification in its own IT systems.

In the longer-term, NGESO identified the potential for additional systems costs to manage an increase in balancing mechanism units (BMUs). It identified a potential for up to £2-3m of additional costs to reflect this.

We note that the additional costs of growth of BMUs would be highly dependent on the number of VLPs that chose to participate in the market as a result of P415. NGESO also noted that there would likely be an overlap with wider programme of work which could lead to some economies of scope.

8. RISKS AND UNINTENDED CONSEQUENCES

As well as financial costs falling on industry participants, we have considered the potential for risks and unintended consequences. Through stakeholder engagement, we identified several themes of risk:

- Risks of consumer detriment, e.g., resulting from confusion, malpractice, etc.
- Risks falling on suppliers and/or impacting on competition.
- Risks of gaming to benefit from compensation arrangements.
- Risks arising from application of the baselining methodology.

8.1. POTENTIAL FOR CONSUMER DETRIMENT

8.1.1. Issues raised by stakeholders

Stakeholders identified several potential mechanisms for consumer detriment, including:

- **VLP failure and/or financial governance:** Suggesting parallels with the energy supply market, some stakeholders questioned the impacts on customers if VLPs were set up without appropriate financial governance arrangements in place. Considering recent events in the supply market, they identified a risk of costs falling on consumers if entry from VLPs was followed by significant volumes of VLP failure further down the line. Several stakeholders suggested that similar regulations concerning financial suitability should be in place for VLPs as has been developed for suppliers.
- **Complexity and consumer confusion:** Several stakeholders identified the potential for complexity to increase as a result of a customer engaging with the combination of a supplier and a VLP. They suggested that this may introduce additional customer confusion regarding billing, rights and obligations, etc, particularly for residential and small commercial consumers who may have less resources to access and engage with the arrangements.
- **Clarity regarding responsibilities and disputes between VLPs and suppliers:** In addition to introducing new potential for customer confusion, some stakeholders suggested that customers may not know who to contact in the event of an issue which may lead to additional costs of customer education and communication. They also identified the potential for disputes between the supplier and the VLP regarding certain obligations or responsibilities.
- **Key consumer events:** Stakeholders had some specific concerns regarding the impact of the VLP arrangement at key periods, e.g., for agreed reads, change of tenancy, change of supplier, etc. They identified particular scope of additional complexity, confusion and sub-optimal outcomes for consumers during these events.
- **Misaligned incentives/malpractice:** One stakeholder noted the potential for complex customer propositions resulting from separate supply and flexibility contracting. They identified a risk of misaligned incentives and malpractice as a result. One stakeholder gave the example of a customer with a vehicle-to-grid EV. While VLPs would share the benefits of downward energy actions, including export to the grid, they would not face the non-energy costs applied on the bill during import. For this reason, the stakeholder believed that the VLP would be 'over-incentivised' to export, without internalising the costs on import.

Regarding the potential for consumer detriment, several stakeholders noted the lack of regulation which is in place to manage the relationship between a VLP and the customer. Some suggested that VLPs should only be allowed to enter into the market if they are subject to a similar level of regulation as applied to suppliers to govern their interactions with customers.

8.1.2. Our view on the magnitude of risk

The ability for VLPs to participate in the wholesale market may lead to new customer propositions and a new form of interaction between market participants and customers. For that reason, any potential for consumer detriment must be carefully considered as the details of P415 are developed.

However, we consider it important to differentiate between the role of the VLP and the role of the supplier in the market. Any consideration of the magnitude of impact on consumers and the potential for additional regulation should take into account the specific role that VLPs play. We note several important differences between the role of a supplier and a VLP that we believe should be taken into account:

- **A VLP is not responsible for delivering a critical service**: Unlike suppliers, VLPs do not deliver a critical service to customers. Under the P415 solution, VLPs do not take responsibility for energy supply but for energy deviation volumes, i.e., flexibility. In the event that a customer is in an agreement with a VLP who subsequently fails, the consumer should continue to receive their energy supply and would only lose their flexibility service.
- **An energy customer does not need to enter into an agreement with a VLP**: All energy consumers in GB must have an agreement with a supplier to receive energy. The same is not true for VLPs as customers can enter and exit from such agreements depending on the value they expect to receive from them. This implies that customers will only enter into and maintain such agreements if they are content with the service they receive. We would expect a customer who knowingly faces significant confusion or detriment to terminate the arrangement. Nevertheless, residual risk may remain. For example, customer detriment could take a form which is not transparent or well understood by the customer. In addition, a perception of poor customer satisfaction from flexibility providers could undermine the emergence of flexibility more generally.
- **Suppliers are able to compete directly with VLPs to offer customer flexibility propositions**: One stakeholder believed that customers benefit from straightforward customer propositions. They expected customers to prefer bundled services in which the energy and flexibility are delivered as part of a single customer proposition. While we do not speculate about customer preferences for flexibility provision, we identify that even after the implementation of P415, consumers can continue to choose bundled propositions from suppliers if that is indeed their preference.
- **In general, the flow of payments will be from VLPs to customers rather than the other way round**: One of the challenges in the energy supply market is the large credit balances that suppliers must manage, including the risks associated with customer debt. Unlike suppliers, VLPs will generally be paying customers to access their flexibility which VLPs then trade in the wholesale market. Therefore, we would not expect VLPs to build up the same level of credit balances and customer debt risk as a supplier.

We believe that differences in the function performed by VLPs in comparison to suppliers mitigates several of the issues raised regarding consumer detriment. While several risks may remain relevant to some degree, we expect the magnitude of such risks to be significantly lower than is the case for energy suppliers.

8.1.3. Mitigations

There are several regulatory developments that may provide further mitigation of the consumer detriment impacts identified above:

- **The Association of Decentralised Energy (ADE) Flex Assure Standard**[37]: Flex Assure sets standards of practice for flexibility service providers, in relation to sales and marketing, proposals, contracts and complaints. This voluntary scheme is intended to support the development of flexibility by providing

[37] See: https://www.flexassure.org/about-flex-assure

confidence to consumers about the service they receive from a flexibility provider. A compliance scheme also exists to ensure that Flex Assure registered providers meet the requirements of the standard. It is currently limited to large industrial and commercial customers, though we understand that the ADE is in the process of developing an equivalent for residential and small commercial customers.

- **Licensing of load controllers:** The Department of Business, Energy and Industrial Strategy (BEIS) published a consultation on 'Delivering a Smart and Secure Electricity System'[38] on 6 July 2022. This consultation includes proposals for licensing of organisations that 'enter into arrangements with domestic and small non-domestic consumers, for the purposes of DSR'. While the detail of regulation will be developed over time following the consultation, BEIS also consulted on the potential need for regulation to reduce the risk of consumer detriment in several areas, including:
    - a consumer's ability to compare service offerings and charges;
    - a consumer's ability to make informed choices;
    - preventing consumers from being locked into or locked out of certain services, e.g., as a result of unreasonable terms and conditions;
    - preventing DSR organisations from using their ability to control customer devices to the detriment of the consumer;
    - the potential for additional support for vulnerable customers;
    - routes to redress;
    - managing risks surrounding insolvency; and
    - consumer data privacy protections.
- **Consumer protection law**: In addition to the above, common consumer protection law may apply to the services provided to the customer. This includes:
    - **The Consumer Protection from Unfair Trading Regulations 2008**[39]: This provides protection against unfair and misleading trading practices and aggressive sales tactics.
    - **The Consumer Rights Act 2015**[40]: This legislation sets minimum standards regarding the care and skill applied in provision of the service, the binding nature of information provided to the customer and the requirement for a reasonable price.

8.2. IMPACTS ON SUPPLIERS

8.2.1. Issues raised by stakeholders

Some stakeholders raised concerns regarding the impact of the P415 solution on suppliers. They suggested that these risks could lead to additional costs for suppliers which may be passed through to consumers and could exacerbate ongoing challenges faced by supplier business models, at its most significant leading to additional supplier exit from the market.

Stakeholders identified challenges relating to the deviation of energy volumes and how effectively they would be able to manage these deviations. They suggested that this would introduce new challenges regarding demand forecasting, hedging and risk management.

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[38] See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1088796/smart-secure-energy-system-consultation.pdf

[39] See: https://www.legislation.gov.uk/uksi/2008/1277/contents/made

[40] See: https://www.legislation.gov.uk/ukpga/2015/15/contents/enacted

8.2.2. Our view on the magnitude of risk

We understand the views raised by stakeholders regarding new challenges for suppliers. The potential for deviations of energy volumes close to real time may introduce new risks for suppliers to manage. However, we note the following:

- The P415 solution is intended to ensure that a supplier does not face any imbalance risk when a VLP takes an action for one of its customers.
- The P415 solution includes a compensation mechanism which is intended to reflect the lost volume of energy that the supplier can no longer sell to the customer. The intention is that the supplier should effectively face the same demand profile as it would have done in the absence of the action.

We believe that the extent and nature of risk may be dependent to some extent on the nature of the flexibility action undertaken by VLPs. Where a flexibility action constitutes peak reduction, we consider that the provisions within the P415 solution may largely ensure that the relevant supplier is largely protected against consequences of the action, though note that this is subject to accurate baselining[41] and deviation volume methodologies. This is because the solution should ensure that suppliers remain in balance and are compensated for the foregone energy which they are no longer able to sell.

However, where a flexibility action results in load shifting, we expect that suppliers may face additional exposure. This is because the VLP is likely to initiate the downwards energy action for which the supplier is made whole but is less likely to take responsibility for the resulting increase in demand. As a result, the supplier is able to sell an additional unit of energy in a future period but may also need to purchase an additional volume of energy to cover the increase in demand close to real time. If the supplier is not able to cover this additional demand, they may take on a short imbalance position.

We expect an increasing proportion of flexibility actions to result in load shifting as the penetration of EVs and heat pumps increases over time. The nature of these technologies means that a reduction in demand in one period will often result in an increase in aggregate demand in other periods[42].

Supplier exposure may also depend to some extent on the compensation mechanism. The Compensation 1 mechanism compensates suppliers at the sourcing cost while Compensation 2 compensates them at the spot price. The Compensation 1 mechanism is likely to provide a more stable, but in most cases lower level of compensation[43] than the Compensation 2 mechanism. While the latter may often provide a higher level of compensation, it also increases exposure of suppliers to the spot price and is thus less predictable.

We conclude that suppliers may face a new set of risks and exposures under certain conditions, depending on the compensation mechanism and on the nature of the flexibility action. However, to some extent this is a necessary implication of an increase in flexibility more generally. As customers adopt flexible technologies and increasingly respond to temporal and locational signals, demand profiles are likely to change and become increasingly difficult to forecast ahead of time. The fact that an organisation other than the supplier is undertaking the activity may add an additional challenge for the supplier. However, we would expect the market to develop increasingly sophisticated demand forecasting and hedging strategies to reflect a developing understanding of flexibility whether or not VLPs are allowed to participate in the market.

[41] We explore implications of the baselining methodology in the next section.

[42] Though we note that some business models aim to optimise heat provision such that overall energy demand is reduced with an almost imperceptible effect on the consumer perception of temperature.

[43] As we would expect most flexibility actions to be taken at higher wholesale market prices.

8.3. GAMING RISK

In Section 4.5, we considered the position of a supplier when a VLP makes use of flexibility of one of its customers under the set of assumptions that we set out. We found that:

- Under Compensation 1, suppliers would be net neutral when VLPs deploy peak reduction flexibility and would benefit by 'Sourcing Cost – Spot Price (t')' when VLPs deploy load shifting flexibility.
- Under Compensation 2, suppliers would benefit by 'Spot Price – Sourcing Cost' when VLPs deploy peak reduction flexibility and would benefit by 'Spot Price (t) – Spot Price (t')' when VLPs deploy load shifting flexibility.

This raises a question regarding the incentives of a supplier to become a VLP in order to make use of flexibility from its own customer and whether it could do so without providing any additional system benefit compared to deploying that flexibility as a supplier.

Under Compensation 1, targeting of the compensation cost at the VLP means that the supplier would face a cost when it acts as a VLP to make use of flexibility from its own customer. Further to the position summarised above, acting as a VLP, the supplier would also have to pay the Sourcing Cost by way of compensation. Therefore, there does not appear to be any benefit to the supplier from deploying flexibility from its own energy customers as a VLP.

However, under Compensation 2, a gaming risk may exist. A supplier who deploys flexibility of its own customer as a VLP would benefit as summarised above. The supplier would only face a small fraction of the overall costs of compensation as these compensation costs are socialised. The supplier effectively benefits twice under such an arrangement. It benefits from making use of its customer's flexibility as a supplier. However, it also benefits from the receipt of compensation[44] without being liable for an equivalent payment of compensation.

It is not clear to use whether there are mechanisms in place within the arrangements for a VLP to prevent suppliers from acting as VLPs for their own customers. If there are no mechanisms to prevent such behaviour, this could present an important source of gaming risk.

8.4. BASELINING METHODOLOGY

8.4.1. Issues raised by stakeholders

One stakeholder raised concerns regarding the application of the baseline against which Deviation Volumes are calculated when a VLP takes and action. The stakeholder was concerned that the failure of a generic baselining methodology to reflect the specific nature of the customer could create residual imbalances for the supplier.

They suggested that generic baselines work poorly in practice for a heterogenous set of customers who each have different demand profiles and flexibility characteristics. They pointed to the wide-ranging approaches deployed internationally as evidence that there is little consensus regarding an appropriate baselining methodology. They also noted that the baselining methodology developed under modification P376 has not been implemented and tested. They suggested observing performance of the baseline before developing confidence for its use under P415.

On the other hand, VLPs have told us that they value accuracy of the baseline. Baseline inaccuracy introduces risk for VLPs as their flexibility actions will be measured relative to the baseline.

8.4.2. Our view on the magnitude of risk

We agree with the view raised that any baselining methodology will be imperfect when applied to a heterogenous set of customers. This will be the case in particular for those with dynamic and less predictable demand profiles.

[44] Because the change in demand is flagged as a VLP flexibility action,

The baselining methodology makes use of recent historic demand data to estimate future energy flows. It seeks to identify similar demand days for the relevant customer based on:

- Type of day (e.g., working or non-working day)
- Days in which there is no 'special event' such as balancing service provision or site shutdown.

The P376 approach appears to be better designed for large, industrial customers with relatively consistent, predictable demand profiles.

Indeed, P376 notes that *'…not all sites will be suitable to use a Baselining Methodology; some sites may not follow any normal behaviour patterns or may be too variable for a Baselining Methodology to provide a useful estimate.'*

As dynamic loads like EVs and heat pumps allow residential and small commercial customers become an increasingly important source of flexibility, the accuracy of the baselining methodology for such sources of flexibility may become an increasingly important driver of costs and benefits. Inaccurate baselines could lead to sub-optimal investment in flexibility and deployment of flexibility.

As well as risks regarding inaccuracy and the impact on supplier imbalance positions, we also identify a related risk that VLPs may be able to profit from 'beating the baseline' without deploying any flexibility. This may arise where a VLP is better placed to forecast the demand of a customer type than is possible using the baselining methodology applied to that customer. A VLP could then declare a flexibility action and deviation volume but allow the customer to follow their existing demand profile. Under the P415 solution, the VLP would be remunerated assuming it had taken a flexibility action when in fact, this would represent inaccuracy of the baseline with no flexibility actually deployed.

The P376 solution notes that the BSC Governance processes allow for new baselining methodologies to be introduced or amended over time. However, this depends on a suitable baselining methodology being identified, raised, developed and approved.

Assuming symmetric risk of baseline inaccuracy, we consider that VLPs would value accuracy of the baseline and may seek to develop baselining methodologies that can be applied more effectively for residential and small commercial customers.

However, baselining methodologies for smaller customers with more dynamic and less predictable loads are likely to be challenging by their nature. There could be an asymmetric incentive for VLPs to seek to correct baseline inaccuracies that work against them while being less proactive about correcting baselining methodologies that may work in their favour.

Other BSC signatories would also be able to raise corrections to the baseline. Whether or not wider stakeholders such as suppliers would be likely to prioritise, identify improvements and develop such modifications in practice remains uncertain.

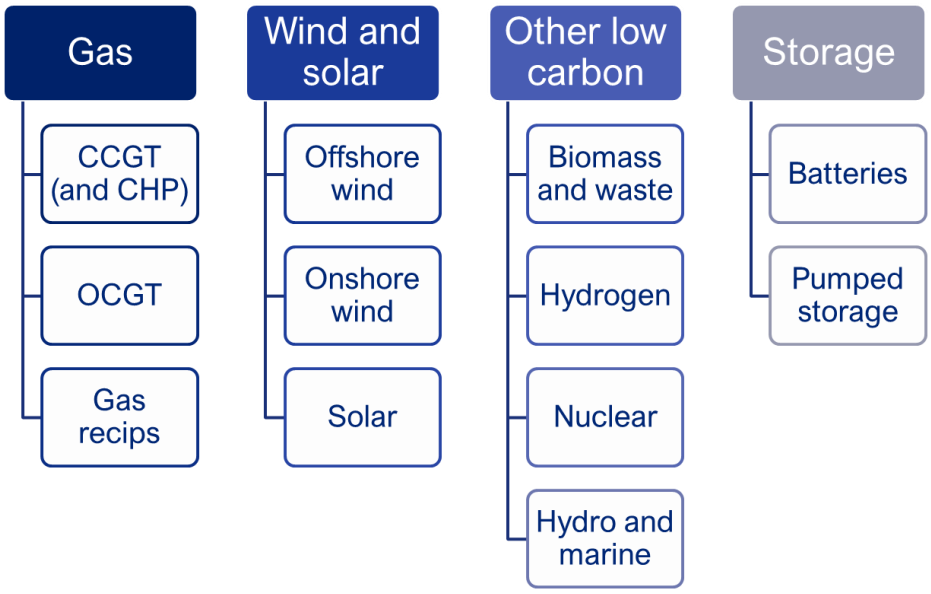
Without an appropriate baselining methodology which can reflect the particular characteristics of demand profiles and flexibility characteristics of smaller residential and commercial customers, we identify some potentially significant risks of baselining inaccuracies and possible gaming opportunities. We expect these risks to be less material for large I&C customers where international precedent has helped to inform the baselining approach and where demand profiles are more regular and predictable. P376 appears to acknowledge this differentiation within the solution.

Appendix A DETAILED MODELLING METHODOLOGY

A.1. GENERATION AND DEMAND ARCHETYPES

Our model includes a detailed set of generation technologies and demand archetypes (12 generator technologies and 12 demand types) which we duplicate across the transmission and distribution networks (Figures A.1 and A.2). Each generation technology is modelled as a single fleet across the market with dispatch based on the technical characteristics and variable costs of each representative dispatch type.

Figure A.1: Generation and storage technologies included in the model at transmission and distribution level



Modelling CfD-supported plant from Allocation Round 4 onwards

The Government's CfD Allocation Round 4 opened on 13 December 2021[45]. For Allocation Round 4, the Government introduced a rule change that prevents supported generators from receiving a top-up to the agreed strike price during periods of negative DAM prices. We assume that this rule will remain in place for future allocation rounds.

This rule change has a material impact on our assessment as it means that those generators with such a contract would most likely choose to be curtailed before prices became negative, in turn reducing the likelihood that negative prices are observed.

For this reason, we incorporate two separate fleets of technology for all CfD producers, one of which represents CfD supported generation that entered into a contract before Allocation Round 4 and the other which represents CfD supported generation from Allocation Round 4 onwards[46].

Modelling demand-side flexibility

Figure A.2 lists the consumer archetypes in our modelling. These all have an underlying demand profile. However, we assume that the majority of demand customer categories are able to respond flexibly to some degree to the DAM market price, either directly, through their supplier or after being contracted to provide flexibility by a VLP. We assume that all customers with an enabling technology have the potential to provide a flexible response.

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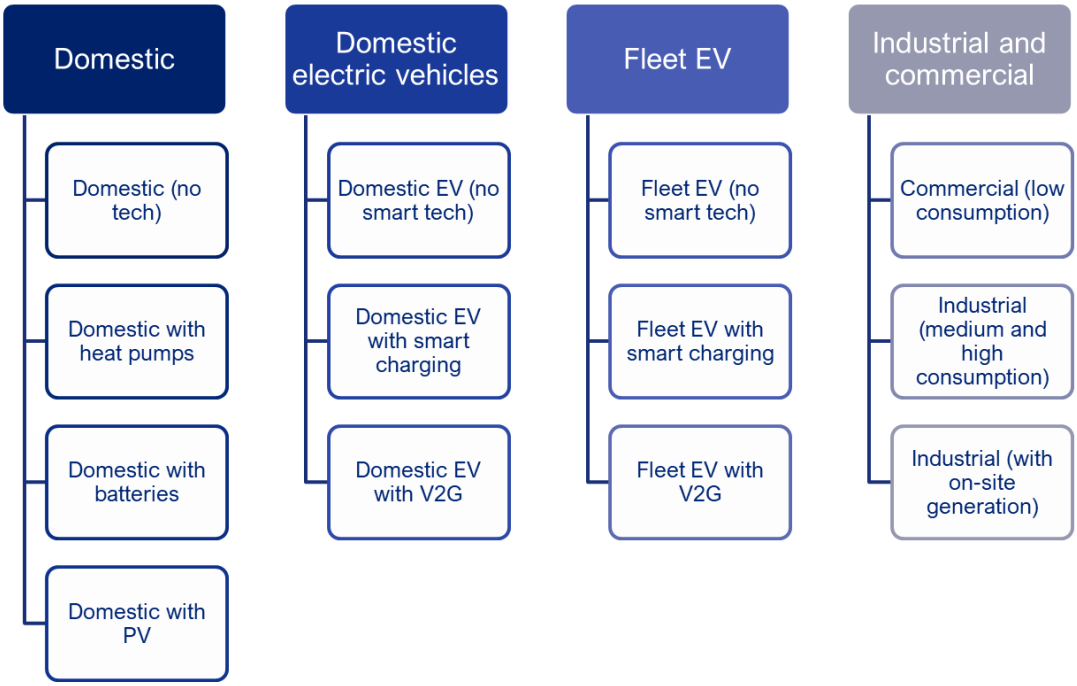
[45] See: https://www.gov.uk/government/collections/contracts-for-difference-cfd-allocation-round-4

[46] We assume that new-build nuclear is supported under a RAB model in which it effectively receives its LCOE regardless of the DAM price.

Figure A.2: Consumer archetypes represented in the model



To model the P415 variants, we create a second identical set of customer archetypes that can provide a flexible response. This allows us to allocate one set to flexibility contracted by VLPs while the other is allocated to non-VLP delivered flexibility. We use this to model a defined level of flexibility capability from VLPs that is separate to the flexibility capability provided by non-VLPs.

A.2. MODELLING OF FLEXIBILITY

Our modelling incorporated the provision of flexibility from the relevant consumer types included in Figure A.2. In the model, demand-side flexibility effectively competes with producers (including generation, interconnection and batteries) in the wholesale market merit order, with variable costs defined based on any activation costs and, in the case of Compensation 1, the compensation cost which is borne by the VLP.

Take-up of each flexible technology under each scenario is taken directly from the FES. We define demand profiles of each technology, drawing on historical data for each customer type. Where customers have technologies which allow them to respond flexibly, we incorporate this ability using either a virtual battery or a virtual generator based on two distinct forms of DSR:

- 'Peak reduction' implies that any demand reduction is not balanced by an increase in other periods. This may reflect load that can be met with alternative back-up generation for example. In our model, this type of response is modelled as a 'virtual generator' unit at the demand node which nets off demand when flexibility is utilised.
- 'Load shifting' implies that any demand reduction is balanced by an increase in demand in other periods. In our model this type of response is modelled as a 'virtual battery' which discharges when flexibility results in a decrease in demand and charges when flexibility results in a corresponding increase in demand.

We assume that residential and commercial customers with enabling technologies generally provide load shifting flexibility. EVs and heat pumps that reduce demand in one period generally need to compensate this demand reduction with an increase in another period, otherwise the customer will not receive the same level of EV battery charge or heat comfort as they would have otherwise. Reflecting comments from the P415 Workgroup, we include a small amount of peak reduction for residential and commercial heat pump demand.

We model two types of large industrial and commercial flexibility. We model heat flexibility from I&C customers which we represent as load shifting. We assume that flexibility delivered from other I&C processes is peak reduction where consumers would be compensated for lost output or may have alternative means of production (e.g., on-site generators) that allow production to continue largely unaffected.

We model three tranches of response from I&C process which responds at different activation prices. The activation price is designed to reflect the costs to the I&C customer of reducing demand, either due to changes to processes or using a back-up generator for example. The activation prices were informed by workgroup members and are as follows:

- £50/MWh;
- £300/MWh; and
- £3000/MWh – designed to reflect the Value of Lost Load (VOLL) for an average I&C customer.

We had discussions with P415 Workgroup members about possible constraints on the frequency with which a I&C customer will be prepared to provide peak reduction. Therefore, we limit the number of hours that I&C customers are prepared to provide a flexibility service to 2% of the hours in the year. We assume that they can provide this service in the 2% of hours with the highest DAM prices helping them to avoid high price spikes.

Flexibility deployment under P415

To reflect the second uncertainty regarding the level of deployment of flexibility under P415 relative to the counterfactual (i.e., without the implementation of P415), we used the FES to define the total level of potential flexibility from each consumer archetype in our model.

We include flexibility deployment under the counterfactual. This represents flexibility through different mechanisms including:

- Responsiveness of consumers to wholesale market pass through contracts and tariffs – e.g., based on time of use tariffs provided to EV customers.
- Direct procurement of flexibility by suppliers, e.g., from direct contracting with large, flexible loads.

However, we assumed that only a proportion of the flexibility capability in the FES was deployed under the counterfactual, with the remainder only being delivered once we introduced the ability for VLPs to deploy flexibility in the wholesale market following implementation of P415.

To reflect our assessment of the level of uncertainty regarding the additional volumes that could be delivered by P415, we considered three possible assumptions: whereby P415 implementation delivered 30%, 50% or 70% of the flexibility capability envisaged in the relevant FES scenario[47]. The remainder of the flexibility incorporated in the FES scenario was included in the counterfactual and assumed to be delivered without implementation of P415 – i.e., 70%, 50% and 30% of the flexibility included in the FES scenario respectively.

A.3. Definition of flexibility from VLPs and non-VLPs

In some cases, the variable costs of delivering flexibility are likely to be low, in particular where customers observe little/no impact on their electricity supply. In other cases, VLPs will incur variable costs associated with compensating customers for inconvenience associated with the provision of flexibility. In this case we assume that non-VLPs will also incur variable costs of deploying flexibility as they would also have to compensate consumers for the deployment of any flexibility.

[47] Note that these assumptions do not represent a CEPA view on the extent of additional flexibility expected. Neither do CEPA consider that they represent the full range of possible outcomes.

VLPs will also incur fixed up front and fixed ongoing costs to develop their business, e.g., to acquire and manage a customer portfolio. P415 Workgroup members also say that in many cases they expect to incur the costs of installing enabling technology (e.g., 'smart' thermostats, 'smart' EV chargers, industrial process automation) to allow for flexibility to be delivered.

While fixed costs do not feature directly in our modelling, we compare revenues recovered by VLPs against these fixed cost assumptions to provide a commentary on the likelihood of entry and exit of the flexible capability assumed to be procured by VLPs.

To inform our consideration of the cost base of VLPs we submitted a data request to members of the Workgroup requesting their views on cost assumptions for three types of aggregators. Responses from VLPs to our request for information are summarised in Table A.1.

Table A.1: Assumptions for costs of deploying flexibility (provided by VLPs)

	Residential customers - load shifting and peak reduction	Industrial and commercial – load shifting	Industrial and commercial – peak reduction
Up front fixed costs (£/MW)	Dependent on whether the flexibility provider needs to pay for the installation of enabling technology: If not: c. £4k/MW If they do: Up to c. £160k/MW	c. £2.5k - £6k/MW	c. £2.5k - £6k/MW
Ongoing fixed costs (£/MW/yr)	Dependent on whether the flexibility provider needs to pay for the ongoing maintenance of the enabling technology. If not: May only be admin and settlement costs. If they do: Up to c. £30k/MW/yr	c. £1.2k - £5k/MW/yr	c. £1.2k - £5k/MW/yr
Variable costs (£/MWh)	~£0 (assuming minimal disruption for the flexibility provider)	~£0 (assuming minimal disruption for the flexibility provider)	Multiple tranches: 1st tranche: c. £50-60/MWh … Nth tranche: c. VoLL – 10%

A.4. COMPENSATION VARIANT DEFINITION

Table A.2 summarises the approach taken for modelling the two P415 compensation variants

Table A.2: Modelling of compensation variants

Variant	Who pays compensation?	Compensation price	Approach taken in the modelling
Proposer	VLPs	Estimate of supplier sourcing costs to approximate retail price	We incorporate compensation into the model as an additional variable cost faced by VLPs whenever they deploy flexibility into the wholesale market. We approximate the sourcing cost by taking a seasonal average of the DAM price in each model run. This proxy is consistent with our understanding of the Sourcing Cost methodology being developed by Elexon
Alternative	Socialised across all suppliers	Wholesale market spot price	We estimate the total level of socialised compensation based on volumes of VLP participation and the associated spot price in each period. We include this compensation cost in the welfare calculation as an additional cost passed through to consumers by suppliers.

Appendix B ANALYSIS OF MARKET DYNAMICS FOR PEAK REDUCTION AND LOAD SHIFTING

In this appendix we set out in full our analysis of how market dynamics differ depending on whether it is a non-VLP or a VLP deploying flexibility. We firstly consider peak reduction activity before assessing load shifting.

B.1. PEAK REDUCTION

In Table B.1 we summarise the costs that fall on VLPs and suppliers in the case that:

- A supplier, acting as a non-VLP uses peak reduction flexibility from its own customers;
- A VLP uses peak reduction flexibility from a supplier's customer under Compensation 1; and
- A VLP uses peak reduction flexibility from a supplier's customer under Compensation 2.

The analysis is intended to consider how the variable costs of deploying flexibility may differ between VLPs and non-VLPs and how suppliers would be affected when a VLP deploys the flexibility of their customer, taking into account the compensation payment that would flow to that supplier.

In this analysis, we only consider the variable costs resulting from the lost potential for the supplier to sell a unit of energy to the customer and the cost of any compensation. Other variable costs such as the payment to the customer for activating flexibility are likely to exist. However, we assume that these costs would be internalised equally by VLPs and non-VLPs under all scenarios and so are not considered here.

Table B.1: Supplier position following non-VLP and VLP peak reduction flexibility deployment

Peak reduction (in Period t)	Supplier uses own flex (assuming they are contracted forward)	VLP deploys flex: Compensation 1	VLP deploys flex: Compensation 2
Activity	Where a supplier uses flexibility from their own customer: • They can sell energy into the wholesale market or avoid taking a short position in a high price period. • They lose the opportunity to sell a unit of energy at the Sourcing Cost, ignoring the retail margin.	When flexibility is deployed by the VLP, the supplier foregoes the opportunity to sell a unit of energy. We assume they would sell this at the Sourcing Cost, ignoring the retail margin.	When flexibility is deployed by the VLP, the supplier foregoes the opportunity to sell a unit of energy. We assume they would have sold this at the Sourcing Cost, ignoring the retail margin. They are compensated at the Spot Price which is likely to be > Sourcing Cost in the given period.
Variable cost of deployment and competition with suppliers	The supplier internalises the Sourcing Cost in its own flex action.	The VLP internalises the Sourcing Cost in its own flex actions.	The compensation is socialised so the VLP doesn't internalise any compensation to suppliers as a variable cost of deploying flexibility.
Supplier position	The supplier benefits by: 'Spot Price (t) – Sourcing Cost'	The supplier is compensated at the Sourcing Cost so is net neutral.	The supplier benefits by: 'Spot Price (t) – Sourcing Cost'

B.2. LOAD SHIFTING

The analysis is a little more complex for load shifting flexibility as we must now account for both the downwards flexibility action and the upwards shift in demand which could take place in a later or an earlier period. We consider

the same three cases as for peak reduction and applying the same scope and assumptions. We set out this analysis in Table B.2.

Table B.2: Supplier position following non-VLP and VLP load shifting flexibility deployment

Load shifting*	Supplier uses own flex (assuming they are contracted forward)	Compensation 1	Compensation 2
Activity	Where a supplier uses flexibility from their own customer, in Period t: • they avoid taking a short position or can sell energy into the wholesale market. • they lose the opportunity to sell a unit of energy (we assume this is at Sourcing Cost). In Period t': • they have to buy energy from the wholesale market or take a short position. • they can sell a unit of energy (we assume this is at Sourcing Cost).	The supplier is net neutral from the downwards energy action (see Table B.1). They sell an additional unit of energy in Period t' at the Sourcing Cost. But they have to purchase this from the wholesale market at the prevailing Spot Price in Period t'. The Spot Price in this period is likely to be below the Sourcing Cost.	The supplier benefits from the downwards energy action in Period (t) by 'Spot Price (t) – Sourcing Cost' (see Table B.1) In Period t', the supplier can sell an additional unit of energy at the Sourcing Cost, benefitting by 'Sourcing Cost – Spot Price (t')'.
Variable cost of deployment and competition with suppliers	The supplier loses the opportunity to sell a unit of energy in t but gains an opportunity to sell a unit in t'. The supplier's variable costs from its ability to sell energy are zero.	The VLP faces a variable cost from the compensation payment at the Sourcing Cost that the supplier would not internalise.	The VLP does not face any variable cost of compensation as we estimate is the case for the supplier.
Supplier position	The supplier benefits from the price arbitrage between periods: 'Spot Price (t) – Spot Price (t')'	The supplier benefits by the arbitrage between the additional unit of energy it can sell in Period t' and the spot price in this period: 'Sourcing Cost – Spot Price (t')'	Total benefit to the supplier is the arbitrage between the spot price in Period t and the spot price in Period t'. I.e., Benefit = '(Spot Price (t) – Sourcing Cost) + (Sourcing Cost – Spot Price (t'))' = 'Spot Price (t) – Spot Price (t')'

**Load reduction takes place in Period t, with the corresponding load increase in Period t'*

Appendix C BREAKDOWN OF WELFARE FOR THE 'NO FLEX' SENSITIVITY

In this section, we provide the breakdown of total welfare impacts under our 'no flex sensitivity' across energy consumers, VLPs, non-VLPs and flexibility providers and producers.

This shows that there is a significant level of benefit from the initial units of flexibility that are included in the counterfactual. Similar insight continues to hold regarding the balance of welfare impacts between the compensation variants. For example, we observe lower energy consumer welfare benefits under Compensation 2 compared to Compensation 1 but higher flexibility provider and producer welfare benefits.

Figure C.1: Consumer welfare compared to the "No Flex" scenario

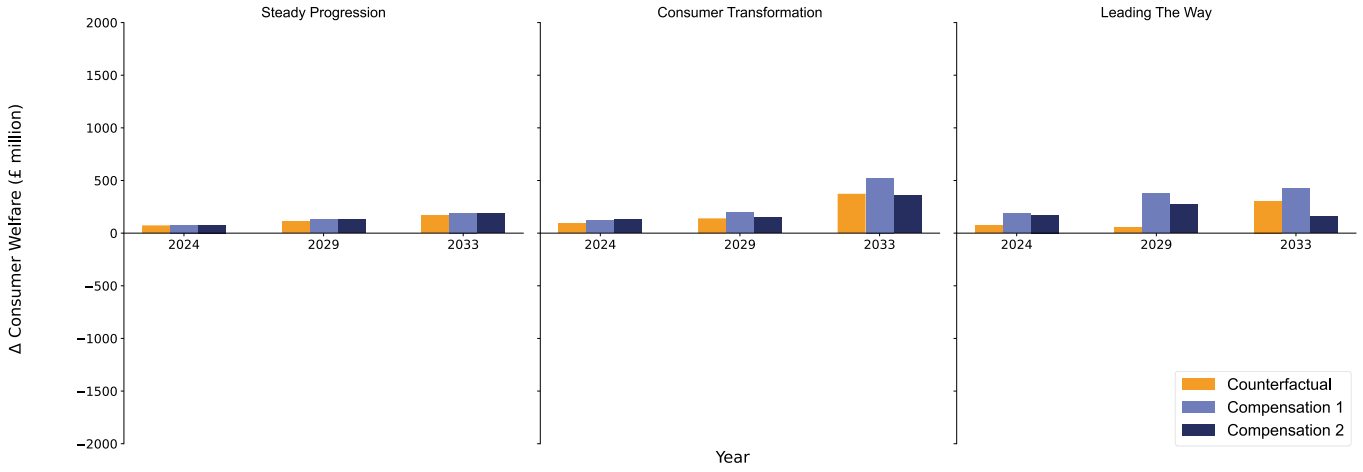


Table C.1: 10-Year NPV consumer welfare impact relative to 'No Flex'

	Steady Progression	Consumer Transformation	Leading The Way
Counterfactual	£1,163.52m	£1,862.84m	£1,250.12m
Compensation 1	£1,311.72m	£2,584.54m	£3,361.63m
Compensation 2	£1,284.12m	£1,945.97m	£2,149.46m

Figure C.2: Flexibility provider surplus compared to the "No Flex" scenario

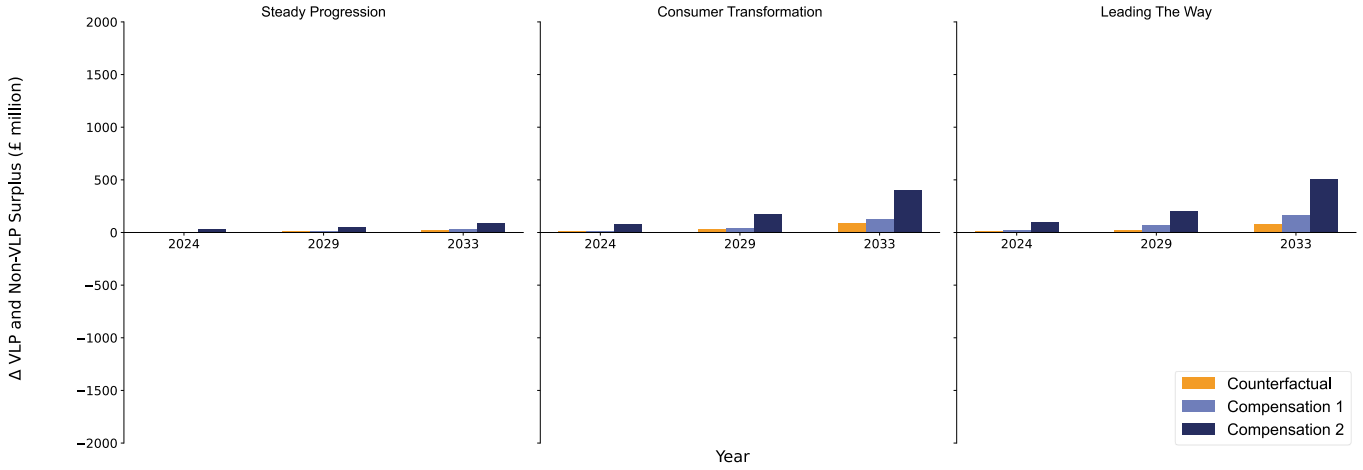


Table C.2: 10-Year NPV flexibility provider surplus impact relative to 'No Flex'

	Steady Progression	Consumer Transformation	Leading The Way
Counterfactual	£142.68m	£390.29m	£349.69m
Compensation 1	£195.38m	£580.56m	£822.62m
Compensation 2	£581.74m	£2,094.13m	£2,529.61m

Figure C.3: Producer Surplus compared to the "No Flex" scenario

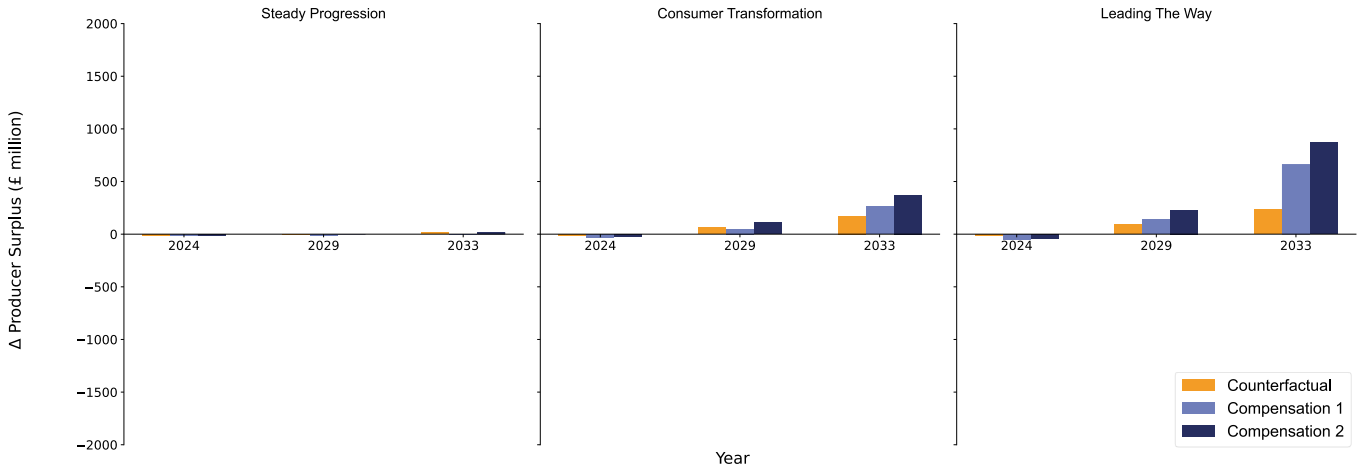


Table C.3: 10-Year NPV producer surplus impact relative to 'No Flex'

	Steady Progression	Consumer Transformation	Leading The Way
Counterfactual	£13.28m	£691.68m	£1,005.76m
Compensation 1	-£105.26m	£823.5m	£2,185.73m
Compensation 2	£8.84m	£1,390.87m	£3,187.28m

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Assessment Procedure Consultation Responses

P415 'Facilitating Access To Wholesale Markets For Flexibility Dispatched By VLPs'

This Assessment Procedure Consultation was issued on 24 January 2023, with responses invited by 14 February 2023.

Phase

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

Consultation Respondents

Respondent	Role(s) Represented
Dcbel Europe	Virtual Lead Party
Ecotricity Ltd	Supplier, ECVNA, MVRNA
Sympower	Virtual Lead Party
Senior Research Fellow	Other - this respondent is a senior research fellow at the Oxford Institute for Energy Studies (OIES). The answers to the questions reflect only their views and not those of any organization with which they are affiliated, their sponsors or clients.
Voltalis UK	Virtual Lead Party
Enel X	Virtual Lead Party
Equiwatt Limited	Virtual Lead Party, Independent residential DSR aggregator
Flexitricity	Supplier, Virtual Lead Party
OVO	Supplier
Association for Decentralised Energy (ADE)	Trade Body
E.ON UK	Supplier
National Grid ESO	NETSO

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Question 1: Do you agree with the Workgroup's initial unanimous view that P415 does better facilitate the Applicable BSC Objectives than the current baseline?

Summary

Yes	No	Neutral/No Comment	Other
8	2	1	1

Responses

Respondent	Response	Rationale
Dcbel Europe	Yes	Demand-side response (DSR) is recognized as the most economical options for consumer to hedge against wholesale price volatility and so mitigate the impact of swings in energy production as well as minimise renewable energy curtailment. DSR therefore implicitly lowers households and businesses' power use when renewable production is low, and can maximise energy use when it is abundant (i.e. when the wind blows), hence decarbonizing the overall usage of electricity. The only cost related to this flexibility is related to the rollout of its infrastructure which needs to fully automate DSR participation into wholesale markets taking advantage of new submetering arrangements as defined through the P375 regulation . Regulations need to evolve to ensure Flexibility is at low cost as possible to the end consumer while infrastructures get financed by the market. It requires flexibility providers, to have better visibility on future revenues and associated flexibility products (on stackable revenues in particular). Balancing markets, ancillary services and local/DSO markets have so far proven to be too small – even stacked – for aggregators to build business models and invest. The wholesale market – complemented with appropriately designed capacity mechanisms -is the only market large enough for the GWhs of DSR needed daily. To de-risk investment, demand-side response must therefore have access to all markets – including the wholesale market – in the right conditions, on par with generation, without barriers. The removal of barriers to entry and operation is a priority to guarantee a sustainable access to flexibility. National markets volumes are largely closed to independent aggregators.

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Respondent	Response	Rationale
		By giving access to VLPs to the wholesale markets, as an alternative to production, the P415 addresses several of the key barriers that demand response faces, and – given the right conditions – had the potential to bring a significant liquidity to the UK power markets while supporting the UK's system development to net zero. P415 therefore delivers against the "efficient, economic and coordinated operation of the National Electricity Transmission System" as well as the "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" BSC objectives.
Ecotricity Ltd	Yes	None provided
Sympower	Yes	Demand-side response (DSR) is proven to alleviate swings in energy production and has a positive effect renewable energy curtailment. Indeed, DSR can lower households and businesses' power use when renewable production is low, and can maximise energy use when it is abundant (i.e. when the wind blows). But this flexibility has a cost, mostly borne by the rollout of its infrastructure. However, what we experience as well is that consumers aren't inclined to pay individually for flexibility, because while automation has a cost it does bring only little benefit to the individual consumer. This cost, however, is negligible compared to its value for the whole energy systems. Flexibility must therefore be free to the end consumer and financed by the market. To de-risk investment from a range of flexibility providers, they must have visibility on future revenues. Balancing markets, ancillary services and local/DSO markets are too small – even stacked – for aggregators to build business models and invest. This leaves us with the capacity market, but do we want to pay for capacity that will be barely used? The wholesale market is the only market large enough for the GWhs of DSR needed daily. To de-risk investment, demand-side response must therefore have access to all markets – including the wholesale market – in the right conditions, on par with generation, without barriers.

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Respondent	Response	Rationale
		The removal of barriers to entry and operation is a priority to guarantee a sustainable access to flexibility. National markets volumes are largely closed to independent aggregators. By giving access to VLPs to the wholesale markets, as an alternative to production, the P415 addresses some of the barriers that demand response faces, and – given the right conditions – had the potential to bring a significant liquidity to the UK power markets while supporting the UK's race to net zero. P415 therefore delivers against the "efficient, economic and coordinated operation of the National Electricity Transmission System" as well as the "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" BSC objectives.
Senior Research Fellow	Other – Yes and No	Yes. From a pragmatic perspective, I understand the rationale for the view that some reform is needed to convince policy makers to enable VLPs (aggregators) to draw on demand-side response (DSR) for sale in the wholesale electricity market. Since I consider DSR to be a critical resource for meeting net zero goals at least cost, I favour P415 over doing nothing to enable VLPs to draw on DSR to compete in the wholesale market. I note that, without access to that market, the potential market for VLPs will be significantly reduced, making investments in DSR much harder to justify. No. I remain unconvinced that there is really a need to compensate Suppliers for their potential losses related to DSR activated by independent aggregators. I am convinced that, without compensation, Suppliers will learn quickly how to manage their day ahead risks associated with demand response, whether the latter is the result of implicit DSR (i.e. consumer response to market prices) or explicit DSR (i.e. the sale of flexibility services through an aggregator). I am also convinced that compensation to Suppliers will weaken their incentives to develop their own demand response activity, not least because it will weaken competitive pressure from independent aggregators.

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Respondent	Response	Rationale
		My position on this matter explains the logic for my answers in the remainder of this questionnaire.
Voltalis UK	Yes	Demand-side response (DSR) is proven to alleviate swings in energy production and has a positive effect renewable energy curtailment. Indeed, DSR can lower households and businesses' power use when renewable production is low, and can maximise energy use when it is abundant (i.e. when the wind blows). But this flexibility has a cost, mostly borne by the rollout of its infrastructure. However, what we experience as well is that consumers aren't inclined to pay individually for flexibility, because while automation has a cost it does bring only little benefit to the individual consumer. This cost, however, is negligible compared to its value for the whole energy systems. Flexibility must therefore be free to the end consumer and financed by the market. To de-risk investment from a range of flexibility providers, they must have visibility on future revenues. Balancing markets, ancillary services and local/DSO markets are too small – even stacked – for aggregators to build business models and invest. This leaves us with the capacity market, but do we want to pay for capacity that will be barely used? The wholesale market is the only market large enough for the GWhs of DSR needed daily. To de-risk investment, demand-side response must therefore have access to all markets – including the wholesale market – in the right conditions, on par with generation, without barriers. The removal of barriers to entry and operation is a priority to guarantee a sustainable access to flexibility. National markets volumes are largely closed to independent aggregators. By giving access to VLPs to the wholesale markets, as an alternative to production, the P415 addresses some of the barriers that demand response faces, and – given the right conditions – had the potential to bring a significant liquidity to the UK power markets while supporting the UK's race to net zero. P415 therefore delivers against the "efficient, economic and coordinated operation of the National

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Respondent	Response	Rationale
		Electricity Transmission System" as well as the "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" BSC objectives.
Enel X	Yes	The most obvious direct positive impact is on objective (c), as P415 would allow a wider range of resources to compete in the wholesale energy markets. This additional source of value for demand-side participation is likely to lead to greater participation by demand-side resources in all markets, allowing more efficient operation of the power system, furthering objective (b). We do not foresee negative impacts on any objectives
Equiwatt Limited	No comment	None Provided
Flexitricity	Yes	Yes, this is an extremely important change to the market rules to allow Virtual Lead Parties compete on a level playing field and bring greater volumes of flexibility to the market. P415 supports Applicable BSC Objectives (b) and (c) compared to the current baseline. Objective (b) – P415 will increase the amount of flexibility available to NGESO and this increased competition will have a downwards impact on balancing costs. Objective (c) – P415 will level the playing field between Virtual Lead Parties and Suppliers, and increase the amount of capacity provided for balancing services, increasing competition for flexibility. It will also support greater within day liquidity, as there will be a greater number of participants trading. This will support the markets ability to self-balance, and reduce the ESO's role in balancing the system. The benefits of this modification are even greater when considered alongside BSC P444.
OVO	No	No While we fully support mechanisms to enhance and extend the access and value of consumer flexibility in to existing markets, we do not believe P415 as it's currently proposed achieves this in an efficient way.

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Respondent	Response	Rationale
		As currently proposed, P415 introduces significant complexity and risk of consumer harm for an unquantified and non-specific benefit. Significant and fundamental questions remain around how the extension of the VLP principle into wholesale markets should work, let alone how it can be done in practice. It is impossible therefore to design an appropriate mechanism for facilitation, when it is still unclear what the positive outcome is expected to be.
ADE	Yes	We believe P415 will positively impact objectives (b) and (c). By removing market barriers for demand side flexibility in the wholesale market this will likely incentivise better participation in local and national balancing services too, thereby facilitating objective (b). Given recent experiences in the wholesale market, it is clear that enhanced competition and liquidity, facilitated by a wider pool of participants, would positively facilitate objective (c).
E.ON UK	Yes	We agree that P415 does facilitate better the Applicable BSC objectives 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 promoting such competition in the sale and purchase of electricity) but does not better facilitate Applicable BSC Objective d (promoting efficiency in the implementation and administration of the balancing and settlement arrangements). By allowing more parties to utilise customer flexibility in the wholesale market will help to generate more interest with customers in flexible demand. This will help make the market more competitive and innovative, which in turn will bring more cost-effective demand side capacity to market. This will deliver more value for all customers through lower prices. However, in order to deliver P415, it is our belief that balancing and settlement arrangements will be made more complex and opaque. This is a trade-off that needs to be considered fully and which the CBA does not address directly
National Grid ESO	No	Against objective (b) we do not agree that P415 is better than current baseline. In this response, we detail issues that will arise from supplier compensation which may cause distortions and inefficiencies. Please see responses to Q12-15 for

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Respondent	Response	Rationale
		more detail. Against objective (c), whilst we note that this modification may result in better market access for VLPs the consequences of implementation of supplier compensation outweigh the benefits and as such we do not support the implementation of supplier compensation. Furthermore, Q11 details concerns regarding data provision and we also have concerns around the potential for gaming which would negatively impact the market. Please see answer to Q15-16 for more detail.

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Question 2: Do you agree with the Workgroup that the draft legal text in Attachment A delivers the intention of P415?

Summary

Yes	No	Neutral/No Comment	Other
8	1	3	0

Responses

Respondent	Response	Rationale
Dcbel Europe	Yes	The draft legal text conveys the main features of P415, as VLP access to the wholesale markets in the following conditions: - Based on P375's Asset Metering & P376's baselining methodologies (both implemented) - The VLP becomes a balance responsible party, and is liable for the delivery of flexibilities. - VLPs have access to the wholesale markets on a par with production - Suppliers are kept whole: their positions are corrected- Suppliers are compensated for their correction: either by the VLP (compensation model A) or by the market undertakings in a mutualised compensation (methods 2 & 3) Therefore, the draft legal text in Attachment A delivers the intention of P415, associated developments need to be accelerated to take advantage of the fast growing DER deployments such as heat pump and EV charging particularly. Beyond these key regulatory changes it also needs to be complemented with the development of new interoperability mechanisms between DER assets and VLPs such as through the use of PAS1878 and 1879 regulations.
Ecotricity Ltd	No	I'm afraid I can't work out what/where attachment A is on the slightly labyrinthine Elexon P415 web page+1)
Sympower	Yes	The draft legal text conveys the main features of P415, as VLP access to the wholesale markets in the following conditions: - Based on P375's Asset Metering & P376's baselining methodologies (both implemented)

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Respondent	Response	Rationale
		- The VLP becomes a balance responsible party, and is liable for the delivery of flexibilities. - VLPs have access to the wholesale markets on a par with production - Suppliers are kept whole: their positions are corrected - Suppliers are compensated for their correction: either by the VLP (compensation model A) or by the market undertakings in a mutualised compensation (methods 2 & 3) Therefore, the draft legal text in Attachment A delivers the intention of P415.
Senior Research Fellow	Neutral	None provided
Voltalis UK	Yes	The draft legal text conveys the main features of P415, as VLP access to the wholesale markets in the following conditions: - Based on P375's Asset Metering & P376's baselining methodologies (both implemented) - The VLP becomes a balance responsible party, and is liable for the delivery of flexibilities. - VLPs have access to the wholesale markets on a par with production - Suppliers are kept whole: their positions are corrected - Suppliers are compensated for their correction: either by the VLP (compensation model A) or by the market undertakings in a mutualised compensation (methods 2 & 3) Therefore, the draft legal text in Attachment A delivers the intention of P415.
Enel X	Yes	We have analysed the text and are reasonably confident that it does what is intended.
Equiwatt Limited	No comment	None Provided
Flexitricity	Yes	Yes, we agree that the legal test delivers the intention of P415.
OVO	Neutral	No response
ADE	Yes	While the ADE cannot offer a legal opinion on the various texts as offered, we agree to the extent that the Proposed text reflects the conclusions of the Workgroup.

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Respondent	Response	Rationale
EON UK	Yes	We agree that the proposed legal text delivers the intention of P415. One issue that we would like to raise is that we believe that a defined timetable for reviewing the Supplier Compensation Reference Price Methodology Document should be included. Our recommendation would be for an annual review which could be light touch if it is deemed that there have been no significant changes. We would also like to see provision for suppliers and virtual lead parties to request a review of said document should they feel that it is not correctly capturing the true cost on each party.
NGESO	Yes	The legal text reflects the intent of the modification but as per Q1 we do not believe that the proposed solutions are better than the current baseline.

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Question 3: Do you agree with the Workgroup's recommended Implementation Date?

Summary

Yes	No	Neutral/No Comment	Other
4	7	1	0

Responses

Respondent	Response	Rationale
Dcbel Europe	No	The proposed implementation timeline is way to slow versus the current energy system constraints and fast growing needs for flexibility to facilitate renewable integration. We acknowledge the complexity of evolving Elexon systems to allow for VLPs to enter the wholesale market as well as the time needed for consultation, however we think the current energy crisis requires faster adoption rates to offer new hedging options to end consumers. Energy prices have more than doubled over the last 2 years. Prices are slightly easing for now, only because the winter has been mild in Europe. Significant uncertainty remains on power prices as soon as temperatures drop, while a flexibility resources such as PV with storage or EV Smart charging are installed at exponential rates through residential environments. Various studies have proven that VLP access to wholesale markets – given the right conditions – improves market liquidity and decreases power prices during high peak periods as well as potentially minimize renewable curtailment during system low load periods during the summer. Households and families have been significantly impacted by the doubling of their energy bill while new flexibility revenues are currently not possible which is a very unfair position versus other generation or storage assets trading into the wholesale market. The P415 should therefore be fast-tracked to September 2023 if we want to protect UK consumers from current very high energy prices, taking advantage of this dialog to short cut follow up consultations. Such fast tracking is possible as seen through recent emergency actions taken last winter, for example with P447 (Avoiding impact of Winter Contingency actions on cash-out prices) and

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Respondent	Response	Rationale
		P446 (Domestic Energy Price Guarantee Scheme) that were implemented within weeks of submission. Such urgent action need to be replicated to lowering prices for all with P415 within next winter at the latest.
Ecotricity Ltd	No	Can't see any implementation date – only that the panel considers the WG Assessment report' in April
Sympower	No	It is our understanding that Elexon systems have to be set up to allow for VLPs to enter the wholesale market might take some time, and that the usual consultation process might not allow for a decision to be reached before months. Therefore the proposed implementation date is at the end of 2024. However, these are not usual times. Energy prices have more than doubled over the last 2 years. Prices are slightly easing for now, only because the winter has been mild in Europe. There is still huge uncertainty on power prices for next winter, and if this is to be addressed we need to act now. Various studies have proven that VLP access to wholesale markets – given the right conditions – improves market liquidity and decreases power prices for everyone. Households and families are already struggling to cope with the energy prices current levels, considering the likelihood of prices climbing even further if next winter proves cold, the P415 should be fast-tracked to September 2023 if we want to protect UK consumers from potentially stratospheric prices next winter. We have seen such emergency actions being taken last winter, for example with P447 (Avoiding impact of Winter Contingency actions on cash-out prices) and P446 (Domestic Energy Price Guarantee Scheme) that were implemented within weeks of submission. Such urgent action could be replicated to lowering prices for all with P415.
Senior Research Fellow	No	The original timetable no doubt reflects normal conditions. But the War in Ukraine has created emergency conditions that can be alleviated with DSR. The UK and the EU have taken emergency measures to respond to the crisis, including interventions in markets and efforts to reduce electricity demand, especially at peak, when gas plants are operating.

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Respondent	Response	Rationale
		The current and anticipated conditions call for greater urgency in developing DSR. I would argue for fast-tracking DSR. If this cannot be done through P415, I would recommend an interim emergency measure that would allow DSR in the wholesale market, following the current rules that apply to the balancing market, if necessary with TSO-compensation payment for Supplier losses.
Voltalis UK	No	It is our understanding that Elexon systems have to be set up to allow for VLPs to enter the wholesale market might take some time, and that the usual consultation process might not allow for a decision to be reached before months. Therefore the proposed implementation date is at the end of 2024. However, these are not usual times. Energy prices have more than doubled over the last 2 years. Prices are slightly easing for now, only because the winter has been mild in Europe. There is still huge uncertainty on power prices for next winter, and if this is to be addressed we need to act now. Various studies have proven that VLP access to wholesale markets – given the right conditions – improves market liquidity and decreases power prices for everyone. Households and families are already struggling to cope with the energy prices current levels, considering the likelihood of prices climbing even further if next winter proves cold, the P415 should be fast-tracked to September 2023 if we want to protect UK consumers from potentially stratospheric prices next winter. We have seen such emergency actions being taken last winter, for example with P447 (Avoiding impact of Winter Contingency actions on cash-out prices) and P446 (Domestic Energy Price Guarantee Scheme) that were implemented within weeks of submission. Such urgent action could be replicated to lowering prices for all with P415.
Enel X	Yes	While we would greatly prefer implementation to be sooner, as this will bring benefits sooner, if this is the earliest possible date, then it will have to do.
Equiwatt Limited	No comment	None Provided

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Respondent	Response	Rationale
Flexitricity	Yes	We believe the change should be implemented as soon as is possible, although understand the systems constraints of doing this sooner than November 2024.
OVO	No	No OVO supports the intent of this modification, but significant work is needed to ensure the solution is practical and is delivered in a way that delivers value for consumers. The proposed implementation date is too ambitious for the appropriate work to be completed
ADE	No	While cognisant of the necessary steps to be taken, we believe implementation should move at a faster pace given the level of time and scrutiny this modification has already received and the positive impacts it offers to electricity markets.
EON UK	Yes	We believe that an implementation date of Nov 2024 is suitable (assuming that Ofgem provide a timely decision) to ensure existing systems are updated, new systems and processes developed, and the end-to-end system fully tested before going live.
NGESO	Yes	November 2024 should give sufficient lead time for the modification to be implemented.

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Question 4: Do you agree with the Workgroup's assessment of the impact on the BSC Settlement Risks?

Summary

Yes	No	Neutral/No Comment	Other
4	0	8	0

Responses

Respondent	Response	Rationale
Dcbel Europe	Neutral	None provided
Ecotricity Ltd	Neutral	As long as sub-metering data is timely and accurately submitted, yes
Sympower	Neutral	None provided
Senior Research Fellow	Neutral	None provided
Voltalis UK	Neutral	None provided
Enel X	Yes	We agree that P415 should not meaningfully increase BSC Settlement Risks. It is clear that some parties are disquieted by the use of baseline methodologies. However, (a) this is a P376 issue, not a P415 one, and (b) P376 already contains substantial safeguards, including powers under the Performance Assurance Framework.
Equiwatt Limited	No comment	None Provided
Flexitricity	Yes	We agree that there would be no risk to Settlement. Existing performance assurance techniques are in place to protect Settlement.
OVO	Neutral	Based on the consultation document, it is unclear what the potential BSC settlement risks are and the basis for the workgroup's assessment. We consider the introduction of "deviation volumes" a significant change to settlement processes, and therefore could introduce a range of risks. Also, introduction would be concurrent with changes as a result of P375, P376, and the Market Wide Half Hourly Settlement Programme. In particular:

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Respondent	Response	Rationale
		• The removal of deviation volumes from supplier imbalance positions will need to be validated, and transparently reported on • This is made materially more complex by the fact that metered and settled volumes will no longer be aligned, and there are additional parties involved in any disputes
ADE	Yes	None provided
EON UK	Yes	It is our understanding that P415 risks will be tracked via BSC Settlement Risk 015 'Reference Data' which covers settlement profiling. Increased levels of flexibility are very likely to have an impact on profiling, but with MWHHS this risk will be reduced significantly. Therefore, there may be a small risk that settlement is affected by VLP activity, but it is our belief that it will not be material in the period before MWHHS is fully implemented.
NGESO	Neutral	None provided

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Question 5: Do you agree with the Workgroup's assessment that P415 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC?

Summary

Yes	No	Neutral/No Comment	Other
5	0	7	0

Responses

Respondent	Response	Rationale
Dcbel Europe	Neutral	None provided
Ecotricity Ltd	Neutral	No opinion
Sympower	Neutral	None provided
Senior Research Fellow	Neutral	None provided
Voltalis UK	Neutral	None provided
Enel X	Yes	Quite apart from the simple observation that the proposed text involves changes to clauses mentioned in BSC Annex F-2, the intention of P415 is to make changes which improve EBGL compliance.
Equiwatt Limited	No comment	None Provided
Flexitricity	Yes	We believe P415 better supports the intention of the European Balancing Guidelines and the objectives, in particular objectives (a) fostering effective competition, non-discrimination and transparency in balancing markets; (b) enhancing efficiency of balancing as well as efficiency of European and national balancing markets; (e) ensuring that the procurement of balancing services is fair, objective, transparent and market-based and (f) facilitating the participation of demand response including aggregation facilities.
OVO	Neutral	No response
ADE	Yes	None provided
EON UK	Yes	We agree with the Workgroup assessment that the impacts of P415 to EBGL Article 18 are only positive i.e., fostering effective competition, non-discrimination and transparency in balancing markets and facilitating the participation of demand response including aggregation facilities and energy

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Respondent	Response	Rationale
		storage while ensuring they compete with other balancing services at a level playing field.
NGESO	Yes	The modification impacts EBGL Article 18 so the ESO would agree with this assessment

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Question 6: Do you have any comments on the impact of P415 on the EBGL objectives?

Responses

Respondent	Rationale
Dcbel Europe	None provided
Ecotricity Ltd	No opinion
Sympower	None provided
Senior Research Fellow	None provided
Voltalis UK	None provided
Enel X	The purpose of P415 is to remove discrimination and foster greater competition from demand-side resources – not only in the wholesale market but, as discussed in our response to Q1, with a knock-on benefit in other markets – so it seems obvious that it should substantially benefit objectives (a) and (f).
Equiwatt Limited	None Provided
Flexitricity	P415 is supportive of objectives (a), (b), (e) and (f) of the EBGL as it better integrates small-scale and demand side response capacity into balancing services.
OVO	No response
ADE	We concur with the conclusions of the Workgroup.
EON UK	No
NGESO	No

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Question 7: Will P415 impact your organisation?

Summary

High	Medium	Low	None/No comment
5	1	2	4

Responses

Respondent	Response	Rationale
Dcbel Europe	High	Dcbel is planning to roll out new generation bidirectionnal chargers for EVs as well as as hybrid PV and storage inverters for homes through 2023 which we would like to turn as default flexible assets to our end user to guarantee maximum revenue return to end users. First simulation are demonstrating significant revenue savings up to 1,500GBP per home. As an home energy station providers acting as VLP (though partnerships with flexibility service provider), P415 will allow us to return significant revenues to end users to mitigate the increase of their energy bills while maximizing usage of renewable energy. Provided that the compensation conditions are right, our objective is roll out our technology at scale, benefiting power systems, end consumers, and suppliers who would benefit from lower energy prices. We estimate around 15Million UK houses can potentially be equipped with such equipment, representing an aggregated flexibility worth around 230GW of flexibility (at a marginal cost for the energy systems as return on associated batteries are returned either through PV self consumption economics or EV cost of ownership). If P415 requires to refund suppliers directly from the energy that consumers have saved at a given time through their Home Energy Station (i.e., Compensation 1), we would prefer not to deploy such schemes as the burden of their deployment would not be compensated by sufficient balanced revenue share.
Ecotricity Ltd	Low	Yes however we expect our customers will mostly provide flex responses through us
Sympower	High	YES As a VLP, P415 would allow us to enter the UK power market with significant volumes. Provided that the compensation conditions are right, we

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Respondent	Response	Rationale
		could roll out our technology at scale, benefiting power systems, end consumers, and suppliers who would benefit from lower energy prices. If P415 requires us to refund suppliers directly from the energy that consumers have saved at a given time (i.e., Compensation 1), the business case for Sympower to enter the UK would almost disappear – until better conditions are offered to VLPs
Senior Research Fellow	N/A	None provided
Voltalis UK	High	YES As a VLP, P415 would allow us to enter the power market with significant volumes. Provided that the compensation conditions are right, we could roll out our technology at scale, benefiting power systems, end consumers, and suppliers who would benefit from lower energy prices. If P415 requires us to refund suppliers directly from the energy that consumers have saved at a given time (i.e., Compensation 1), we would have to restrict our level of investment in the UK dramatically – even possibly not operate in any UK market – until better conditions are offered to VLPs.
Enel X	High	Yes. It will involve development and ongoing operational effort by our organisation to integrate wholesale market access into our offering to customers. However, compared to the broader Wider Access reforms (P344/P375/P376), this is a relatively small incremental effort. We will take on this work willingly because we believe that the benefit of accessing this additional value stream will greatly outweigh the costs. This is a value stream that was only previously accessible via the customer's supplier, if the supplier was interested in providing access. Compared to participation in the balancing mechanism alone, wholesale market participation has the advantage that we do not have to depend on the ESO to choose to dispatch our resources: we will be able to respond to wholesale market price signals on our own initiative, without that source of risk. We therefore expect participation to be attractive to existing customers, who will have more opportunities to be rewarded for their flexibility. In addition, we expect it to attract new customers.

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Respondent	Response	Rationale
		Typically, this will not be just for wholesale market participation, but combined with the balancing mechanism, capacity market, and any relevant ancillary services: adding another value stream will lead to more customers judging that the potential benefits outweigh the costs and hassles. There is slightly more work involved in Supplier Compensation Method 1, due to the additional payment stream, but we don't expect this to make a material difference.
Equiwatt Limited	No comment	None Provided
Flexitricity	Medium	P415 is a welcome change as it will enable us to engage in wholesale market trading as a VLP. We will need to set up new processes for trading to complement our existing 24/7 trading desks, and implement new decision making activities.
OVO	-	Confidential answer received
ADE	None	This is not relevant as a trade body.
EON UK	Low	Clearly the introduction of P415 will open our customers to competitors looking to offer them flexibility services. E.ON welcomes more competition into the market on the basis that it will increase customer education and interest in flexible demand thereby increasing the pool of customers to compete over. More competition will also introduce more innovation into this space. In terms of changes to systems and processes, E.ON refers back to our original evaluation we reported for the CBA consultation – that there would need to be system changes and additions and potentially additional FTE to manage this new process. It is our view that Proposal 1 (direct compensation between VLP and supplier) would be easier to implement than proposal 2 or 3 (socialisation of the compensation across all suppliers) on the basis that the data is more verifiable and traceable.
NGESO	None – but High Market Impact	Implementation of the P415 solution will allow VLPs the option of direct access to the wholesale market which may encourage larger volumes of participation. We are supportive of greater competition and participation to help drive the most optimal cost for consumers. We consider that increased VLP participation should encourage more efficient use of the system, as well as reducing

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Respondent	Response	Rationale
		barriers to entry and widening of the market, which in turn will enable additional volumes of demand flexibility. However, as currently defined, this modification would not require VLPs to provide data to ESO or their supplier. Without having transparency of data there would be a risk to real time operation of the system. This would result in the need to procure additional reserve capacity to mitigate the increased uncertainty. This will significantly increase costs and offset the potential benefits of the solution. This runs contrary to the investments in Forecasting that were made in BP1 and continue to be made in BP2 and is to the detriment of the end consumer..

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Question 8: How much will it cost your organisation to implement P415?

Summary

High	Medium	Low	None
3	4	1	3

Responses

Respondent	Response	Rationale
Dcbel Europe	High/Med	As a VLP, costs are heavily dependent on the compensation methodology applied. We are confident associated infrastructure return could be balanced if compensation 2 or 3 were to be chosen. The experience on other markets such as US however shows the compensation 1 does not offer sufficient revenue to scale up associated VLP infrastructures.
Ecotricity Ltd	Unsure	No idea – we haven't looked into it in enough detail yet to provide a meaningful number.
Sympower	High/Med	As a VLP, costs are heavily dependent on the compensation methodology applied. If compensation 2 or 3 were to be chosen, most of the cost will be borne by the rollout of our technology. If compensation 1 were to be chosen, we would have to pay direct, full compensation to suppliers on top of rollout and operating costs, plus power market products stacking costs. This would prevent aggregators from rolling our technologies at scale, and therefore would prevent most of us from entering the market.
Senior Research Fellow	N/A	None provided
Voltalis UK	High/Med	As a VLP, costs are heavily dependent on the compensation methodology applied. If compensation 2 or 3 were to be chosen, most of the cost will be borne by the rollout of our technology. If compensation 1 were to be chosen, we would have to pay direct, full compensation to suppliers on top of rollout and operating costs, plus power market products stacking costs. This would prevent domestic aggregators from rolling our technologies at scale, and therefore would prevent most of us from entering the market.

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Respondent	Response	Rationale
Enel X	Low	We do not have a formal estimate. As mentioned in our response to Q7, Wider Access in general (P344/P375/P376) has required a lot of implementation effort. P415 is a relatively small incremental change. We are confident that the benefits (to us, ignoring for now the wider benefits to all consumers) will substantially outweigh our implementation costs. The relationship to the BSC Systems Release schedule makes no difference to us.
Equiwatt Limited	No comment	None Provided
Flexitricity	None	NA – we believe the change will have a net positive impact, so cost are negative.
OVO	-	Confidential answer received
ADE	None	As per question 7.
EON UK	Medium - £100k-£500k	We refer to our consultation response to the CBA that stated that we would expect to incur some costs on the basis that we will have to develop systems to monitor and validate charges and revenues. Depending on the number of supply customers that we have taking part via the P415 route to market, these systems should be incorporated into our BAU core systems, the cost of which will run into a few hundreds of thousands of pounds and will take several months to implement.
NGESO	None	No cost impact anticipated

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Question 9: What will the ongoing cost of P415 be to your organisation?

Summary

High	Medium	Low	None	Other/NA
0	0	5	2	4

Responses

Respondent	Response	Rationale
Dcbel Europe	Low	We have assessed the costs of implementing P415 to be bearable (and associated risks worth taking) if the solution chosen for P415 does not create a barrier to independent VLPs).
Ecotricity Ltd	Unsure	No idea – we haven't looked into it in enough detail yet to provide a meaningful number.
Sympower	Low	The ongoing cost of P415 has already been communicated to CEPA for its work on behalf of Elexon. We have assessed the costs of implementing P415 to be negligible if the solution chosen for P415 does not create a barrier to independent VLPs.
Senior Research Fellow	N/A	None provided
Voltalis UK	Low	The ongoing cost of P415 has already been communicated to CEPA for its work on behalf of Elexon. We have assessed the costs of implementing P415 to be negligible if the solution chosen for P415 does not create a barrier to independent VLPs.
Enel X	Low	There's very little incremental operational overhead specifically caused by P415. There is, however, a knock-on effect: carrying out wholesale market trades involves trading fees and some changes to our risk management functions, which do have ongoing costs. Again, we are confident that our private benefits will outweigh these costs, so we are not concerned about them.
Equiwatt Limited	No comment	None Provided
Flexitricity	N/A	We expect to have ongoing FTE to support wholesale trading and operational activities. This will be spread across a number of teams and support existing functions.

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Respondent	Response	Rationale
OVO	-	Confidential answer received
ADE	None	As per question 7.
EON UK	Low - £50-£100k	Again, we refer to our consultation response to the CBA that stated that in order to maintain the data and operational efficiency of any system changes, there will be an FTE impact. We have estimated this to be of the order an additional 1FTE p.a.
NGESO	None	No direct ongoing cost impact anticipated, but we anticipate market costs to be impacted. Please see answer to Q12-15 for our views on cost/forecast uncertainty.

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Question 10: How long (from the point of approval) would you need to implement P415?

Responses

Respondent	Response	Rationale
Dcbel Europe	A few months	Dcbel has developped a flexible cloud based real-time transaction based platform leveraging open standards such as OpenADR and IEEE2030-5 and integrating with strategic commercial aggregator partner environments (including partners preparing to become VLP in the Uk system). This approach will allow to be able to deploy as soon as the new regulation is in place and first Home energy stations are deployed through the Uk. Because it relies on the P375 and P376, and the VLP/AMVLP roles are already defined by Elexon, the implementation of P415 can be done quickly once it is approved. We therefore are confident to be able to enter markets within a few months if a business model supports a market entry.
Ecotricity Ltd	12 Months	None provided
Sympower	Quickly following approval	Because it relies on the P375 and P376, and the VLP/AMVLP roles are already defined by Elexon, the implementation of P415 can be done quickly once it is approved.
Senior Research Fellow	N/A	None provided
Voltalis UK	A few months	Because it relies on the P375 and P376, and the VLP/AMVLP roles are already defined by Elexon, the implementation of P415 can be done quickly once it is approved. We can enter markets within a few months if a business model supports a market entry.
Enel X	4 months	We believe we can be ready in 4 months if necessary.
Equiwatt Limited	None provided	None Provided
Flexitricity	None provided	We support implementation of this change as quick as possible.
OVO	None provided	The current proposal is incomplete – it is hard to estimate lead times when fundamental questions remain unanswered, as much of the implementation will require commercial and risk modelling

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Respondent	Response	Rationale
ADE	None	As per question 7.
EON UK	Several Months	See response to Q8
NGESO	None provided	We believe the suggested lead time should be sufficient

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Question 11: Do you support Supplier Compensation Method 1 under P415?

Summary

Yes	No	Neutral/No Comment	Other
5	5	1	0

Responses

Respondent	Response	Rationale
Dcbel Europe	No	No. The Method 1 proposal is to implement a scheme to explicitly compensate suppliers involved in DR activations for any loss of opportunities they may occur. While the rationale for this compensation is legitimate, it is unfair to treat it while ignoring all other Socio economic welfare benefits which are besides captured by suppliers, thanks to DR activations, namely significant supply costs reduction. Method 1 creates windfall profits for suppliers, capturing benefits without sharing any costs DR are usually activated when the electric system is "short", and prices are high. If BRP perimeters are not corrected, the activated BRP is automatically compensated for its loss of opportunity by the imbalance settlement process, at a greater price than expected. If perimeters are corrected, the BRP is deprived from this revenue, and could be compensated by Elexon, which would in turn recover its cost from market stakeholders. The European Clean Energy Package does not state that this compensation should be paid by VLPs only; on the contrary, it forbids any compensation scheme to create market entry barriers for DR, hence recommends sharing the burden. Ignoring benefits induced by DR and setting compensation level inappropriately will prevent from any significant development of DR assets in the UK.. The French example is very illustrative in this regard: • • no benefit is taken into account, only suppliers' loss of opportunity. • • compensation is due in full by aggregators, and indexed on market prices, which is equivalent to arbitrary forcing a market-based cost to zero-marginal-cost assets, which are supposed to capture their revenue from the market! • • No significant revenue can derive from such a framework, the market subsequently contracted and only a few aggregators remain active in the markets;

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Respondent	Response	Rationale
		• • Because the markets are failing, the rollout of flexibility is subsidized by the state (via capacity market products specific to demand turn-down), but utilization is still subject to market conditions – and remains low. As a matter of fact most successful US markets when it comes to DR participation (as recognized by FERC) have opted for a net benefit approach as considered through method 3. This 'Compensation 1 scenario' - where VLPs bears all the compensation costs despite delivering the benefits - has been addressed by the Clean Energy Package, which states that compensation must not create a barrier to entry for Aggregator to participate in the wholesale market: "compensation shall not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility." (Directive Art 17-4) This position was confirmed in August 2021 by the European Commission's opinion on the proposed French reform plan. Over the last year, the REPowerEU plan has also pushed towards enabling demand response and demand reduction. European countries – such as Luxembourg – are starting to answer this call. CEPA doesn't model how much of these savings would be passed on to customers The CBA also acknowledges (pp. 8 & 44) that in compensation 1 VLPs' net revenues from the wholesale markets may not be enough to justify investment; VLPs would have to stack revenues across a wide range of market products to have a business case to invest – noting that the CBA didn't evaluate such revenues, just assumed that stackability may lead to enough revenue to justify investment. In effect, Compensation method 1 incentivises flexibility providers not to go down the VLP route, and therefore for suppliers to internalise flexibility (business as usual). Compensation 1 will therefore lead to much lower volumes being deployed. Compensation 1 will also decrease liquidity in the markets; and push up energy prices, which is not quantified in CEPA's assessment, as the CBA assumes that flexibility reaches the same level, whether or not it is marketed. In practice, we see in many countries that only granting extensive access to markets for behind-the-meter flexibility will create competition and liquidity in

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Respondent	Response	Rationale
		the markets, and drive energy costs down (the same is also true for congestion management markets as a next step). The UK has an opportunity not to replicate the errors that other countries have made and favour the rollout of flexibility wherever it can be found. This can only happen in compensation 2 and 3 scenarios.
Ecotricity Ltd	Yes	Yes - Very much support Supplier Comp 1: mutualising a benefit to the VLP across others seems illogical, and the proposer acknowledges this
Sympower	No	No. The Method 1 proposal is to implement a scheme to explicitly compensate suppliers involved in DR activations for any loss of opportunities they may occur. While the rationale for this compensation is legitimate, it is unfair to treat it while ignoring all benefits which are besides captured by suppliers, thanks to DR activations, namely significant supply costs reduction. Method 1 creates windfall profits for suppliers, capturing benefits without sharing any costs It is to be noted that DR will usually be activated when the electric system is "short", and prices are high. If BRP perimeters are not corrected, the activated BRP is automatically compensated for its loss of opportunity by the imbalance settlement process, at a greater price than expected. If perimeters are corrected, the BRP is deprived from this revenue, and could be compensated by Elexon, which would in turn recover its cost from market stakeholders. The European Clean Energy Package does not state that this compensation should be paid by VLPs only; on the contrary, it forbids any compensation scheme to create market entry barriers for DR, hence recommends sharing the burden. Ignoring benefits induced by DR and setting compensation level inappropriately will prevent from any significant development of DR assets in the UK. Such a dramatic outcome, considering the extensive regulatory effort already carried out both at European and UK level, cannot be an option. This 'Compensation 1 scenario' - where VLPs bears all the compensation costs despite delivering the benefits - has been addressed by the Clean Energy Package, which states that compensation must not create a barrier to entry for Aggregator to participate in the wholesale market: "compensation shall not create a barrier to market entry for market

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Respondent	Response	Rationale
		participants engaged in aggregation or a barrier to flexibility." (Directive Art 17-4) This position was confirmed in August 2021 by the European Commission's opinion on the proposed French reform plan. Over the last year, the REPowerEU plan has also pushed towards enabling demand response and demand reduction. European countries – such as Luxembourg – are starting to answer this call. CEPA doesn't model how much of these savings would be passed on to customers. The CBA also acknowledges (pp. 8 & 44) that in compensation 1 VLPs' net revenues from the wholesale markets may not be enough to justify investment; VLPs would have to stack revenues across a wide range of market products to have a business case to invest – noting that the CBA didn't evaluate such revenues, just assumed that stackability may lead to enough revenue to justify investment. In effect, Compensation method 1 incentivises flexibility providers not to go down the VLP route, and therefore for suppliers to internalise flexibility (business as usual). ToUTs have been around for many years, yet a majority of consumers don't choose them. Compensation 1 will therefore lead to much lower volumes being deployed. Compensation 1 will also decrease liquidity in the markets; and push up energy prices, which is not quantified in CEPA's assessment, as the CBA assumes that flexibility reaches the same level, whether or not it is marketed. In practice, we see in many countries that only granting extensive access to markets for behind-the-meter flexibility will create competition and liquidity in the markets, and drive energy costs down. The UK has an opportunity not to replicate the errors that other countries have made and favour the rollout of flexibility wherever it can be found. This can only happen in compensation 2 and 3 scenarios.
Senior Research Fellow	No	No. As explained above, I do not support any compensation to Suppliers for the potential losses

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Respondent	Response	Rationale
		they may incur due to DSR activations. However, if compensation to Suppliers must be paid, it should do the least damage possible to the development of DSR. By obliging the VLP to compensate suppliers, Method 1 will discourage investment in DSR by independent aggregators. Without competition from independent aggregators, Suppliers will have very little incentive to stimulate DSR. In those conditions, it is very unlikely that consumers – especially small ones - will be able to participate in wholesale electricity markets in a meaningful way. Without that consumer participation, the electricity system will have missed a significant opportunity to reduce central system investment costs in the flexibility needed to manage the intermittency of renewables and ensure security of supply. Furthermore, DSR not only helps to reduce system costs, thereby benefiting all consumers. It also generates revenues or lowers costs for the individual providers of DSR through digitalized electrical equipment whose use can be time-shifted (e.g. EV smart charging). In doing so, facilitating DSR makes electrification more attractive, thereby speeding up the process of replacing oil and gas in end markets. In short: Method 1 discourages DSR, thereby raising the costs of the electricity system and the transition, slowing the process of electrification, and undermining the potential for consumers to benefit from actively participating in markets.
Voltalis UK	No	No. The Method 1 proposal is to implement a scheme to explicitly compensate suppliers involved in DR activations for any loss of opportunities they may occur. While the rationale for this compensation is legitimate, it is unfair to treat it while ignoring all benefits which are besides captured by suppliers, thanks to DR activations, namely significant supply costs reduction. Method 1 creates windfall profits for suppliers, capturing benefits without sharing any costs It is to be noted that DR will usually be activated when the electric system is "short", and prices are high. If BRP perimeters are not corrected, the activated BRP is automatically compensated for its

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Respondent	Response	Rationale
		loss of opportunity by the imbalance settlement process, at a greater price than expected. If perimeters are corrected, the BRP is deprived from this revenue, and could be compensated by Elexon, which would in turn recover its cost from market stakeholders. The European Clean Energy Package does not state that this compensation should be paid by VLPs only; on the contrary, it forbids any compensation scheme to create market entry barriers for DR, hence recommends sharing the burden. Ignoring benefits induced by DR and setting compensation level inappropriately will prevent from any significant development of DR assets in the UK. Such a dramatic outcome, considering the extensive regulatory effort already carried out both at European and UK level, cannot be an option. The French example is very illustrative in this regard: • no benefit is taken into account, only suppliers' loss of opportunity. • compensation is due in full by aggregators, and indexed on market prices, which is equivalent to arbitrary forcing a market-based cost to zero-marginal-cost assets, which are supposed to capture their revenue from… the market! • No significant revenue can derive from such a framework, the market subsequently contracted and only a few aggregators remain active in the markets; • Because the markets are failing, the rollout of flexibility is subsidized by the state (via capacity market products specific to demand turn-down), but utilization is still subject to market conditions – and remains low. This 'Compensation 1 scenario' - where VLPs bears all the compensation costs despite delivering the benefits - has been addressed by the Clean Energy Package, which states that compensation must not create a barrier to entry for Aggregator to participate in the wholesale market: "compensation shall not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility." (Directive Art 17-4)

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Respondent	Response	Rationale
		This position was confirmed in August 2021 by the European Commission's opinion on the proposed French reform plan. Over the last year, the REPowerEU plan has also pushed towards enabling demand response and demand reduction. European countries – such as Luxembourg – are starting to answer this call. CEPA doesn't model how much of these savings would be passed on to customers The CBA also acknowledges (pp. 8 & 44) that in compensation 1 VLPs' net revenues from the wholesale markets may not be enough to justify investment; VLPs would have to stack revenues across a wide range of market products to have a business case to invest – noting that the CBA didn't evaluate such revenues, just assumed that stackability may lead to enough revenue to justify investment. In effect, Compensation method 1 incentivises flexibility providers not to go down the VLP route, and therefore for suppliers to internalise flexibility (business as usual). ToUTs have been around for many years, yet a majority of consumers don't choose them. Compensation 1 will therefore lead to much lower volumes being deployed. Compensation 1 will also decrease liquidity in the markets; and push up energy prices, which is not quantified in CEPA's assessment, as the CBA assumes that flexibility reaches the same level, whether or not it is marketed. In practice, we see in many countries that only granting extensive access to markets for behind-the-meter flexibility will create competition and liquidity in the markets, and drive energy costs down. The UK has an opportunity not to replicate the errors that other countries have made and favour the rollout of flexibility wherever it can be found. This can only happen in compensation 2 and 3 scenarios.
Enel X	Yes	Yes. This is our preferred approach. It is quite simple, gives appropriate economic signals to all parties, avoids suppliers being left out of pocket, and ensures that each MWh is only paid for once.
Equiwatt Limited	No comment	None Provided

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Respondent	Response	Rationale
Flexitricity	Yes	Yes we support Supplier Compensation Method as it is fair for the VLP to bear the cost of compensation.
OVO	-	Confidential answer received
ADE	Yes	Although less favourable to VLPs under the CBA, given the in-depth discussions had by the Workgroup, we believe option 1 presents the best methodology for supplier compensation and best aligns with the BSC objectives.
EON UK	Yes	With the caveat outlined in our response to Question 11, we support Supplier Compensation Method 1 (direct compensation between VLP and supplier)
NGESO	No	No. Financial compensation should not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility. In open and competitive markets, suppliers and independent aggregators should be encouraged to compete against each other in mobilising demand response from a consumer. Given the possibility to trade in intraday markets and to anticipate and forecast consumers' consumption, it is not clear why any compensation should be paid and a fourth option of 'no compensation' could be considered. A multi-settlement market under centralised dispatch – as considered under REMA – may help address the issue It should be noted that while EU Electricity Directive 2019/944 permits compensation to be paid under certain circumstances, the first draft of the Directive forbade the payment of compensation from aggregators to suppliers. It should also be noted that in the US, FERC rejected the payment of compensation, which was originally proposed by the Electricity Power Supply Association (EPSA), based on wholesale price minus retail price of unused energy. FERC instead introduced a net-benefit test to ensure that a demand response provider will only receive full market value if there is an overall benefit to consumers (see FERC Order 745). It should be noted that as compensation 2 lowers the variable cost for VLPs when delivering flexibility, the CBA observes more flexibility deployment and larger total welfare benefits. Allocating costs to VLPs – as under option 1 - clearly creates a barrier to a VLP's ability to mobilise demand response for the benefit of all consumers.

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Question 12: Do you support Supplier Compensation Method 2 under P415?

Summary

Yes	No	Neutral/No Comment	Other
4	6	1	0

Responses

Respondent	Response	Rationale
Dcbel Europe	Yes	Yes. Compensation 2 is based on the 'Net Benefit', which means that while all suppliers benefit from DR participating in the market, and thus reducing their sourcing costs, all suppliers should also bear their fair share of the costs, so that the net benefits are fairly shared among all suppliers, and ultimately among all consumers. This is by far preferable to having costs borne only by some suppliers (those with consumers participating to DR); or, worst of all, charged to DR (as suggested in compensation 1) which would mean hampering DR and depriving all consumers of the net benefits of DR. This 'net benefit' approach was initially defined by FERC in the US. The FERC's established net benefit as a principle for integrating Demand Response into the market, given that it ensures consumers benefit from DR (all consumers, even those who do not participate), because all suppliers see their soucing costs reduced more than it costs them to buy DR; and the Supreme Court of the United States validated the fact that the FERC relies on such a principle reflecting benefits for all consumers;. The EU experienced similar discussions. Several studies on the quantification of benefits in Europe have been run, among which a recent one by CompassLexecon was referred to by the European Commission in its September communication on emergency measures to reduce electricity prices. The European legislation allows Member States to take these benefits into account and, whatever system they adopt, makes it mandatory not to create a barrier to DR even if they decide retailers should be compensated. The article 17.4 of the clean energy package is very specific:

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Respondent	Response	Rationale
		"Member States may require electricity undertakings or participating final customers to pay financial compensation to other market participants or to the market participants' balance responsible parties, if those market participants or balance responsible parties are directly affected by demand response activation. Such financial compensation shall not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility." Compensation method 2 addresses both the FERC's Net Benefit principle and the CEP's requirement not to create barriers to aggregation: it mutualises the compensation amongst energy undertaking while reflecting the real price of energy at the time it is used – the spot price – I.e. the price suppliers would have been paid if, in the absence of correction, they would have sold their surplus in the market.
Ecotricity Ltd	No	No – there is no reason to mutualise these costs which arise out of a benefit to the VLP
Sympower	Yes	Yes. Compensation 2 is based on the 'Net Benefit', which means that while all suppliers benefit from DR participating in the market, and thus reducing their sourcing costs, all suppliers should also bear their fair share of the costs, so that the net benefits are fairly shared among all suppliers, and ultimately among all consumers. This is by far preferable to having costs borne only by some suppliers (those with consumers participating to DR); or, worst of all, charged to DR (as suggested in compensation 1) which would mean hampering DR and depriving all consumers of the net benefits of DR. This 'net benefit' approach was initially defined by FERC in the US. The FERC's established net benefit as a principle for integrating Demand Response into the market, given that it ensures consumers benefit from DR (all consumers, even those who do not participate), because all suppliers see their soucing costs reduced more than it costs them to buy DR; and the Supreme Court of the United States validated the fact that the FERC relies on such a principle reflecting benefits for all consumers;..

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Respondent	Response	Rationale
		The EU experienced similar discussions. Several studies on the quantification of benefits in Europe have been run, among which a recent one by CompassLexecon was referred to by the European Commission in its September communication on emergency measures to reduce electricity prices. The European legislation allows Member States to take these benefits into account and, whatever system they adopt, makes it mandatory not to create a barrier to DR even if they decide retailers should be compensated. The article 17.4 of the clean energy package is very specific: "Member States may require electricity undertakings or participating final customers to pay financial compensation to other market participants or to the market participants' balance responsible parties, if those market participants or balance responsible parties are directly affected by demand response activation. Such financial compensation shall not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility." Compensation method 2 addresses both the FERC's Net Benefit principle and the CEP's requirement not to create barriers to aggregation: it mutualises the compensation amongst energy undertaking while reflecting the real price of energy at the time it is used – the spot price – I.e. the price suppliers would have been paid if,
Senior Research Fellow	Yes	YES. As mentioned above, while I do not favour any compensation to Suppliers, I recognize that some compensation must be paid if VLPs are to be allowed to participate in the wholesale market. Method 2 is superior to Method 1 because it mutualizes the costs of compensation among the parties that benefit from it, does not penalize the VLP whose aim is to promote DSR, and thereby encourages DSR. By supporting DSR and enabling consumers to actively participate in the wholesale market, Method 2 contributes to the development of competitive demand-side alternatives to central system (supply side) assets in the wholesale market. These benefits are shared by all consumers immediately through lower prices (assuming Suppliers pass on the lower

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Respondent	Response	Rationale
		system costs). Furthermore, this Method benefits all consumers over the longer term to the extent that DSR can reduce the need for more expensive central system investments. And it supports an accelerated energy transition to the extent that it promotes electrification. Finally, by supporting DSR, it directly benefits the consumers that actively provide flexible demand. In short, Method 2 is better than Method 1 because it supports DSR, which in turn reduces the system electricity costs in the short and longer term, accelerates electrification, and offers consumers the opportunity to participate in and benefit from the energy transition, thereby strengthening political support for that transition.
Voltalis UK	Yes	Yes. Compensation 2 is based on the 'Net Benefit', which means that while all suppliers benefit from DR participating in the market, and thus reducing their sourcing costs, all suppliers should also bear their fair share of the costs, so that the net benefits are fairly shared among all suppliers, and ultimately among all consumers. This is by far preferable to having costs borne only by some suppliers (those with consumers participating to DR); or, worst of all, charged to DR (as suggested in compensation 1) which would mean hampering DR and depriving all consumers of the net benefits of DR. This 'net benefit' approach was initially defined by FERC in the US. The FERC's established net benefit as a principle for integrating Demand Response into the market, given that it ensures consumers benefit from DR (all consumers, even those who do not participate), because all suppliers see their soucing costs reduced more than it costs them to buy DR; and the Supreme Court of the United States validated the fact that the FERC relies on such a principle reflecting benefits for all consumers;.. The EU experienced similar discussions. Several studies on the quantification of benefits in Europe have been run, among which a recent one by CompassLexecon was referred to by the European Commission in its September communication on emergency measures to reduce electricity prices. The European legislation allows Member States to take these benefits into account and, whatever

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Respondent	Response	Rationale
		system they adopt, makes it mandatory not to create a barrier to DR even if they decide retailers should be compensated. The article 17.4 of the clean energy package is very specific: "Member States may require electricity undertakings or participating final customers to pay financial compensation to other market participants or to the market participants' balance responsible parties, if those market participants or balance responsible parties are directly affected by demand response activation. Such financial compensation shall not create a barrier to market entry for market participants engaged in aggregation or a barrier to flexibility." Compensation method 2 addresses both the FERC's Net Benefit principle and the CEP's requirement not to create barriers to aggregation: it mutualises the compensation amongst energy undertaking while reflecting the real price of energy at the time it is used – the spot price – I.e. the price suppliers would have been paid if, in the absence of correction, they would have sold their surplus in the market.
Enel X	No	No. While there may be some benefit to socialising the cost of the compensation payment (as discussed in our response to Q14), it makes absolutely no sense to over-compensate the supplier in this way. As discussed in our response to Q16, it introduces a gaming risk. Moreover, it's simply illogical and inconsistent with the design of the market. Under P344, the supplier's balancing position is corrected to remove the effect of any VLP's actions. Otherwise, the supplier would be exposed to cash-out prices for the affected volumes. The principle underlying this is that the supplier should neither benefit nor suffer due to the VLP's actions: they should be indifferent. Paying them an estimate of their sourcing cost (as in Methods 1 and 3) achieves this: they do not get to supply the MWh they expected, but they're made whole by the compensation payment. Paying them the retail price would have a similar effect.

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Respondent	Response	Rationale
		Paying the supplier the spot price violates this principle. In fact, it undermines the purpose of correcting the supplier's balancing position. When the VLP dispatches the customer, the supplier would unexpectedly find themselves exposed to the spot price. Since dispatches will tend to happen at times of high spot prices, this means the supplier would typically have a windfall gain. While it may be appealing to suppliers to occasionally receive such windfalls, there's no economic justification for doing so, especially as these unnecessary and unpredictable windfalls would be funded via a levy.
Equiwatt Limited	No comment	None Provided
Flexitricity	No	No, we do not support Supplier Compensation Method 2 because of the potential for distortion, gaming and increased costs for consumers. Under Compensation Method 2 there is a risk that Suppliers would be able to get an advantage from VLP actions. Further, the spreading of the costs across all customers
OVO	-	Confidential answer received
ADE	No	No. We do not believe it is the most efficient calculation of supplier costs and are not wholly convinced by the arguments for socialisation. We are also concerned by the highlighted gaming risks.
EON UK	No	We do not support Supplier Compensation Method 2 (socialisation of compensation amongst all suppliers) on the basis that the benefit that suppliers who are not involved directly cannot be quantified easily. The premise of Method 2 is that all suppliers will benefit from the VLP action due to its impact on the wholesale price. However, we believe that there are circumstances where a VLP can act (and therefore generate cost to the industry) without impacting the wholesale price. For example, if an OCGT is setting the spot price by generating 90MW and a VLP acts to reduce demand by 50MW, this will mean that the OCGT is still setting the marginal cost and therefore wholesale prices will be unaffected. We acknowledge that if there is sufficient scale of DSR then these circumstances should not be common and that the inability of DSR to impact the wholesale price is likely to be less at high prices (where smaller peaking plant run), but despite this, we feel that Supplier Compensation

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Respondent	Response	Rationale
		Method 1 is the better option as it does not rely on this assumption of an effect on the wholesale price.
NGESO	No	No – same reasoning in response to Q12 regarding challenge to justification for compensation and fourth option for no compensation. In addition, EU Electricity Directive 2019/944 (Article 17(4)) provides guidance that compensation should be "strictly limited to covering the resulting costs incurred by the suppliers of participating customers or the suppliers' balance responsible parties during the activation of demand response." Compensation based on the spot price would not align with this guidance. It is noted that more load shifting is mobilised under this option (2) compared to option 1 (according to the CBA) and that total welfare benefits scale with the deployment of additional flexibility. It can be assumed then that option 3 - based on socialisation of costs and lower costs due to average sourcing costs and not the spot price - would mobilise even more flexibility and total welfare benefit.

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Question 13: Do you support Supplier Compensation Method 3 under P415?

Summary

Yes	No	Neutral/No Comment	Other
4	3	3	1

Responses

Respondent	Response	Rationale
Dcbel Europe	Yes	Yes. The compensation Method 3 under P415 is an alteration of compensation 2, where compensation is mutualised, and the amount of compensation based on a calculated long-term average. On a VLP point of view, a mutualised compensation amongst electricity undertakings allows investors to commit to the rollout of flexibility based on a robust business case, where revenues are gained from the markets. We therefore agree with method 3. We however highlight that a level of compensation based on long-term average tends to favour larger energy companies, that rely on long-term, secure contracts – to the detriment of smaller suppliers, more heavily dependent on wholesale prices. This is all the more unfortunate as smaller suppliers could be amongst the first to develop innovative DSR propositions for their customers. The Compensation 3 method would impact them negatively even though this compensation method should be neutral to them.
Ecotricity Ltd	No	No – there is no reason to mutualise these costs which arise out of a benefit to the VLP
Sympower	Yes	Yes. The compensation Method 3 under P415 is an alteration of compensation 2, where compensation is mutualised, and the amount of compensation based on a calculated long-term average. On a VLP point of view, a mutualised compensation amongst electricity undertakings allows investors to commit to the rollout of flexibility based on a robust business case, where revenues are gained from the markets. We therefore agree with method 3.

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Respondent	Response	Rationale
		We however highlight that a level of compensation based on long-term average tends to favour larger energy companies, that rely on long-term, secure contracts – to the detriment of smaller suppliers, more heavily dependent on wholesale prices. This is all the more unfortunate as smaller suppliers could be amongst the first to develop innovative DSR propositions for their customers. The Compensation 3 method would impact them negatively even though this compensation method should be neutral to them.
Senior Research Fellow	Yes	Yes. Compensation Model 3 is a version of Compensation Model 2. It involves a mutualisation of the compensation to the Supplier, rather than compensation paid by the VLP responsible for activating DSR (Model 1). Under Model 3, the price used for compensation would be based on long run average energy contracting costs, whereas under Model 2, the compensation would be based on spot prices. There are arguments for and against Models 2 and 3, but I do not have a strong preference for either. I do, however, have a strong preference for the recommendation to include at least one alternative to Model 1.
Voltalis UK	Yes	Yes. The compensation Method 3 under P415 is an alteration of compensation 2, where compensation is mutualised, and the amount of compensation based on a calculated long-term average. On a VLP point of view, a mutualised compensation amongst electricity undertakings allows investors to commit to the rollout of flexibility based on a robust business case, where revenues are gained from the markets. We therefore agree with method 3. We however highlight that a level of compensation based on long-term average tends to favour larger energy companies, that rely on long-term, secure contracts – to the detriment of smaller suppliers, more heavily dependent on wholesale prices.

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Respondent	Response	Rationale
		This is all the more unfortunate as smaller suppliers could be amongst the first to develop innovative DSR propositions for their customers. The Compensation 3 method would impact them negatively even though this compensation method should be neutral to them.
Enel X	Neutral	This is not our preferred approach. As with Method 2, it involves a levy, and could also be argued to over-incentivise the provision of demand response at times when prices are too low for there to be economic benefits. However, unlike Method 2, it does not egregiously over-compensate suppliers, so the levy costs will be smaller. If there is a stable consensus that the benefits from the additional participation that could be unlocked by this approach are sure to outweigh the additional costs of the levy, then this approach could be viable.
Equiwatt Limited	No comment	None Provided
Flexitricity	No	No we do not support compensation methods that spread the cost of compensation across all consumers.
OVO	-	Confidential answer received
ADE	No comment	We do not have a view on Method 3 but note that if it demands further analysis/consultation to be brought forward in a modification we would not support the coinciding delays this would cause.
EON UK	No	We do not support Supplier Compensation Method 3 for the same reasons we have stated in Question 13
NGESO	Other	Same reasoning in response to Q12 regarding challenge to justification for compensation, and fourth option for no compensation. Of all options, this third option seems the most preferable as the costs to the aggregator would be minimised, therefore maximising the opportunity for demand response to bring benefits to all consumers. Socialising costs across suppliers may involve a transfer from those that can provide flexibility to those who cannot (especially in the early phase of the decarbonisation transition) but the latter will benefit from reduced inframarginal rent among other benefits like reduced investment in generation infrastructure. It is crucial that the wider benefits of demand response are considered. What matters, as

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Respondent	Response	Rationale
		concluded by FERC, is that there is an overall net benefit for consumers.

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Question 14: Do you have a preference for Supplier Compensation Method 1, 2 or 3?

Summary

1	2	3	Other/No comment
5	4	1	1

Responses

Respondent	Response	Rationale
Dcbel Europe	2	In its CBA, CEPA considers that most of the benefits from demand-side response will be provided by current undertakings, i.e. that consumers will pay for the rollout of automation To unlock this flexibility, automation is essential to maintain flexibility over times and make it transparent to end users who ultimately should only opt for comfort or specific DER usage profiles. Aside from punctual trials -consumers do not have the time to manually switch appliances off or check dynamic prices. Electrical appliances need therefore to be smart connected and enable easy app based consumer interactions. Consumers also want to be able to opt for different tariff options depending on their risk appetite and the flexibility of their submetered DER loads. They want to be able to combine different tariffs and flexibility option over their different consumption points (hence the particular importance to link P415 with P375 next deployments). And because the value of flexibility at residential level is composed of a large number of micro transactions, achieving significant flexibility savings requires the continuous real-time participation of appliances and so requires automation at consumer level. On the contrary the setting up of a proper regulation at wholesale level such as P415 can potentially draw more significant aggregated value which can be invested through the rollout of necessary automation infrastructures. We challenge the fact compensation method 1 will provide sufficient revenue return to establish necessary automation; the 'law of diminishing returns' used by CEPA to calculate the benefits of VLP intervention is grossly under-estimated as it pushes VLP action as the last lever of flexibility,

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Respondent	Response	Rationale
		rather than the initiator of flexibility at scale as witnessed in many countries. Moreover, the CBA delivered by CEPA understates the amount of flexibility that can be delivered depending on the chosen compensation method; it assumes that the compensation method will mostly affect utilization rather than rollout. However, in the real world, DSR automation is only delivered when markets allow for robust business models to justify the investment. To roll out DSR capability, the UK can therefore: - Use the compensation 1 model, which leads to market failure, a rollout of DSR automation via state subsidy, and low utilization (the French model). - Use a mutualized compensation (compensation 2 & 3), which will deliver demand response at large scale through the markets. Given that the options offered in the consultation are only for compensated models, our preference will be for compensation 2, as it reflect the price of energy at the time that it is used, and does not discriminate against smaller energy suppliers (more dependent on short-term energy prices).
Ecotricity Ltd	1	1 – see above
Sympower	2	In its CBA, CEPA considers that most of the benefits from demand-side response will be provided by current undertakings, i.e. that consumers will pay for the rollout of automation. To unlock this flexibility, we need automation, because - aside from punctual trials - consumers do not have the time to physically switch appliances off when the systems need it in the long term. Electrical appliances need therefore to be smart and connected. Consumers also want to be sheltered from swings in energy prices, as they see energy as a commodity. Only a third of consumers opt for a time-of-use tariff (ToUT) when given the choice, and the low take up of ToUTs amongst EV owners in the UK highlights that consumers are not willing to bear power prices risks. And because the value of flexibility is not significant at individual level, consumers will not invest in the necessary technology. However the value of flexibility is huge at aggregated level; this is why

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Respondent	Response	Rationale
		aggregators can invest in the rollout of the technology, provided that the market conditions are right, so that DSR is rewarded with a part of the value created for all. Indeed, the rollout of DSR is borne by aggregators throughout the world. It is therefore ludicrous to think that aggregators/VLPs will complement existing flexibility; the 'law of diminishing returns' used by CEPA to calculate the benefits of VLP intervention is therefore grossly under-estimated as it pushes VLP action as the last lever of flexibility, rather than the initiator of flexibility at scale as witnessed in many countries. Moreover, the CBA delivered by CEPA understates the amount of flexibility that can be delivered depending on the chosen compensation method; it assumes that the compensation method will mostly affect utilization rather than rollout. However, in the real world, DSR automation is only delivered when markets allow for robust business models to justify the investment. To roll out DSR capability, the UK can therefore: - Use the compensation 1 model, which leads to market failure, a rollout of DSR automation via state subsidy, and low utilization (the French model). - Use a mutualized compensation (compensation 2 & 3), which will deliver demand response at large scale through the markets. Given that the options offered in the consultation are only for compensated models, our preference will be for compensation 2, as it reflect the price of energy at the time that it is used, and does not discriminate against smaller energy suppliers (more dependent on short-term energy prices).
Senior Research Fellow	2 or 3 (counting towards each in the above summary table)	I do not favour Model 1. Either Model 2 or 3 would be acceptable. If both Model 2 and Model 3 are being considered or included in the recommendation, I recommend that the following criteria be used to assess them. • Level of compensation to the Supplier; the lower the better.

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Respondent	Response	Rationale
		• Effect on competition among suppliers; a more level playing field is better. • Price should reflect opportunity costs to Supplier of trading in the short term to avoid imbalances related to anticipated DSR. My primary concern is that the recommendation should include at least Model 2 or Model 3, if not both Models 2 and 3, in addition to Model 1. I understand that including an alternative to Model 1 requires a majority in favour of recommending an alternative. In that case, all votes for Model 2 or Model 3 should be treated as votes in favour of recommending at least one alternative to Model 1.
Voltalis UK	2	In its CBA, CEPA considers that most of the benefits from demand-side response will be provided by current undertakings, i.e. that consumers will pay for the rollout of automation To unlock this flexibility, we need automation, because - aside from punctual trials -consumers do not have the time to physically switch appliances off when the systems need it in the long term. Electrical appliances need therefore to be smart and connected. Consumers also want to be sheltered from swings in energy prices, as they see energy as a commodity. Only a third of consumers opt for a time-of-use tariff (ToUT) when given the choice, and the low take up of ToUTs amongst EV owners in the UK highlights that consumers are not willing to bear power prices risks. And because the value of flexibility is not significant at individual level, consumers will not invest in the necessary technology. However the value of flexibility is huge at aggregated level; this is why aggregators can invest in the rollout of the technology, provided that the market conditions are right, so that DSR is rewarded with a part of the value created for all. Indeed, the rollout of DSR is borne by aggregators throughout the world. It is therefore ludicrous to think that aggregators/VLPs will complement existing flexibility; the 'law of diminishing returns' used by CEPA to calculate the benefits of VLP intervention is therefore grossly under-estimated as it pushes VLP action as the last lever of flexibility, rather than the

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Respondent	Response	Rationale
		initiator of flexibility at scale as witnessed in many countries. Moreover, the CBA delivered by CEPA understates the amount of flexibility that can be delivered depending on the chosen compensation method; it assumes that the compensation method will mostly affect utilization rather than rollout. However, in the real world, DSR automation is only delivered when markets allow for robust business models to justify the investment. To roll out DSR capability, the UK can therefore: - Use the compensation 1 model, which leads to market failure, a rollout of DSR automation via state subsidy, and low utilization (the French model). - Use a mutualized compensation (compensation 2 & 3), which will deliver demand response at large scale through the markets. Given that the options offered in the consultation are only for compensated models, our preference will be for compensation 2, as it reflect the price of energy at the time that it is used, and does not discriminate against smaller energy suppliers (more dependent on short-term energy prices).
Enel X	1	We prefer Method 1. We strongly oppose Method 2. We are somewhat more on the fence about Method 3. One of our concerns with Methods 2 & 3, in which supplier compensation costs are socialised, is that they involve a levy that will grow with increasing levels of participation. While it is possible to argue that the benefits to consumers from the increased levels of demand-side participation will outweigh the cost of the levy, we are concerned that the existence of this growing line item on consumer bills could be used as an excuse to challenge or reverse the mechanism. Stability is really important to the business of a demand-side aggregator, as customers are making long-term decisions, so this makes us favour the conservative, uncontroversial option (Method 1). If everyone accepts that economic modelling shows that the additional participation resulting from socialising compensation is likely to outweigh the costs of the levy, such that the levy will be

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Respondent	Response	Rationale
		uncontroversial, then Method 3 may be a reasonable approach. There is no merit whatsoever to Method 2, as it gives exactly the same participation benefit as Method 3, but at substantially higher levy costs, as well as introducing a gaming risk.
Equiwatt Limited	No comment	None Provided
Flexitricity	1	Our preferred compensation method is Compensation Method 1 for the reasons outlined above.
OVO	-	Confidential answer received.
ADE	1	Compensation Method 1.
EON UK	1	We prefer Supplier Compensation Method 1 for the reasons laid out in Questions 12 and 13
NGESO	Other	We would favour a model of no compensation. Any of the outlined options would lead to a rise in costs for the end consumer due to forecasting errors increasing as detailed in Q11. We also think any compensation method would likely lead to a risk of gaming (please see our answer to Q16). The ESO supports wider market access, but in this solution there is a risk that the benefits are outweighed by several concerns, including data provision, impact on reserve, and ultimately increase consumer costs. Additionally, a distortion would be introduced between VLP-provided flexibility and flexibility provided directly by end users who are exposed to ToU tariffs as they would not be subject to this compensation payment. The solution should include the ESO (either directly or indirectly receiving VLP introduced demand shift volumes) to mitigate the risk to end consumers. Our preference would be to receive this directly through suppliers.

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Question 15: Do you consider there to be a material gaming risk under Supplier Compensation Method 2?

Summary

Yes	No	Neutral/No Comment	Other
6	5	1	0

Responses

Respondent	Response	Rationale
Dcbel Europe	No	We do not see any gaming risk, as VLPs will have to prove that they have delivered demand response. P415 relies on P376's robust baseline, which has been approved for the Balance Mechanism and is also used for some local flexibility products. In its gaming risk assessment, CEPA did not mention the fact that VLPs are responsible for their imbalances and will be penalised if they fail to deliver on the baseline. As proven by P376, baseline evidence can be defined effectively, quashing the risk. In reality: Being better rewarded for VLP actions will entice suppliers to harvest more flexibility, decreasing prices even further in the longer term, hence benefitting all consumers. The risk highlighted by CEPA resides in the level of compensation (wholesale price vs. sourcing cost, where suppliers might gain the difference 'wholesale – sourcing' cost without any action) rather than who pays the compensation – which is a model limitation as it doesn't discriminate between these 2 independent variables – which lead the group to offer the 'compensation 3' option, where compensation is mutualised amongst electricity undertakings, using a long-term average price of energy level of payment. If the issue raised by CEPA lies on the baseline, the proposition's established baseline mechanisms (such as those in P376) ensure that suppliers cannot overstate initial purchasing position to pretend that they deliver more flexibility than effectively done. What CEPA also describes is inside trading, which could be easily monitored and policed. This is commonly done in other industries, such as finance, where the regulator monitors market actors'

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Respondent	Response	Rationale
		positions. Besides, such practice is a criminal offense, and would carry high reputational and licencing risks for suppliers. In any case, if suppliers' gaming risk is considered high by the regulator, there are 2 other options: 1/ Compensate with a mutualised sourcing cost (compensation 3). 2/ Not allowing suppliers to become VLPs (as done in other countries). As such we believe that the supplier gaming risk is low, and that it can be completely alleviated with the measures described above.
Ecotricity Ltd	No	Not particularly – and the GB spot market price (assuming it is granular by half-hours so as to attribute the correct price to the relevant imbalance period) is far better than the suggestion on page 35 of using Ofgem's price cap methodology, which bears no relevance to the supplier's costs in this situation. It would be far more accurate to use System price System Sell & System Buy Prices | BMRS (bmreports.com)
Sympower	No	We do not see any gaming risk, as VLPs will have to prove that they have delivered demand response. P415 relies on P376's robust baseline, which has been approved for the Balance Mechanism and is also used for some local flexibility products. In its gaming risk assessment, CEPA did not mention the fact that VLPs are responsible for their imbalances and will be penalised if they fail to deliver on the baseline. As proven by P376, baseline evidence can be defined effectively, quashing the risk. In reality: Being better rewarded for VLP actions will entice suppliers to harvest more flexibility, decreasing prices even further in the longer term, hence benefitting all consumers. The risk highlighted by CEPA resides in the level of compensation (wholesale price vs. sourcing cost, where suppliers might gain the difference 'wholesale – sourcing' cost without any action) rather than who pays the compensation – which is a model limitation as it doesn't discriminate between these 2 independent variables – which lead the group to offer the 'compensation 3' option, where compensation is mutualised amongst electricity undertakings, using a long-term average price of energy level of payment. If the issue raised by CEPA lies on the baseline, the proposition's established baseline mechanisms (such

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Respondent	Response	Rationale
		as those in P376) ensure that suppliers cannot overstate initial purchasing position to pretend that they deliver more flexibility than effectively done. What CEPA also describes is inside trading, which could be easily monitored and policed. This is commonly done in other industries, such as finance, where the regulator monitors market actors' positions. Besides, such practice is a criminal offense, and would carry high reputational and licencing risks for suppliers. In any case, if suppliers' gaming risk is considered high by the regulator, there are 2 other options: 1/ Compensate with a mutualised sourcing cost (compensation 3). 2/ Not allowing suppliers to become VLPs (as done in other countries). As such we believe that the supplier gaming risk is low, and that it can be completely alleviated with the measures described above.
Senior Research Fellow	No	I have not been convinced in the discussions or papers that any gaming risk is material. If there is any gaming risk, I am sure that it can be addressed through improved monitoring and enforcement of unacceptable behaviour, for instance insider trading or anticompetitive behaviour. I am not convinced that potential gaming behaviour is a legitimate basis for discouraging DSR or for adopting Model 1 compensation.
Voltalis UK	No	We do not see any gaming risk, as VLPs will have to prove that they have delivered demand response. P415 relies on P376's robust baseline, which has been approved for the Balance Mechanism and is also used for some local flexibility products. In its gaming risk assessment, CEPA did not mention the fact that VLPs are responsible for their imbalances and will be penalised if they fail to deliver on the baseline. As proven by P376, baseline evidence can be defined effectively, quashing the risk. In reality: Being better rewarded for VLP actions will entice suppliers to harvest more flexibility, decreasing prices even further in the longer term, hence benefitting all consumers. The risk highlighted by CEPA resides in the level of compensation (wholesale price vs. sourcing cost, where suppliers might gain the difference 'wholesale – sourcing' cost without any action) rather than who pays the compensation – which is a model limitation

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Respondent	Response	Rationale
		as it doesn't discriminate between these 2 independent variables – which lead the group to offer the 'compensation 3' option, where compensation is mutualised amongst electricity undertakings, using a long-term average price of energy level of payment. If the issue raised by CEPA lies on the baseline, the proposition's established baseline mechanisms (such as those in P376) ensure that suppliers cannot overstate initial purchasing position to pretend that they deliver more flexibility than effectively done. What CEPA also describes is inside trading, which could be easily monitored and policed. This is commonly done in other industries, such as finance, where the regulator monitors market actors' positions. Besides, such practice is a criminal offense, and would carry high reputational and licencing risks for suppliers. In any case, if suppliers' gaming risk is considered high by the regulator, there are 2 other options: 1/ Compensate with a mutualised sourcing cost (compensation 3). 2/ Not allowing suppliers to become VLPs (as done in other countries). As such we believe that the supplier gaming risk is low, and that it can be completely alleviated with the measures described above.
Enel X	Yes	Yes. Under both Method 2 and Method 3 the dispatched energy gets paid for twice: once in the wholesale market and once through the socialised compensation. Under Method 3, the compensation price will not be high enough to provide much benefit in the envisioned gaming scenario, but under Method 2, it could be very high indeed. This could be exploited either by the supplier and VLP being the same party, or through some informal cooperation between them. Since Method 2 has no advantage over Method 3, and introduces this risk (as well as higher costs), it should not be adopted.
Equiwatt Limited	No comment	None Provided

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Respondent	Response	Rationale
Flexitricity	Yes	Yes, we believe there could be a gaming risk under compensation method 2.
OVO	Yes	Yes
ADE	Yes	Yes. Given the infancy of the dual supplier-VLP relationship we believe this could evolve into a material risk. Furthermore, it seems difficult to devise adequate mitigations for that risk at this time since we do not have a clear vision of how these interactions will look in the future.
EON	Yes	We do believe that CEPA have identified a potential gaming risk with Supplier Compensation Method 2. We believe that the question of how material this risk is and whether regulator monitoring and enforcement can be put in place to prevent this remains open.
NGESO	Yes	Yes, we believe that the introduction of supplier compensation would give rised to an increased likelihood of gaming. If the VLP as per the design of P415 has to inform the supplier if they are moving up or down. This should remove the need for compensation as long as the VLP have to inform suppliers of the increase/decrease in demand. This would reduce the need for reserve and reduce the need for compensation, and remove the risk of gaming.

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Question 16: The Workgroup believe that Ofgem's Price Cap Methodology should be used to calculate the Supplier Compensation Reference Price representing the average Supplier's sourcing costs, do you agree? Is there another method that you believe may be more appropriate?

Summary

Yes	No	Neutral/No Comment	Other
5	5	1	1

Responses

Respondent	Response	Rationale
Dcbel Europe	No	Compensation 2 compensates suppliers at the price of energy when it is bought ultimately – the spot market. It can be calculated easily (many countries do it already), and reflect purchasing prices of smaller suppliers, who do not have the purchasing power of larger, integrated companies. Using a supplier average sourcing cost would therefore favour larger suppliers to the detriment of smaller energy suppliers, with financial impacts which could limit the level of competition amongst GB suppliers, to the detriment of end consumers.
Ecotricity Ltd	No	Not at all – the PCM, which is based on the forward curve of the next 3 quarters, bears no resemblance to the short-term imbalance impact of VLP actions on the supplier's within day position. It would be far more sensible in terms of risk matching to use the relevant system price
Sympower	No	Compensation 2 compensates suppliers at the price of energy when it is bought ultimately – the spot market. It can be calculated easily (many countries do it already), and reflect purchasing prices of smaller suppliers, who do not have the purchasing power of larger, integrated companies. Using a supplier average sourcing cost would therefore favour larger suppliers to the detriment of smaller energy suppliers, with financial impacts which could limit the level of competition amongst GB suppliers, to the detriment of end consumers.
Senior Research Fellow	Other	I understand that the Ofgem methodology referred to here would apply to Model 3 and Model 1. As explained before, either Model 2 (spot market price)

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Respondent	Response	Rationale
		or Model 3 (long term average costs) are acceptable.
Voltalis UK	No	Compensation 2 compensates suppliers at the price of energy when it is bought ultimately – the spot market. It can be calculated easily (many countries do it already), and reflect purchasing prices of smaller suppliers, who do not have the purchasing power of larger, integrated companies. Using a supplier average sourcing cost would therefore favour larger suppliers to the detriment of smaller energy suppliers, with financial impacts which could limit the level of competition amongst GB suppliers, to the detriment of end consumers.
Enel X	Yes	Yes, this should work well enough. The precise methodology does not matter all that much: it just needs to produce a reasonable estimate of supplier costs, so that suppliers cannot argue that they are out of pocket (from it being consistently low), and not too much money is wasted on needless windfalls (from it being consistently high).
Equiwatt Limited	No comment	None Provided
Flexitricity	Yes	Yes, we believe this is an appropriate reference price to be used in compensation.
Ovo	No	No. There are material issues with the Price Cap Methodology, and it is currently under review. Additionally, it is intended to represent a Cap on the market for the purposes of addressing a loyalty penalty. Its' use for this purposes would be far outside it's intended purpose, risking unintended outcomes. There are also specific issues. The principle of post-period reconciliation now seen in a number of cost elements (including wholesale balancing and weather risk costs) is fundamentally at odds with the application to a customer cohort that are primarily highly engaged. Additionally, the CFD approach – utilising LCCC forecasts rather than actual achieved costs – results in real-time material differences between the allowance and real costs. Given the impact of CFD prices on the wholesale market, the correlation impacts could drive significant market distortion.
ADE	Yes	Yes. Although there is no definitive way to calculate exact supplier sourcing costs (without adding unduly

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Respondent	Response	Rationale
		burdensome administrative processes on all parties) we believe the PCM is the most equitable approach. While purchases in forward markets will not comprise the totality of electricity bought for any single site, neither will additional trades at the spot price. Therefore, it seems most sensible to land in the middle, acknowledging that this is a separate issue to imbalance exemption which is also covered.
EON UK	Yes	We believe that whilst Ofgem's Price Cap Methodology is not perfect, it is the best available option that can be easily implemented and that captures most of the costs incurred by suppliers.
NGESO	Yes	The method seems appropriate.

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Question 17: Having considered the findings of the P415 Final CBA Report in Attachment C, do you believe the benefits of implementing P415 will outweigh the costs?

Summary

Yes	No	Neutral/No Comment	Other
5	1	2	4

Responses

Respondent	Response	Rationale
Dcbel Europe	Other	The Cost Benefit Analysis highlighted that costs of implementation are not negligible (low £10s millions up front implementation costs with £1s millions annual costs) and could outweigh benefits if P415 delivers only very small amounts of additional flexibility. In the compensation 1 scenario - which will lead to restricted volumes of demand response for the reasons shown in previous answer – the benefits of P415 are therefore limited., therefore providing very low flexibility returns to end user (and unfair given their flexibility impact in increasing the overall socio economical welfare). The CBA however estimates that "the potential upside benefits could dwarf implementation costs if P415 results in even moderate volumes of additional flex." Because a mutualised compensation allows – for the reasons shown in previous answers – for a large rollout of demand response capability as well as a wide utilisation of flexibility, P415's benefits far outweighs the costs in compensations methods 2 & 3.
Ecotricity Ltd	Neutral	Couldn't say until we see the proposed detail of the obligation on the supplier
Sympower	Other	The Cost Benefit Analysis highlighted that costs of implementation are not negligible (low £10s millions up front implementation costs with £1s millions annual costs) and could outweigh benefits if P415 delivers only very small amounts of additional flexibility. In the compensation 1 scenario - which will lead to restricted volumes of demand response for the reasons shown in previous answer – the benefits of P415 are therefore limited. The CBA however estimates that "the potential upside

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Respondent	Response	Rationale
		benefits could dwarf implementation costs if P415 results in even moderate volumes of additional flex." Because a mutualised compensation allows – for the reasons shown in previous answers – for a large rollout of demand response capability as well as a wide utilisation of flexibility, P415's benefits far outweighs the costs in compensations methods 2 & 3.
Senior Research Fellow	Yes	Yes. In the Model 1 compensation scenario, whereby the VLP pays compensation, the net benefits of P415 are relatively limited. However, the conclusion points to benefits that dwarf implementation costs if P415 results in even modest amounts of additional flexibility, which is much more likely under the mutualization scenarios. It is important to recognize that the benefits of P415 will extend beyond the wholesale market because access to the latter will provide scale economies for DSR, which can then be supplied to other markets.
Voltalis UK	Other	The Cost Benefit Analysis highlighted that costs of implementation are not negligible (low £10s millions up front implementation costs with £1s millions annual costs) and could outweigh benefits if P415 delivers only very small amounts of additional flexibility. In the compensation 1 scenario - which will lead to restricted volumes of demand response for the reasons shown in previous answer – the benefits of P415 are therefore limited. The CBA however estimates that "the potential upside benefits could dwarf implementation costs if P415 results in even moderate volumes of additional flex." Because a mutualised compensation allows – for the reasons shown in previous answers – for a large rollout of demand response capability as well as a wide utilisation of flexibility, P415's benefits far outweighs the costs in compensations methods 2 & 3.
Enel X	Yes	Yes. We expect that the costs will be trivial compared to the benefits, as it unlocks a substantial additional value stream that will lead to greater participation from existing customers and attract

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Respondent	Response	Rationale
		participation by many more customers, as discussed in our response to Q7.
Equiwatt Limited	No comment	None Provided
Flexitricity	Yes	Yes we believe there is a clear case the P415 will introduce greater volumes of flexibility compared to the baseline.
OVO	No	No, we believe the impacts are ill-defined (as they are mixed in with the general benefits of flexibility, and the benefits of VLPs) The costs are under-represented, as the detail of the proposal was insufficient at the time (and still is) to effectively estimate cost of impact. Additionally, supplier engagement has been poor throughout, so it's likely the supplier impact is under-represented.
ADE	Yes	We strongly agree with the finding that the benefits of P415, especially relating to overall system benefits, will outweigh the relatively low implementation costs.
EON UK	Yes	We do believe that there is a case to be made for the inclusion of VLPs in the wholesale market in terms of the benefits of greater competition driving more customer involvement and engagement. We would like to understand better the costs associated with a more complicated and less transparent settlement system, but overall, our belief is that the benefits outweigh the costs/risks.
NGESO	Other	Please refer to our consultation response to the CBA. We have attached with this document.

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Question 18: Do you have any further comments on P415?

Responses

Respondent	Comments
Dcbel Europe	CEPA's CBA mentions that VLPs might not have a viable business case to invest if the Compensation 1 method is to be used in the wholesale market. If the Compensation 1 method trickles to other market products, the UK power markets' attraction might be too low to justify investment from VLPs. This is all the more truer as many countries are competing to decrease their power prices, and aggregators will have to prioritise countries that offer the most attractive market conditions. The UK market has a huge potential; it is currently leading the way in flexibility provision – partly because the market products offered do not apply compensation. If the UK does not wish to replicate the French market's collapse when compensation 1 was introduced, and would rather let flexibilities be paid for by the markets (than by subsidies), the UK must either choose not to compensate (based on the net benefit), or use a mutualised compensation: methods 2 or 3.
Ecotricity Ltd	Yes – in the same way suppliers have to show competence to assume VLP status, VLPs should have to pass stringent assessments to ensure they are capable to trade, and have sufficient liquidity and credit lines to be able to do so. We have all seen the cost to industry of supplier failures Estimated Elexon cost of £2.2-3.2 million is for a 'volume of flex that could be deployed as a result of P415 (which is) highly uncertain', as the Assessment Procedure says. It would be instructive to see just how much additional volume has come into the Wider BM through VLPs (relatively speaking) before speculating on how much flex value can be delivered merely through a relatively small number of VLPs being able to access the wholesale market
Sympower	It is proposed that the compensation applied to the wholesale market by the P415 be applied to the Balance Mechanism (BM) by the P444 code modification. If most of the volumes are delivered by the wholesale market, attention should be paid to market operators (including VLPs) who have already invested in the UK on the basis that ancillary products did not attract compensation, or wish to invest. The business case for those market players would not be economically viable in the future if compensation is applied to the BM, and there is a risk that they might exit or not enter the UK market, or at best defer investment. Moreover, CEPA's CBA mentions that VLPs might not have a viable business case to invest if the Compensation 1 method is to be used in the wholesale market. If the Compensation 1 method trickles to

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Respondent	Comments
	other market products, the UK power markets' attraction might be too low to justify investment from VLPs. This is all the truer as many countries are competing to decrease their power prices, and aggregators will have to prioritise countries that offer the most attractive market conditions.
Senior Research Fellow	I would like to thank the organizers and consultants for all their work and to reinforce the need for speed, either in the implementation of P415 or in developing other fast-track methods for promoting aggregation and DSR while P415 is discussed and implemented.
Voltalis UK	It is proposed that the compensation applied to the wholesale market by the P415 be applied to the Balance Mechanism (BM) by the P444 code modification. If most of the volumes are delivered by the wholesale market, attention should be paid to market operators (including VLPs) who have already invested in the UK on the basis that ancillary products did not attract compensation. Such market players' operations might not be economically viable in the future if compensation is applied to the BM, and there is a risk that they might exit the UK market, or at best defer investment. Moreover, CEPA's CBA mentions that VLPs might not have a viable business case to invest if the Compensation 1 method is to be used in the wholesale market. If the Compensation 1 method trickles to other market products, the UK power markets' attraction might be too low to justify investment from VLPs. This is all the more truer as many countries are competing to decrease their power prices, and aggregators will have to prioritise countries that offer the most attractive market conditions. The UK market has a huge potential; it is currently leading the way in flexibility provision – partly because the market products offered do not apply compensation. If the UK does not wish to replicate the French market's collapse when compensation 1 was introduced, and would rather let flexibilities be paid for by the markets (than by subsidies), the UK must either choose not to compensate (based on the net benefit), or use a mutualised compensation: methods 2 or 3.
Enel X	It's a good thing. It's a shame that it has taken so long. Let's get on with it.
Equiwatt Limited	P415 doesn't address the scenario where a supplier will sometimes be able to see if a VLP has traded some of their customers' load (e.g. if they see a VLP trading on the market, or if a VLP regularly does it for a subset of their customers) and adjust their market position accordingly. In such cases, there should be no need for compensation. Requiring the aggregator / VLP to pay compensation puts uncertainty onto the value of trading flex, which is bad for flexible

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Respondent	Comments
	consumers and for flex markets, so if compensation is necessary, it should be socialised, at least while flex markets are still nascent. Calculations of compensation should be based on the suppliers' actual costs. Using a marginal / spot market price is reasonable when trying to incentivise people to maintain a balanced position in the market (i.e. for cash out markets), but in this case we are trying to support development of flex markets. And in any case, there is no reason why the supplier should earn more than their actual costs, as they have done nothing to deliver the flex.
Flexitricity	This is an extremely important and necessary change to the market rules, to enable small scale and demand side response better access to the wholesale market. Wholesale market revenues are an important part of the revenue stack that independent aggregators currently cannot access. Unlike the balancing mechanism, it is a market in which there is a clear merit order of dispatch, with volumes of flexibility determined via market mechanisms, rather than central procurement by National Grid ESO. It is the deepest flexibility market, and merit order dispatch means these volumes are not subject to 'skip rates' that are seen in the balancing mechanism. Moving to half hourly settlement will remove the remaining key barrier to small scale and DSR flexibility, and this is expected from 2025. Once this is in place, much greater volumes of domestic flexibility will be possible, and aggregators are in a unique position to optimise this. Without access to wholesale markets, aggregators will not be able to fully optimise flexibility, and volumes of flexibility brought to the system will be undermined.
OVO	OVO is a strong advocate for flexibility as a crucial resource for achieving a Net Zero energy system at lowest cost. We have a track record of innovation in this space, utilising customer behaviour via our unique "Power Move" and "Shift and Save" trials, as well as optimising flexible assets (such as via our Charge Anytime, and V2X trials). We are fully supportive of exploring approaches to extending the reach and value of domestic flexibility beyond the traditional supplier hub model. We are heavily investing in our Kaluza partner-company to make this a reality. It is important we can access all forms of flexibility, and we should explore all options for maximising this access. It is with that context, therefore, that we raise the following concerns: • It is easy to confuse the benefits of flexibility and the VLP model with P415 itself. The benefits of flexibility are not in question here, but the additional benefit that P415 will offer should be explicitly defined.

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Respondent	Comments
	• Additionally, throughout the CBA and consultation document, the logic that P415 will extend the amount of flexibility is used to describe P415's benefits, and yet the logic that changes will happen anyway under the VLP model is used to dismiss risks. It is unclear based on the documentation provided, what the additional benefit P415 will provide, and what additional risks it introduces. • There are materially significant unanswered questions on the implementation of P415, which have material impact on the scale and cost of industry impacts. In particular: o What is the appropriate value for "deviation volumes" – the principle outlined in this document clearly defines the VLP dealing only in "Deviation Volumes" and not "Metered Volumes". This is a useful distinction as VLPs are not Suppliers, and clearly Supply remains with the Supplier (under a Supply licence). However, the proposed compensation method essentially attempts to value Deviation Volume as a Supplier Volume (i.e. full stack sourcing cost as opposed to a deviation in expected margin) o Customer data sharing – including the sharing of retail contract information – is not resolved o The dislocation of metered from settled volumes has implications for settlement error and dispute resolution. This isn't explored. o The SOLR / insolvency process isn't explored – if a VLP defaults what happens to their contracted position? A supplier could end up suddenly being responsible for significant volumes that are no longer controllable or planned to respond to market conditions. The Supplier Compensation Method, and insolvency processes should account for this scenario. o What does this look like for the customer? Throughout the proposal, there are expectations on customer contracting behaviour (e.g. when considering double-selling of flexibility) and customer data sharing. It is unclear in aggregate what experience the customer will have, and whether this is a reasonable experience for them to engage in. Additionally, the issues of dispute resolution, default, and customer service are not explored here but are crucial to get right if the benefits of P415 are to be realised o What is "normal" demand, and who is responsible for hedging it? Should we consider X% of e.g. EV demand to be "flexible"? Should the VLP be responsible for hedging this, or the supplier? This fundamental question impacts how Compensation should work. We have observed significant issues with baselining of domestic flexibility volumes during participation in the DFS. We do not think P376 as currently outlined is appropriate for baselining of domestic

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Respondent	Comments
	flexibility volumes, and therefore P415 should be restricted to assets with metering The principle of iterating towards an appropriate pricing mechanism is an admirable one, but given the timescales of modifications, we do not think it's an appropriate approach in this case; we are extending the potential scale of impact via P415 before effective iteration towards a Minimum Viable Product is achieved. P415 extends the impacts of the nascent VLP market before essential lessons have been learnt (such as how compensation should work). One approach is to use an SCR to resolve these fundamental questions upfront. Another, is to use the existing VLP activities, with the help perhaps of P444, to iterate with restricted potential downside before finding a solution that can be rolled out further.
ADE	We strongly support this modification and believe it should be progressed at the fastest feasible pace.
EON UK	We do have some concerns that compensating a supplier simply for the energy they have procured and not been able to sell does not capture all the costs that a supplier would look to recover through a tariff's unit rate. By reducing a customer's demand through demand destruction means that a supplier who attributes some fixed costs e.g. operational costs to their unit rate will have less volume in which to recover these costs. In order to correctly set a unit rate that captures all these costs in the unit rate, a supplier will have to estimate the amount of demand destruction that might be caused by VLP actions. Whilst we appreciate that this new risk will be small for a large supplier, it might have a more significant impact on a small supplier with less volume in which to recover these additional costs and for whom the change in volume will be more impactful. We believe that this code modification ought to quickly ascertain a 'fair' price for compensation based on an efficient supplier's sunken cost base e.g. energy plus some fixed costs that is recovered through the unit rate.
NGESO	We have concerns however in terms of data provision. This modification would not require VLPs to provide data to ESO or their supplier. Without this data, additional demand flexibility will manifest as additional demand uncertainty, leading to additional reserve capacity requirements and ultimately additional costs. If not properly arranged, the additional uncertainty could significantly erode the potential benefits. Any demand side service which is not notified to ESO directly or indirectly will increase the risk of inaccuracies in forecasting. In this scenario, VLPs would not have to notify the ESO or the supplier in regards to their activities, which would lead to the risk of significant increased cost in system operation as more reserve would be held and could lead to detrimental system impacts and increase industry costs.

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P415 'Facilitating Access to Wholesale Markets for Flexibility Dispatched by VLPs'

ELEXON

Phase

Initial Written Assessment

Definition Procedure

Assessment Procedure

Report Phase

Implementation

This Report Phase Consultation was issued on 17 April 2023, with responses invited by 17 May 2023.

Consultation Respondents

Respondent	Role(s) Represented
E.ON UK	Supplier
Association for Decentralised Energy (ADE)	Trade Body (The ADE is the UK's leading decentralised energy advocate, focused on creating a more cost effective, low-carbon and user-led energy system. The ADE has more than 160 members active across a range of technologies, including both the providers and the usersof energy equipment and services. Our members have particular expertise in demand side energy services including demand response and storage, combined heat and power, heat networks and energy efficiency.)
Drax BSC Parties (including Opus Energy and Drax Energy Solutions)	Generator, Supplier, ECVNA, MVRNA
OVO	Supplier
DR4EU	Industry Group
Voltalis	Virtual Lead Party

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Question 1: Do you agree with the Panel's initial majority recommendation that the P415 Alternative solution should be approved?

Summary

Yes	No	Neutral/No Comment	Other
2	3	1	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive of Compensation 1 - VLP pays Supplier compensation)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive of Compensation 1 - VLP pays Supplier compensation)
Drax BSC Parties	No	We support mechanisms to enhance and extend the value and access of consumer flexibility in the wholesale market, and with increased engagement of demand side response. However, we do not believe that P415 achieves this in a proportionate, practical and efficient way. One of the P415 principles was that the registered Supplier at a site where the customer has chosen to use a VLP independent aggregation service should receive no direct benefit or detriment from the service. However, the impact would increase cost and complexity and require Supplier system changes to accommodate the proposed extension of the VLP principle. This would include changes in many different areas including hedging and forecasting, trading, billing and settlement, and balancing of power. The cost and complexity of making changes to processes and associated systems should not be under-estimated. We believe that further work is needed to ensure the solution, is proportionate, practical and delivered in a way that creates a level playing field for industry participants and delivers value for consumers. **Potential abuse/gaming** Under the majority Workgroup preferred Alternative Solution, VLPs are liable to pay compensation costs

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Respondent	Response	Rationale
		for volumes adjusted by that VLP, with compensation paid at a price that approximates the Supplier's expected sourcing costs, obtained by using Ofgem's published Price Cap Methodology. While we understand the complexities of deriving a methodology to calculate the reasonable compensation, the solution as currently designed is open to potential abuse/gaming. For example, in a falling market where the Day Ahead Price is lower than the Wholesale cost allowance within the Price Cap, VLPs could purchase volumes at a lower Day Ahead price whereas Suppliers would be required to pay VLPs at the higher Cap Price. This opportunity for gaming could distort the market to the detriment of consumers and Suppliers. We therefore believe that P415 as currently drafted is negative towards Applicable BSC Objective 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". **Hedging and forecasting and reporting impacts** The proposals would lead to an increased need for more granular forecasting on a site basis. This would result in an increased administrative burden for Suppliers as well as more complex hedging requirements. In addition, reporting and reconciliation practices may need to be amended to reflect the site-specific pass-through of imbalances, costs and compensation values. This is likely to lead to significant implementation costs associated with IT change and testing as well as ongoing administrative costs. With regards to new customers, the proposals are likely to lead to more complex tariff offerings or inability for Suppliers to price contracts accurately due to an increased lack of certainty over the customers' consumption volumes across the contracted period. More importantly, from a customer perspective, there will be a higher risk of being exposed to volatile imbalance prices that will be passed through on a site basis. Currently, many customers benefit from imbalance risks being socialised across a Supplier's portfolio. This gives them certainty over their total charges and reduces their risk of being exposed to extreme imbalance

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Respondent	Response	Rationale
		prices. This solution would lead to customers facing the volatility of imbalance charges and associated risk premia that Suppliers may charge, resulting in overall higher cost to consumers over the supply contract period. **Liquidity issues** Suppliers are required to provide credit cover for the volumes they wish to trade. However, the credit cover they provide may not match the actual volume needed due to VLP actions. While the intent is for Suppliers to be compensated for the wholesale price, they won't be compensated for the cost of the credit cover. This would give a competitive advantage to VLPs because although they would be required to lodge credit cover themselves, this would be to cover volumes which are within their control and so they should be able to forecast more accurately. As such, we believe this would be negative towards Objective 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". **Costs and complexity** Assuming that increased competition (stemming from VLPs having better market access) will drive down prices for Suppliers is not necessarily correct. It will be more complex for Suppliers to manage their costs and imbalance position within their own portfolio. For example, significant changes in volumes associated with large Demand Side Response customers will significantly impact forecast consumption at MPAN level and the portfolio as a whole. **In summary** For the collective reasons set out above, we believe P415 would be negative towards: • **Objective b) -** "The efficient, economic and co-ordinated operation of the National Transmission System" - because we do not agree that P415 is better than the current baseline. In this response we have set out a number of issues regarding the proposed Supplier compensation together with the potential for abuse/gaming by VLPs. P415 as currently proposed introduces significant complexity and risk of consumer harm for an unquantified and non-specific benefit.

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Respondent	Response	Rationale
		• **Objective 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" – because, although this modification may result in better market access for VLPs, there are a range of negative consequences that outweigh the benefits, given the potential for abuse/gaming by VLPs and non-level playing field of Supplier impacts, including to systems. • **Objective d)** – "Promoting efficiency in the implementation and administration of the balancing and settlement arrangements" - given the added complexity associated with the solution.
Ovo	N/A	In addition to our submission to the Assessment Procedure Consultation, we would like to make the following comments: Our concerns, and some relevant concerns raised by other parties have not been appropriately reflected in the Consultation document. We also note that the majority of the respondents are VLPs, with poor representation from suppliers and no generation representation. We also note that some of the VLPs are not actually active or have no experience in the UK market, with 3 of them (Dcbel, Sympower and Volatlis UK) clearly duplicating eachother's responses (large portions are identical). However, the summary of votes is represented volumetrically and we feel this bias in respondents isn't appropriately considered in the Consultation document. An example of our points that were not reflected in the summary: • The report summarises the answer to the question: "Do you agree with the Workgroup's assessment of the impact on the BSC Settlement Risks?" as "Respondents either agreed with the assessment of impacts on the BSC Settlement Risks or remained neutral on this point.". However, we identified key concerns with the assessment of settlement risk. Additionally, we find the CBA analysis insufficient as the basis of such a significant market impact. Given the scale of this change, we would recommend a Significant Code Review be launched, to consider

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Respondent	Response	Rationale
		the various interacting factors, such as the impacts to recovery of network costs, appropriate regulation of entities offering flexibility services to domestic customers, and the impact on markets themselves.
DR4EU	No	In the UK, DSR is becoming increasingly important as the energy system evolves towards a more decentralised and renewable-based model. DSR will need to reduce or shift demand, on a large scale, during peak periods or when renewable generation is low, reducing the need for expensive and polluting back-up power plants, therefore supporting the UK's Net Zero ambitions. In the mid and long term, one cannot assume people would simply stand by their appliances to switch them on and off depending on wind and sun. For DSR to provide the hundreds of GWh per day that will be needed by the power systems, consumers will need to have the necessary infrastructure and technology in place to adjust their electricity usage automatically. Besides, in the cost of living crisis and with the uncertainty on retail prices, the upfront cost of such investments in automation can deter many households. Relying on households' decisions to invest in new appliances and DSR technology will take decades. To accelerate the adoption and usage at scale of DSR, it is therefore essential that aggregators get access to the wholesale market, making it economically viable for them to invest in the infrastructure and to roll out the necessary automation in large numbers quickly, making aggregator-led DSR an easy and attractive choice for consumers. This is what the P415 should aim to achieve. The proposed solution rewards aggregators for the activation of DSR via a full payment for their service, while suppliers benefit from lower power prices. Suppliers may mutualise the cost of the foregone revenues for the power that hasn't been used nor generated (given DSR is sold in the market instead of generation), and this payment is well below the benefits they get from lower power prices. The alternative solution does not take into account the full benefits of DSR, estimating that flexibilities will be rolled out 'anyhow'; therefore disregarding what happens in the real world – that aggregators

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Respondent	Response	Rationale
		roll out flexibilities at scale when given the right market conditions. The alternative solution recommends that VLPs pay suppliers for the power that consumers haven't used and that is not generated. Doing so artificially inflates the cost of DSR activation, hindering aggregators' investment. The UK market won't then benefit from sufficient DSR capacities and activation, hence power prices will be kept high. Moreover, the CBA acknowledges that a wholesale market with VLPs being charged the cost of compensation to suppliers will not create enough value for VLPs to have a business model allowing for the investment. In practice, only access to the large trading volumes of the wholesale market can support the rollout of DSR technologies at scale and the large usage that will be needed daily by the power system in the UK. The alternative solution distorts the power market towards production, which will be its main beneficiary. We therefore recommend that the regulator chooses the proposed solution, where compensation costs are mutualised among market undertakings, which is the only solution allowing for DSR automation to be rolled out at scale, on a market basis. As such, only the proposed solution promotes effective competition in the generation and supply of electricity and (so far as consistent therewith) promotes such competition in the sale and purchase of electricity (objective c), while also having a positive effect on (objective e's) compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency.
Voltalis	No	In the context of the UK's electrification of heating and transport, DSR is going to be needed on a very large scale to reduce energy demand when renewable generation is low. The Climate Change Committee assessed that, by 2035, 20% of demand will need to be flexed as 70% of production will come from renewables. Historically DSR has been provided by industry in the UK – noting that industrial DSR relies on large capacity payments and sparse activations. The systems of the future will need DSR every day, several times a day. This can only be delivered by using the flexibility from buildings. However we cannot assume consumers will stand by

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Respondent	Response	Rationale
		their heat pumps in order to switch them on and off 7when needed to alleviate renewables' intermittency at scale; DSR will need to be automated. Given the uncertainty on retail prices and cost pressures on consumers, the rollout of DSR is likely to be a slow process if the automation relies on consumers' investment. The proposed P415 solution, on the other hand, gives wholesale market access to aggregators without barriers, which allows them to roll out their solutions quickly, at large scale. We know by experience that, given that they do not pay the cost of the technology, an aggregator-led rollout of DSR capability is an easy decision for consumers, who engage in vast numbers. Aggregators can accelerate the adoption of the technology and deliver the necessary volumes of DSR needed for today and tomorrow's power systems. The rollout of DSR technology by aggregators is however directly dependent on the volumes they are allowed to place on the markets. When aggregators have access to market volumes, being fully rewarded for their actions (as per the proposed solution), they have a positive business case to invest. Aggregators' actions on the power markets in turn have a proven effect on lowering power prices, benefitting all consumers and suppliers. The proposed solution relies on mutualising the cost (or lost revenues for the power that hasn't been used), the benefits suppliers getting from lower power prices well exceeding mutualisation costs. On the other hand, the alternative solution does not take into account the benefits DSR entails for suppliers. And the comparison is based on the (unrealistic) assumption that flexibilities will be rolled out 'anyhow' i.e. disregarding real-life effects of direct compensation on the rollout of DSR – that aggregators only roll out flexibilities at scale when they do not encounter barriers (which include compensation). The alternative solution recommends that VLPs pay suppliers for the power that consumers haven't used and generators haven't produced, thanks to DSR being sold in the market instead of generation. This lose-lose scenario will result impeding DSR participation in the market, hence in higher power prices for suppliers and consumers, and power systems won't have the daily level of DSR needed to maintain capacity adequacy. Even the CBA

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Respondent	Response	Rationale
		acknowledges that a wholesale market with direct compensation from VLPs to suppliers will not create enough value for VLPs to have a business model allowing for the investment from wholesale market revenues, which in practice will create a barrier to investment and therefore will dramatically lower DSR volumes. Aggregators currently have access to the Balance Mechanism, but access to the wholesale markets, much wider, is necessary to change the scale of the investments made. Only the proposed solution promotes effective competition in the generation and supply of electricity and (so far as consistent therewith) promotes such competition in the sale and purchase of electricity (objective c), while also having a positive effect on (objective e's) compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency

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Question 2: Do you agree with the Panel that the redlined changes to the BSC deliver the intention of P415 for the Proposed and Alternative Modifications?

Summary

Yes	No	Neutral/No Comment	Other
3	1	2	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive)
Drax BSC Parties	No	As set out above, although we support mechanisms to enhance and extend the value and access of consumer flexibility in the wholesale market, and with increased engagement of demand side response we not believe that P415 achieves this in a proportionate, practical and efficient way. We believe that further review and cost benefit analysis is required.
Ovo	Neutral	Views have not changed since response to Assessment Consultation (Neutral)
DR4EU	N/A	None provided
Voltatis	Yes	Views have not changed since response to Assessment Consultation (Supportive)

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Question 3: Do you agree with the Panel's recommended Implementation Date for P415?

Summary

Yes	No	Neutral/No Comment	Other
1	4	1	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive)
ADE	No	Views have not changed since response to Assessment Consultation (Faster implementation preferred)
Drax BSC Parties	No	We believe that, for the reasons as set out in our response above, considerable work is still required in order to ensure that a practical and cost-effective solution is developed, and which does not introduce unnecessary risk to industry participants. Once this has been achieved, we would require at least 12 months lead time following an Authority Decision in order to implement required changes to our systems and processes.
Ovo	No	Views have not changed since response to Assessment Consultation (Date is too ambitious)
DR4EU	N/A	None provided
Voltalis	No	Views have not changed since response to Assessment Consultation (Faster Implementation preferred)

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Question 4: Do you agree with the Panel's initial view that P415 should not be treated as a Self-Governance Modification?

Summary

Yes	No	Neutral/No Comment	Other
1	0	4	0

Responses

Respondent	Response	Rationale
E.ON UK	N/A	None
ADE	N/A	None
Drax BSC Parties	Yes	Given the impacts and complexities associated with P415, and the risks that the current solutions introduce, we agree with the unanimous Workgroup and Panel opinion that it should not be treated as a Self-Governance Modification.
Ovo	N/A	None
DR4EU	N/A	None provided
Voltatis	N/A	None

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Question 5: Do you agree with the Panel's initial consideration that P415 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC?

Summary

Yes	No	Neutral/No Comment	Other
3	0	3	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive)
Drax BSC Parties	Yes	We have no comments at this time.
Ovo	Neutral	Views have not changed since response to Assessment Consultation (Neutral)
DR4EU	N/A	None provided
Voltatis	Neutral	Views have not changed since response to Assessment Consultation (Neutral)

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Question 6: Do you have any comments on the impact of P415 on the EBGL objectives?

Summary

Yes	No
0	6

Responses

Respondent	Response
E.ON UK	None
ADE	None
Drax BSC Parties	None
OVO	None
DR4EU	None
Voltalis	None

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Question 7: Do you have any further comments on P415?

Summary

Yes	No
0	6

Responses

Respondent	Response
E.ON UK	None
ADE	None
Drax BSC Parties	None
OVO	None
DR4EU	None

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Draft Modification Report

P444 ‘Compensation for Suppliers and Virtual Lead Parties for Virtual Lead Party actions in the Balancing Mechanism (BM)’

The P444 solution seeks to introduce compensation for Suppliers and Virtual Lead Parties (VLPs) for volumes adjusted by VLPs in the Balancing Mechanism.

The BSC Panel initially recommends **approval** of the P444 Alternative Modification and **rejection** of the P444 Proposed Modification

The BSC Panel **does** believe P444 impacts the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC

This Modification is expected to impact:

- Suppliers; and
- VLPs.

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Phase

Initial Written Assessment

Definition Procedure

Assessment Procedure

Report Phase

Implementation

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About This Document

This is the P444 Draft Modification Report, which Elexon is issuing for industry consultation on the BSC Panel's behalf. It contains the Panel's provisional recommendations on P444. The Panel will consider all consultation responses at its meeting on 8 June 2023, when it will agree a final recommendation to the Authority on whether or not the change should be made.

There are five parts to this document:

- This is the main document. It provides details of the solution, impacts, costs, benefits/drawbacks and proposed implementation approach. It also summarises the Workgroup's key views on the areas set by the Panel, and contains details of the Workgroup's membership and full Terms of Reference.
- Attachment A contains the draft redlined changes to the BSC for P444.
- Attachment B contains the full responses received to the Workgroup's Assessment Procedure Consultation.
- Attachment C contains the full responses received to the Panel's Report Phase Consultation.

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Not sure where to start?

We suggest reading the following sections:

- Have 5 minutes? Read section 1
- Have 15 minutes? Read sections 1, 7 and 8
- Have 30 minutes? Read all except section 6
- Have longer? Read all sections and the annexes and attachments.
- *You can find the definitions of the terms and acronyms used in this document in the BSC Glossary*[1]

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1 Summary

Why Change?

Under BSC arrangements introduced by P344 'Project TERRE implementation into GB market arrangements' there is no mechanism for compensation of Parties who have been affected by Virtual Lead Party (VLP) activity in the Balancing Mechanism (BM).

As a result, Suppliers are commercially impacted and left with a cost from the Balancing Mechanism that they cannot recover through the central arrangements.

P444 Solution

The P444 solution seeks to introduce compensation for Suppliers and VLPs who are currently left with an undue cost because of VLP volumes in the Balancing Mechanism that they cannot recover.

This Modification would amend BSC systems and processes to introduce a compensation mechanism for Suppliers and VLPs when the National Grid Electricity System Operator (NGESO) dispatches a VLP Bid or Offer in the BM, to ensure a level playing field and enable correct incentives for flexibility.

The Proposer believes that implementing Supplier compensation in the BM would address a defect within the BSC which Suppliers and VLPs are bearing the cost of.

The P444 Proposer notes efficiencies to an aligned implementation with P415 'Facilitating access to wholesale markets for flexibility dispatched by Virtual Lead Parties' but does not believe there is a dependency between this Modification and P415. Where P415 is not approved, the Proposer and Workgroup believe there is there is still a strong case for the approval of P444.

P444 Proposed Solution

Under the Proposed Solution, compensation costs are mutualised, with compensation paid at a price that approximates the Supplier's expected sourcing costs, obtained by using Ofgem's Price Cap Methodology (PCM). The different approach to 'who pays' is the only difference between the Proposed and Alternative Solutions.

Please note that the Proposer of P444 is proposing this solution on the basis that it enables both a Proposed and Alternative solution to be brought before Ofgem to align with P415, which would not be possible otherwise, as described in further detail in section 6. The P415 Proposer **does not** believe that the Proposed solution is a better option that the Alternative, but **does** believe that it is better than the current BSC arrangements.

P444 Alternative Solution

Under the Alternative Solution, VLPs are liable to pay compensation costs for volumes adjusted by that VLP, with compensation paid at a price that approximates the Supplier's

What is a VLP?

A VLP is a distinct type of Party to the BSC that only participates in Settlement by offering balancing energy. BSC Modification P344 created the concept of VLPs to allow independent aggregators to access the BM. P344 introduced a mechanism to adjust each Supplier's position to remove the Account volumes dispatched by VLPs at sites registered to that Supplier.

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expected sourcing costs, obtained by using Ofgem's published Price Cap Methodology (PCM).

Impacts & Costs

We expect P444 to impact:

- VLPs who may be required to pay compensation
- BSC Parties (Suppliers) who may be subject to mutualised compensation costs for VLP activity in the BM; and
- BSCCo who will need to administer compensation payments to/from Parties, potentially as a BSC Trading Charge.

At present, the proposal is to implement P444 alongside P415 to unlock efficiencies associated with implementing similar functionality for the BM and WM, should both Modifications be approved by Ofgem.

As such the following represents the expected total cost of delivering both P444 and P415 simultaneously, subject to their respective approvals.

Costs Estimates			
Organisation	Implementation (£)	On-going (£)	Impacts
Elexon	£2.2-3.2 Million	£10K per year	Systems, documents and processes
Industry	Low	0	Processes
Total	£2.3-3.3 Million	0	

In the absence of P415 (if it is not approved), P444 would need to develop the functionality to introduce the relevant compensation cashflows and reporting for SBMU actions in the BM. Under the Proposed Solution Supplier Final Demand would need to be calculated, whereas the Alternate Solution would be paid for by the VLP at a set price based on a sourcing cost.

Implementation

P444 is targeting implementation for 7 November 2024 as part of the November 2024 BSC Release.

This aligns with the current plan for implementation of P415, which is desired by the Proposer and Workgroup, in order to unlock efficiencies associated with applying Supplier compensation to both the BM and WM in the same BSC Release.

Recommendation

A **majority** of the Workgroup believes that the P444 Alternative Modification would overall better facilitate the Applicable BSC Objectives compared with both the existing baseline

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and Proposed Modification and so should be **approved**. The Workgroup unanimously believes that P444 should be submitted to the Authority for decision (not a Self-Governance Modification Proposal) and believe that P444 impacts the EBGL Article 18 terms and conditions for balancing, but believe these impacts to be positive (better facilitating these objectives).

Panel's Initial Recommendation

The BSC Panel initially believe that whilst the Proposed Solution is better than the baseline, the Alternative Solution is better than the Proposed. Therefore, the initial recommendation is that the Alternative Solution is better than the Proposed and should be **approved**, and further information can be found in section 8 ' Panel's Initial Discussions'.

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2 Why Change?

What is the issue?

BSC Modification P344 created the concept of VLPs to allow independent aggregators to access the BM. P344 introduced a mechanism to adjust each Supplier's position to remove the Account volumes dispatched by VLPs at sites registered to that Supplier.

However, this does not result in a level playing field between Suppliers and VLPs. This is because when a VLP takes an action on behalf of a Supplier's customer, while the volume of the action is removed from the Supplier's imbalance position, the customer has still used more or less volume than the supplier has forecast. This means that volumes billed between customer and Supplier do not match the volumes against which the Supplier is settled for imbalance, even where the Supplier has correctly hedged the customer's volume.

For example, for a demand side customer where the Supplier hedges perfectly, if an Offer is taken by the VLP and the consumer consumes less energy, the customer's metered consumption is lower than expected, leaving the Supplier long. The P344 mechanism returns the Supplier to a balanced position from the perspective of imbalance settlement, but without a price ascribed to that transfer. The result is that the Supplier has purchased energy and demand response, the latter which cannot be billed to the customer when the meter does not show consumption. That energy has been transferred from the Supplier to the VLP unpriced, who has sold it in the BM for a price.

Similarly, if a Bid is taken for a demand side customer and the customer consumes more energy, the customer's metered consumption is higher than expected, leaving the Supplier short. The P344 mechanism returns the Supplier to a balanced position from the perspective of imbalance settlement, again without a price ascribed to that transfer. The result is that the Supplier bills the customer for consumption showing in the meter which the Supplier did not actually purchase. That energy, which was purchased by the VLP in the BM, has been transferred from the VLP to the Supplier unpriced.

The result is that the VLP gains value in Offers and loses value in Bids, while the Supplier loses value for offers and gains value for bids. The P444 Proposer believes that this is a market distortion.

Relationship with Supplier compensation under P415

P415 proposes to introduce a Supplier compensation mechanism to reimburse the Supplier for VLP-altered wholesale market (WM) volumes to negate any commercial impact. The Proposer believes that both markets should follow the same route and that there are overall efficiencies to implementing Supplier compensation in the BM within a similar timescale as the WM.

While P444 aims to utilise functionality being developed for P415 in so far as that functionality could potentially be extended to the BM, the central argument for this Modification is standalone - there ought to be Supplier compensation for BM transactions, regardless of the eventual Authority decision to approve or reject P415.

Therefore there is no hard dependency between Ofgem approving P415 and approving P444. Rather, P444 could take advantage of the work already undertaken for that

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Modification and proposes an extension of its functionality to go live with P415 to unlock efficiencies.

The P444 Proposer believes (and Elexon agree) that it would be optimal to have both elements considered by Ofgem at the same time and that reflects the timetable proposed for this new Modification.

If both P444 and P415 are approved, there are additional benefits to aligning treatment of Demand Side Response in the WM and BM markets.

What are Secondary BM Units?

Secondary BM Units are registered by VLPs who use them to deliver balancing services, but are not responsible for Energy Imbalances (except where they arise from failure to deliver a balancing service). Each of the Supplier Volume Allocation (SVA) Metering Systems in a Secondary BM Unit must also be included in a Supplier BM Unit.

Background

Wider Access

P344: 'Wider Access and Project TERRE' enabled VLPs to participate in the Balancing Mechanism. P344 allows the separation of normal supply to the customer and the offering of normal flexibility from the customer.

Implemented in 2019, Wider Access is the term used for changes to the BSC and to the National Electricity Transmission System Operator (NETSO) processes to enable customers and independent aggregators – known in the BSC as Virtual Lead Parties (VLPs) - to participate in the Balancing Mechanism (BM).

BSC arrangements have always allowed customers to participate in the BM through their electricity supplier, but Wider Access allowed them to do so through an independent aggregator, or directly themselves (if they accede to the BSC), allowing Balancing-related activities to be separated out from the supply of electricity for other purposes; and ensuring that imbalance arising from either of those activities is allocated to the correct Party.

Wider Access changes to the BSC were implemented under Modification P344 'Project TERRE implementation into GB market arrangements' and provided a means for the registration and qualification of VLPs.

Virtual Lead Parties

A VLP is a distinct type of Party to the BSC that only participates in Settlement by offering balancing energy. An AMVLP is a VLP that uses Asset Metering (also known as behind the boundary Metering) instead of or as well as Boundary Metering as introduced by P375, implemented in June 2022.

The BSC does not currently provide a mechanism for VLPs and AMVLPs to trade in wholesale markets. In recognition of this, a BSC Party who qualifies only in the role of VLP or AMVLP (and not in any of the Trading Party roles that permit access to wholesale markets, such as Generator or Non-Physical Trader) is not subject to the same level of charges and obligations as existing Parties.

A BSC Party who qualifies both as a VLP or AMVLP and as a Trading Party will be subject to the same charges and obligations as other Trading Parties. A VLP is a distinct new type of Party to the BSC that only participates in Settlement by offering balancing energy unlike a trading party that does not take physical action in the market. An AMVLP is a VLP that uses Asset Metering (also known as behind the boundary Metering) instead of or as well as Boundary Metering.

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Supplier compensation under P344

As part of its discussions, the P344 Workgroup identified that it may be appropriate for a payment to accompany the correction of the imbalance position of the Supplier, noting that such payments are permitted under Article 17 of EU Directive 2019/944. However, the P344 Workgroup took the view that compensation for adjustments was a matter between the customer and the Supplier, and did not further explore how to deliver this as part of its BSC solution, given the challenging fixed TERRE deadline and what could be achieved, leaving this topic open for future discussion.

Discussions held as part of P415

One of the key principles developed under the P415 solution was that Supplier should not benefit nor suffer detriment because of the actions of an Independent Aggregator (VLPs) on site. This is why under the P415 Settlement solution the Suppliers Imbalance position is adjusted to account for any Independent Aggregator activity (this expands on the arrangements introduced in P344 solution that adjusts Suppliers for balancing activity).

However this still leaves the Supplier commercially impacted in the likely Demand Side Response (DSR) scenario (i.e. the Independent Aggregator reducing demand at a customer's site). In this scenario the Supplier will have bought energy on the wholesale market (that it expected the customer to use) but can't invoice the customer as they have not used it.

There was widespread support among the P415 workgroup for the view that Supplier compensation should be paid be paid for all VLP activity (i.e. both balancing and wholesale market activity.)

However, Elexon legal advice confirmed that compensating BM volumes is not within scope of the P415 defect. Should Supplier BM compensation be included in the solution and is legally challenged then the challenge is likely to be successful. Therefore the P415 solution should only compensate Suppliers for WM Volumes.

As Supplier adjustments are calculated on a MSID basis the P415 solution needs to distinguish between BM and WM volumes at this level.

As noted previously Suppliers shall only be compensated for Wholesale Market volumes and so BSCCo will need to identify for each SBMU what volumes are to be allocated as balancing volumes and what volumes are to allocated as wholesale market volumes under P415.

Related Modifications

P344, P375 and P376 'Metering behind the Boundary Point'

Elexon note that a lot of the settlement functionality needed to achieve a P444 solution had been implemented by P344: 'Wider Access and Project TERRE' which enables VLPs to participate in the Balancing Mechanism. P344 allows the separation of normal supply to the customer and the offering of normal flexibility from the customer.

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Elexon also note that BSC modifications: P375 'Settlement of Secondary BM Units using metering behind the site Boundary Point' and P376: 'Utilising a Baselining Methodology to set Physical Notifications' introduce functionality that facilitates accuracy in determining settlement of actions the VLP has taken.

- P375 allows metering at the flexible asset; and
- P376 also provides baselining methodologies to separating out normal behaviour from flexibility.

Therefore, the P444 solution will also build upon the functionality of P344, P375 and P376 to reduce cost and promote efficiency.

Desired outcomes

This Modification will introduce compensation for Bids and Offers taken in the BM. That is, it prices the volumes which are transferred between VLP and Supplier under P344.

P444 is intended to promote a level playing field for Suppliers and appropriate incentives for flexibility to act in the BM. In a period in which a customer's consumption is being varied by a VLP so as to meet a BM commitment, the customer's Supplier's position should be unaffected.

The compensation should be two way – both from and to Suppliers and VLPs.

An aligned implementation with P415, if possible, would be preferable to avoid confusion and difficulty that would occur should Supplier compensation be introduced in one market and not another.

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3 Solution

P444 solution

This Modification will introduce a compensation mechanism for Suppliers when a VLP takes a Bid or Offer in the BM, such that a Supplier shall receive no direct detriment (or benefit) from such a service.

The Proposer believes that this is necessary to address a defect introduced by P344 whereby Suppliers participating in the WM are at a disadvantage and that compensation is required to ensure a level playing field within the BM.

To address this defect, P444 proposes that the Supplier shall be compensated for Balancing Market volumes affected by VLP activity.

Supplier Compensation under P415

Under P444 Suppliers will be compensated for Deviation Volumes allocated to VLP Wholesale Market trades

BSC Modification P415 has developed this mechanism and the P444 Workgroup provisionally believe that this is suitable to apply to the BM in addition to the wholesale market.

New Trading Charges

The Daily VLP Compensation Cashflow (SCVp) and the Daily Supplier Compensation Cashflow (SCCp) will be a new Trading Charge. It will be included on Trading Charge Advice Notes that are sent to Suppliers impacted by Independent Aggregator activity in the wholesale market.

New Trading Charges

Period Secondary BM Unit Compensation Volume	x	[Compensation Reference Price]	=	Period VLP Compensation Cashflow	Σ	Daily VLP Compensation Cashflow
Period Supplier BM Unit Compensation Volume	x	[Compensation Reference Price]	=	Period Supplier Compensation Cashflow	Σ	Daily Supplier Compensation Cashflow

Note that depending on the direct of the deviation VLP / Supplier shall be receive a debit or credit.

E.g. VLP reduces load by 10 MWh then VLP would pay compensation to Elexon who in turn would credit the impacted Suppliers.

And conversely if a VLP increases load by 10 MWh then Supplier would pay compensation to Elexon who in turn would credit the impacted VLP.

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Supplier Compensation 1

Under P415's Supplier Compensation 1 (the Proposer's preferred solution, although alignment with P415 is ultimately desired) VLPs are liable to pay for Supplier compensation.

The price at which VLP's are liable to pay Suppliers compensation when Suppliers suffer detrimental impact from an activity VLP benefits from under Compensation 1 represents the likely costs the Supplier would have incurred to source that energy. This Supplier Compensation Reference Price is calculated using the Ofgem price cap under Compensation 1

The figure used will be the single rate metering arrangement with the inclusion of an allowance for:

1. shaping, forecast error and imbalance;
2. transaction costs; and
3. basis risk.

When Ofgem no longer produce a price cap, Elexon will develop the methodology to produce it, so in the event that this cannot be done before the final price cap period expires, the existing price cap will be maintained until such a time that it is no longer required.

The BSC Panel shall agree the Supplier Compensation Price Methodology and which third part service provider should be used to obtain the relevant data for use in settlement.

Supplier Compensation 2

This was considered but ultimately discarded under P415. Please see the P415 report for more detail.

Supplier Compensation 3

Under Supplier Compensation 3 compensation costs are mutualised across all Suppliers but the compensation is paid at a price that represents the average Supplier sourcing costs.

Ofgem Price Cap Methodology

Under both the Proposed and Alternative Solutions the Supplier Compensation Reference Price represents the average Supplier's sourcing costs.

Ofgem's published Price Cap Methodology (PCM) will be used to calculate this figure.

The PCM figure used will be the single rate metering arrangement with the inclusion of an allowance for:

- shaping, forecast error and imbalance;
- transaction costs; and
- basis risk.

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If Ofgem were to no longer utilise a price cap methodology, or if this methodology were no longer suitable, Elexon will develop the methodology to produce the part required by P415, so in the event that this cannot be done before the final price cap period expires, the existing price cap will be maintained until such a time that it is no longer required.

In this circumstance, the BSC Panel shall agree the Supplier Compensation Price Methodology and which third part service provider should be used to obtain the relevant data for use in Settlement. A new Category 3 BSC Document (under the supervision and control of the BSC Panel) will contain the Supplier compensation methodology.

Benefits

In the Proposer's view, the primary benefit of P444 is to rectify a defect introduced by P344 and promote a level playing field among market participants.

Benefits to aligning progression with P415

The implementation of P415 (if approved) would introduce misalignment between treatment of volumes delivered under the WM (post P415) and the BM markets.

In the absence of a solution to apply Supplier compensation in the BM (i.e without P444), Suppliers will be required to distinguish between two sets of volumes and apply different processes to compensation-eligible and compensation-exempt volumes based on which market, which is expected to be extremely challenging.

Without P444, P415 will have to implement system functionality to distinguish between WM and BM volumes for the purposes of compensation. Should Ofgem be supportive of both P444 and P415 and come to its view at the same time, there is an opportunity to avoid these additional system costs which would otherwise be paid by BSC Parties and reduce the overall cost for these two Modifications and come to its view at the same time, there is an opportunity to avoid these additional system costs which would otherwise be paid by BSC Parties and reduce the overall cost for these two Modifications.

While the Proposer and Workgroup believe in the benefits and efficiencies achieved by a parallel implementation with P415, in the case that P415 is withdrawn or rejected the Proposer believes that solving the P444 defect and introducing Supplier compensation into the BM remains a good idea on its own, and therefore that P444 can be treated as a standalone change if necessary but wants to verify this via the Assessment Consultation.

Legal text

The Legal Text to deliver the intent of P444's Proposed and Alternative solutions can be found in Attachment A.

Responses to the Assessment Consultation

Do you agree with the Workgroup that the draft legal text in Attachment A delivers the intention of P444?

Yes	No	Neutral/No Comment	Other
3	0	0	0

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Please note that, at the time of the Assessment Consultation, no formal Alternative had been raised, and what was referred to as the Proposed Solution (Compensation 1) has now become the Alternative. Legal Text to support the new Proposed Solution will be issued as part of the Report Phase Consultation, so that industry have an opportunity to review.

Respondents unanimously agreed with the draft legal text.

Are there any (other) alternative solutions?

The P444 Proposer and Workgroup wish for the P444 solution to align with whichever P415 solution variant is progressed and approved by Ofgem. When P415 came to a decision on whether to raise an Alternative Solution and, if so, which variant to adopt, the P444 solution mirrored these arrangements to enable an aligned approach. Even if P415 does not get approved, P444 would have the same proposed and alternative methodologies.

P415 (and therefore P444) Outcome

P415 and P444 Proposed Solution

Under the P415 and P444 Proposed Solutions, also referred to as Supplier Compensation 3:

- Compensation costs are mutualised across all Suppliers; and
- Compensation paid at a price that approximates the average Supplier sourcing costs.
- It should be noted that the Proposers of P415 and P444 are proposing this solution on the basis that it enables both a Proposed and Alternative solution to be brought before Ofgem, which would not be possible otherwise, as described in further detail in section 6. The P415 and P444 Proposers prefer that compensation is paid by the VLP and does not believe that the Proposed solution is a better option than the Alternative, but do believe that it is better than the current BSC arrangements in each case.

P415 and P444 Alternative Solution

Under the P415 and P444 Alternative Solutions, also referred to as Supplier Compensation 1:

- VLPs are liable for compensation costs; and
- Compensation is paid at a price that approximates the average Supplier sourcing costs

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4 Impacts & Costs

Estimated implementation costs of P444

- High: >£1 million
- Medium: £100-1000k
- Low: <£100k

At present, the Proposer and Workgroup wish to implement P444 alongside P415 to unlock efficiencies associated with implementing similar functionality for the BM and WM in the same release, should both Modifications be approved by Ofgem.

As such the following represents the expected total cost of delivering both P444 and P415 simultaneously.

Implementation cost estimates			
Organisation	Item	Implementation (£)	Comment
Elexon	Systems	£2.2-3.2 Million	Create new cashflows and allocate compensation as well as reporting. For the Proposed Solution, it would be necessary to calculate a Supplier Final Demand proportion. The Alternate Solution will use a sourcing cost charged to the VLP
	Documents	£2K	
	Other		
NGESO	Systems	Systems	None anticipated
	Other		
Industry	Systems & processes	Low	Based on limited responses to the consultations
	Total	£2.3-3.3 Million	

In the absence of P415 (if it is not approved), P444 would need to develop the functionality to introduce the relevant compensation cashflows and reporting for SBMU actions in the BM. Under the Proposed Solution Supplier Final Demand would need to be calculated, whereas the Alternate Solution would be paid for by the VLP at a set price based on a sourcing cost.

Estimated on-going costs of P444

On-going cost estimates		
Organisation	Costs (£)	Comment
Elexon	£10K per year	Management of new trading charge, Supplier Compensation Reference Price and impact on Market Entry, Qualification, Registration.

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On-going cost estimates		
Organisation	Costs (£)	Comment
NGESO	None anticipated	
Industry	Low	Extrapolated from limited response to CBA Call for Evidence
Total	Low ongoing costs anticipated	Based on limited responses to the consultations

P444 impacts

Impact on BSC Parties and Party Agents		
Party/Party Agent	Impact	Estimated cost
Virtual Lead Party	Depending on eventual P444 solution, VLPs may need to pay compensation to Suppliers for actions taken in the BM. This could be payable directly by VLPs or mutualised among Suppliers. When a supplier benefits, the VLP will be paid compensation by the benefiting supplier, or that compensation will be paid to all mutualised suppliers	L
Supplier	Under P444, Suppliers would receive compensation to address the commercial detriment they incur on VLP-adjusted BM volumes and have to pay compensation when they benefit.	L

Impact on the NETSO
Impact
No impact expected

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Impact on BSCCo		
Area of Elexon	Impact	Estimated cost
Performance Assurance	P444 will result in a new Trading Charge to account for adjusted BM volumes. The Performance Assurance Framework (PAF) is in place to provide assurance that Calculations and allocations of energy and the associated Trading Charges are performed within the BSC requirements. Risk 25 assesses the Balancing Services provided by Virtual Lead Parties allowing error to enter Settlement, such that the energy volumes required for Settlement are incorrect or missing	L

Impact on BSC Settlement Risks
Any risks to be tracked under Risk 25; the new risk assesses the Balancing Services provided by Virtual Lead Parties allowing error to enter Settlement, such that the energy volumes required for Settlement are incorrect or missing

Impact on BSC Systems and process	
BSC System/Process	Impact
SAA	Amendments to facilitate the calculation of application of compensation to Suppliers in the BM.
SVAA	Calculation of deviation volumes due to VLP activity in the BM

Impact on Code	
Code Section	Impact
BSC Section N	Addition of the new cashflows
Section S-2 (Alternate)	Calculation of gross demand for each Supplier BM Unit Provision of gross demand to SAA Calculation of non-final gross demand for each supplier BM Unit Provision of non-final gross demand to SAA
Section T (Proposed)	Reference to a new methodology to obtain the supplier compensation reference price Allowing the Panel to own and update the methodology Receiving Gross and Non-Final demand data from SVAA Calculation of supplier final demand proportions and compensation cashflows

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Impact on Code	
Code Section	Impact
Section T (Alternate)	Reference to a new methodology to obtain the supplier compensation reference price Allowing the Panel to own and update the methodology Calculation of compensation cashflows Addition of the new cashflows

Impact on EBGL Article 18 terms and conditions
This Modification is not expected to impact Balancing under the BSC but does impact the BSC provisions that constitute EBGL Article 18 Terms and Conditions, as described in BSC Section F, Annex F-2. We believe these amendments do not materially amend the EBGL Article 18 Terms and Conditions for the reasons given below.

Impact on EBGL Article 18 Terms and Conditions

The drafting of the P444 Legal Text impacts several BSC provisions that constitute EBGL Article 18 Terms and Conditions listed in BSC Section F Annex F-2. This impact will be consulted on as part of the Report Phase Consultation, with a concurrent EBGL consultation on the P444 proposal to run for one calendar month.

Within the redlining there is one clause, within one document, that have an impact on the EBGL Article 18 Terms and Conditions within the BSC. Due to this, the redlining will be issued for a one-month EBGL industry consultation to meet the EBGL change process obligations.

BSC Section	Clauses Impacted
Section S	11

Impact of the Modification on the Relevant EBGL Objectives:	
Relevant Objective	Identified impact
(a) Fostering effective competition, non-discrimination and transparency in balancing markets;	**Positive**
(b) enhancing efficiency of balancing as well as efficiency of European and national balancing markets;	Neutral
(c) integrating balancing markets and promoting the possibilities for exchanges of balancing services while contributing to operational security;	Neutral
(d) contributing to the efficient long-term operation and development of the electricity transmission system and electricity sector in the Union while facilitating the efficient and consistent functioning of day-ahead, intraday and balancing markets;	Neutral

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Impact of the Modification on the Relevant EBGL Objectives:	
(e) ensuring that the procurement of balancing services is fair, objective, transparent and market-based, avoids undue barriers to entry for new entrants, fosters the liquidity of balancing markets while preventing undue distortions within the internal market in electricity;	Neutral
(f) facilitating the participation of demand response including aggregation facilities and energy storage while ensuring they compete with other balancing services at a level playing field and, where necessary, act independently when serving a single demand facility;	**Positive**
(g) facilitating the participation of renewable energy sources and support the achievement of the European Union target for the penetration of renewable generation.	Neutral

The Workgroup consider that P444 is consistent and with the overall objectives and positive against (a) and (f), by making the overall arrangements for VLP activity fairer under the BSC, ensuring that they compete on a level playing field with other market participants.

Impact on Code Subsidiary Documents	
CSD	Impact
New Category 3 BSC Document	A new subsidiary document containing the Supplier compensation methodology

Impact on Core Industry Documents and other documents	
Document	Impact
Ancillary Services Agreements	None anticipated
Connection and Use of System Code	
Data Transfer Services Agreement	
Distribution Code	
Grid Code	
Retail Energy Code	
Supplemental Agreements	
System Operator-Transmission Owner Code	
Transmission Licence	
Use of Interconnector Agreement	

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Impact on a Significant Code Review (SCR) or other significant industry change projects
There is no impact on any open SCR. Ofgem confirmed this view on 8 September 2022.

Impact of the Modification on the environment and consumer benefit areas:	
Consumer benefit area	Identified impact
1) Improved safety and reliability The Proposer believes that greater volumes in the BM will lead to greater reliability.	**Positive**
2) Lower bills than would otherwise be the case The Proposer believes that greater competitive pressure in the BM will lead to lower BM prices.	**Positive**
3) Reduced environmental damage Add rationale and comments here	Neutral
4) Improved quality of service Add rationale and comments here	Neutral
5) Benefits for society as a whole Add rationale and comments here	Neutral

Responses to the Assessment Consultation

Do you agree with the Workgroup's assessment that P444 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC?

Yes	No	Neutral/No Comment	Other
3	0	0	0

Respondents agreed with the Workgroup's assessment, noting there would clearly be EGBL impacts. The P444 Proposer reiterated that P444 better supports the EBGL objectives:

(a) because it supports a level playing field in the BM;

(b) because greater levels of competition and volumes in the BM would lead to greater market efficiency;

(e) because it would lead to lower barriers of entry and increase liquidity in the BM; and

(f) because it would support demand side and aggregated capacity in particular.

What are the consumer benefit areas?

1) Will this change mean that the energy system can operate more safely and reliably now and in the future in a way that benefits end consumers?

2) Will this change lower consumers' bills by controlling, reducing, and optimising spend, for example on balancing and operating the system?

3) Will this proposal support:
i)new providers and technologies?
ii) a move to hydrogen or lower greenhouse gases?
iii) the journey toward statutory net-zero targets?
iv) decarbonisation?

4) Will this change improve the quality of service for some or all end consumers. Improved service quality ultimately benefits the end consumer due to interactions in the value chains across the industry being more seamless, efficient and effective.

5) Are there any other identified changes to society, such as jobs or the economy.

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Responses to the Assessment Consultation

Do you agree with the Workgroup's assessment of the impact on the BSC Settlement Risks?			
Yes	**No**	**Neutral/No Comment**	**Other**
2	0	1	0

Respondents either agreed or remained neutral in considering the Workgroup's assessment of the impact on the BSC Settlement Risks.

Will P444 impact your organisation?			
High	**Medium**	**Low**	**Other**
0	1	1	1

A VLP responded that, so long as P415 is implemented, the additional work for P444 will be minimal and that having the settlement of different types of dispatch settled on the same basis will simplify some processes. Another VLP identified a positive impact as it will allow them to better participate in the BM.

How much will it cost your organisation to implement P444?			
High	**Medium**	**Low**	**None/Other**
0	0	1	2

No material costs were identified by respondents. A VLP reported that they believed the change would have a net positive impact, so costs would in fact be negative.

What will the ongoing cost of P444 be to your organisation?			
High	**Medium**	**Low**	**None/Other**
0	0	1	2

Low, if any, ongoing costs were reported. It was noted that, so long as P415 is also implemented, P444 will reduce, rather than increase the administrative burden on VLPs. A VLP called out additional ongoing FTE to support wholesale trading and operational activities but was comfortable with this.

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How long (from the point of approval) would you need to implement P444?
1-4 Months

Respondents reported lead times of a few months to prepare for implementation of P444, if approved.

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5 Implementation

Recommended Implementation Date

The Workgroup and BSC Panel recommends an Implementation Date for P444 of:

- 7 November 2024 as part of the Standard November 2024 BSC Release

To support this release date, Elexon require a decision from the Authority to approve on or before 6 October 2023.

This aligns with the current plan for implementation of P415, which is desired by the Proposer and Workgroup, in order to unlock efficiencies associated with applying Supplier compensation to both the BM and WM in the same BSC Release.

Responses to the Assessment Consultation

Do you agree with the Workgroup's recommended Implementation Date?			
Yes	**No**	**Neutral/No Comment**	**Other**
3	0	0	0

Respondents agreed with this approach, noting support for the earliest possible implementation of this Modification but understanding there are efficiencies with implementing alongside P415 so agreeing with the proposed implementation date.

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6 Workgroup's Discussions

The P444 Workgroup met on 7 October and 7 December 2022, 28 February and 28 March. These were run as joint meeting days with P415 to efficiently utilise industry expertise around the related topics between the 2 Modifications.

As P444 aims to utilise functionality being developed for P415 in so far as that functionality could potentially be extended to the BM, the Workgroup noted that many of the relevant discussions had been held under P415. For a greater understanding of the rationale that lead to the development Supplier compensation requirements (including their variants), please see the P415 Solution Summary and reports on the P415 webpage.

Alignment with P415

The P444 Proposer and Workgroup believe that P444 should adopt the Supplier compensation mechanism functionality being developed for WM activity under P415 and propose that it be applied to the BM under P444.

There are several variants of Supplier compensation being considered under P415 and while the Proposer prefers Supplier Compensation 1, they ultimately want overall alignment with P415, whichever variant is chosen or approved by Ofgem.

To facilitate this, the Proposer and Workgroup want an aligned, coordinated decision from Ofgem so that P444 is correctly aligned with whichever variant is preferred.

Raising an Alternative Solution

As per the defined process in Section F 'Modification Procedures', an Alternative solution can only go forward if a majority of the group believe that is better than the proposed.

As described in greater detail in the reports for P415, ahead of the vote to raise Supplier Compensation 3 as a formal Alternative for P415, Ofgem had explained to the group that their preference was for multiple variants of the P415 Solution (i.e a Proposed and Alternative solution) to be passed through to them to allow them as full a picture as possible when deciding on the Modification.

A Workgroup member raised Compensation 3 as a formal P415 Alternative Solution and the group voted as to whether they agreed it was better than the Proposed solution, however only a minority agreed that it would be better and therefore this Alternative was not raised.

At this point, the Ofgem representative for P415 reiterated that they would have preferred an Alternative to be raised (though accepting of the restrictions around process regarding the bringing forward of any Alternative) but also clarified for the group that the lack of any alternative options could increase the risk of Send Back or rejection from the Authority, which would ultimately risk delivering P415 and P444 to desired timescales.

The group noted that the failure to raise an Alternative presented a risk in this regard and so, to allow for an Alternative solution that met the process requirements for the Alternative to be better supported by a majority of the Workgroup than the Proposed, the P415 Proposer states that they would like to "switch" the Proposed solution so that this becomes Compensation 3 (mutualised, price paid at approximation of sourcing cost) and the group would then vote to raise Compensation 1 (VLP pays compensation at approximation of sourcing cost) as the Alternative solution.

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This vote proceeded and a majority of the group voted that they believe the now-Alternative (Compensation 1) to be better than the now-Proposed (Compensation 3) and thus enable the presentation of both these options to the BSC Panel and Ofgem and reduce the risk of any further delay.

The P444 Proposer agreed to the same set of actions in order to align the two Modifications and allow a P444 Alternative to be raised.

To reiterate: as with P415, the P444 Proposed Solution became the Compensation 3 variant, with the Alternative Solution as Compensation 1.

Understanding the impacts and additional consultation questions

In order to better understand the materiality of this issue, the Workgroup note that more input should be sought from Suppliers and VLPs to better understand the issue, impacts and benefits case to making this change via the Assessment Consultation.

In the 2nd Workgroup meeting, a member asked whether there was any additional information on the likely impact to Suppliers and in particular Supplier systems. Elexon noted that because Supplier systems are all different, it would be hard to take an accurate and confident view, but pointed out that compensation comes in the form of trading charges (imbalance charges), so those systems may need to be amended.

The Assessment Consultation provides Suppliers and VLPs with a chance to feed in the impacts they expect to help assess P444, which is captured via the question below. In particular the group encourage Suppliers to give feedback via the consultation on what they would need to do so that the impacts can be better understood.

As part of the P444 Terms of Reference, the group were invited to consider whether any data on what volumes of energy have been used by VLPs to establish the impact on Suppliers and how this might change over the next 10 years?

The P444 group were not aware of any data that could help to answer this point, and wish to use the consultation to seek information from VLPs on what volumes of flexibility they have delivered (and how they might expect this to change), in order to better understand the impact on Suppliers.

Responses to the Assessment Consultation

To establish the impact on Suppliers, if you are a VLP, what volumes of flexibility have you delivered and how this might change over the next 10 years?

A VLP noted that so far, they had delivered very little in the balancing mechanism because they had been waiting for the implementation of P376. They expected to grow their participation substantially. For context, their capacity market portfolio is in the hundreds of MW. The respondent added that they would expect a fair proportion of their capacity market customers to also be interested in balancing mechanism participation.

The P444 Proposer, also a VLP, felt that they were not able to provide further information as this would risk sharing commercially sensitive information.

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Will P444 affect market participants' business models?

Noting that organisations active in the BM have invested in the status quo (i.e an environment with no compensation), one Workgroup member felt it would be valuable to consult on the question of whether P444 could change their investment plans or induce a change to their business models.

Responses to the Assessment Consultation

Assessment Consultation Responses: Would the additional of Supplier compensation into the BM under P444 change your organisation's investment plans or otherwise induce a change to your business model?			
Yes	**No**	**Neutral/No Comment**	**Other**
1	1	0	1

One VLP replied that it would not change their plans, while another replied that it would influence them positively to allow them to better participate as a VLP in the BM.

Assessing P444 as a standalone change

While the Proposer and Workgroup note the benefits and efficiencies achieved by a parallel implementation with P415, in the case that P415 is withdrawn or rejected the Proposer believes that solving the P444 defect and introducing Supplier compensation into the BM remains a good idea on its own, and therefore that P444 can be treated as a standalone change if necessary but wants to verify this via the Assessment Consultation.

Do you agree with the Workgroup that there would still be value in progressing P444 even if P415 is not approved?			
Yes	**No**	**Neutral/No Comment**	**Other**
1	1	1	0

A respondent who is also the Proposer of P415 responded that they think it would be worthwhile considering a scenario in which P415 is not approved.

The P444 Proposer responded to confirm that, yes, they believe this change should be seen as standalone as there is a strong case for amending the BM VLP arrangements, even if changes to allow VLPs into the wholesale market are not made. The Proposer reiterated that in the case that P415 is not implemented, Supplier Compensation Method 1 from P415 should be implemented for P444.

NGESO responded to say they remained agnostic on this point due to broader concerns around supplier compensation, as described elsewhere in this document and in the P415 reports.

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7 Workgroup's Conclusions

The Workgroup (8 voting members) provided its views on both the P444 Proposed and Alternative Modifications against the Applicable BSC Objectives.

The **majority** of the Workgroup believes that P444 **Alternative** Modification would overall better facilitate the Applicable BSC Objectives compared with both the existing baseline and Proposed Modification and so should be approved.

Members' views against each of the Applicable BSC Objectives are summarised below:

Does the P444 Proposed Solution better facilitate the Applicable BSC Objectives?		
Obj	Proposer's Views	Other Workgroup Members' Views[1]
(a)	• Neutral	• Neutral
(b)	• **Positive**	• **Neutral (majority)**
(c)	• **Positive**	• **Neutral/Negative (split)**
(d)	• Neutral	• Neutral
(e)	• Neutral	• Neutral
(f)	• Neutral	• Neutral
(g)	• Neutral	• Neutral

Proposed Solution

The Proposer believes that the Proposed Solution better facilitates BSC Objectives (b) and (c) and is better against the overall BSC baseline (the status quo). As described previously, the P444 Proposer prefers the Alternative Solution.

Only a **minority** of Workgroup members (1 other member) agreed with this assessment of (b) and (c) and that the Proposed Solution was overall better against the baseline.

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

The Proposer believes that the operation of the electricity system will be supported as a result of more efficient BM arrangements and greater participation in the BM under the Proposed Solution.

A **majority** of members (5) believed that P444 is neutral against this objective, on the basis that VLPs already have access to the BM market under current arrangements.

[1] Shows the different views expressed by the other Workgroup members – not all members necessarily agree with all of these views.

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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Objective (c) - Promoting efficiency in the implementation of the balancing and settlement arrangements

The Proposer believes that greater volumes of available capacity in the BM will lead to greater competitive pressure and promote a level playing field for competition under the Proposed Solution.

The rest of the Workgroup were split. 3 members voted that they believed the Proposed Solution to be overall neutral, on the basis that VLPs already have access to the WM market and they couldn't identify a significant benefit that the Proposed Solution would bring to the current arrangements.

Another split (3 members) felt that the Proposed solution would be overall detrimental to this objective and the current arrangements as a whole, noting concerns over the impact the Proposed Solution could have on competition on the Supply side - by mutualising a risk that Suppliers can't manage, then putting the cost of that risk onto Suppliers to pay for competition.

One of these members did not support any form of supplier compensation on the basis that they believed it would harm competition.

Does the P444 Alternative Solution better facilitate the Applicable BSC Objectives?		
Obj	Proposer's Views	Other Workgroup Members' Views[2]
(a)	• Neutral	• Neutral
(b)	• **Positive**	• **Positive/Negative (split)**
(c)	• **Positive**	• **Positive (majority)**
(d)	• Neutral	• Neutral
(e)	• Neutral	• Neutral
(f)	• Neutral	• Neutral
(g)	• Neutral	• Neutral

Alternative Solution

A **majority** (5 members) of the Workgroup believe that the Alternative Solution better facilitates the BSC objectives against the overall BSC baseline (the status quo).

The P444 Proposer aligns to this view and prefers the Alternative Solution.

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

3 members voted that they believed the Alternative Solution to be positive against objective (b), for the same reasons as given for the Proposed but with several additional

[2] Shows the different views expressed by the other Workgroup members – not all members necessarily agree with all of these views.

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members believing the Alternative better supported this objective than the Proposed by more fairly allocating costs and clarifying who is responsible for paying them.

Another split (3 members) felt that the Alternative solution would be overall detrimental to this objective and the current arrangements as a whole, due to encouraging less participation and creating a barrier to entry for VLPs due to the extra cost they would incur.

Objective (c) - Promoting efficiency in the implementation of the balancing and settlement arrangements

A **majority** (5 members) of the Workgroup believe that the Alternative Solution better facilitates the objective (c), for the same reasons given for the Proposed Solution but with several additional members believing the Alternative better supported this objective than the Proposed by creating a more level playing field.

A **minority** (3 members) disagreed and felt the Alternative Solution is detrimental to this objective, on the basis that they believe it creates a barrier to existing VLPs.

Which solution should be approved?

For the reasons given above, the **majority** of the Workgroup (5 members, including the P444 Proposer) believe that the P444 **Alternative Modification** would overall better facilitate the Applicable BSC Objectives compared with both the existing baseline and Proposed Modification and so should be **approved**.

Responses to the Assessment Consultation

Do you agree with the Workgroup's initial majority view that P444 does better facilitate the Applicable BSC Objectives than the current baseline?			
Yes	**No**	**Neutral/No Comment**	**Other**
3	1	0	0

Please note that at the time of the Assessment Consultation for P444, an Alternative solution had not been formally raised. These responses relate to the Compensation 1 solution (now the Alternative solution), which at the time was the sole P444 Solution.

A majority of respondents agreed with the initial view that P444 would better facilitate the objectives than the current baseline.

Arguments to support this view centred on removing a distortion, believing P444 would further objectives (b) and (c) within the code.

It was also noted that aligning this compensation mechanism with P415 would be efficient, because if Ofgem make an aligned decision and the two Modifications can be implemented alongside one another it will lead to a more efficient outcome.

NGESO replied to state that they did not agree. As per their response to P415, against objective (b) they did not agree that P444 is better than current baseline, citing issues that will arise from supplier compensation which may cause distortions and inefficiencies.

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8 Panel's Initial Discussions

The P444 Assessment Report was presented to the Panel at its meeting on 13 April 2023 (337/06). The Panel agreed to progress the Modification to the Report Phase.

Initial Recommendations

The Panel were relatively split on whether the P444 Proposed Solution does better facilitate Applicable BSC Objective (b). The Panel overall believed that P444 is **positive** against Applicable BSC Objective (b).

A **majority** of Panel members agreed that the P444 Proposed Solution **does not** better facilitate Applicable BSC Objective (c). 3 Panel members voted that the Proposed is better against (c), while 3 votes believed it to be neutral, and 2 votes believed it to be negative (detrimental to the objective).

A **majority** of Panel members agreed that the P444 Alternative Solution does better facilitate Applicable BSC Objective (b), and the Panel **unanimously** agreed that the P444 Alternative Solution does better facilitate Applicable BSC Objective (c).

The Panel **unanimously** agreed that the P444 Alternative Modification is better than the P444 Proposed Modification and that the Alternative Solution should be approved (with the Proposed Solution rejected).

The Panel **unanimously:**

- agreed that P444 should not be treated as a Self-Governance Modification;
- agreed that P444 does impact the EBGL Article 18 Terms and Conditions;
- agreed the Implementation Date;
- agreed the legal text; and
- agreed that P444 should be submitted to the Report Phase.

Initial Discussions

The Panel noted concern that few replies to the P444 APC had been received. Elexon sympathised, noting that this could have been an effect of issuing two large consultations (especially the longer and more complicated P415 consultation) in tandem. Elexon also noted that some respondents had chosen to respond to P415 to make their feelings known on both solutions. A Panel member (who was also a member of both the P415 and P444 Workgroups) confirmed that for many industry respondents the thinking was consistent for both Modifications, with the arguments and opinions effectively applying for each.

The Panel queried whether anything could be done to bring forward the Implementation Date of P444, one year from the point of approval by Ofgem. The Panel acknowledged that the complexity of interactions between the various BSC systems requiring amendment to deliver P444 made it extremely challenging to bring this date forward any more. Elexon also clarified that there was no significant implementation impact difference between the Proposed and Alternative solutions that would mean that one was quicker to implement than the other in this regard. Elexon further highlighted that there was significant work needed to deliver the P415/444 solutions, as indicated by the cost levels, and as such

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November 2024 was a realistic and reasonable point at which there is certainty that the solutions can be delivered.

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9 Report Phase Consultation Responses

This section summarises the responses to the Panel's Report Phase Consultation on its initial recommendations. You can find the full responses in Attachment C.

Three responses were received, from Suppliers and a Trade Body. Aside from one Supplier who had not replied to the Assessment Consultation (but had been present at the P444 Workgroups), all respondents had previously replied to a P444 consultation.

Summary of P444 Report Phase Consultation Responses				
Question	Yes	No	Neutral/ No Comment	Other
Do you agree with the Panel's initial unanimous recommendation that the P444 Alternative solution should be approved?	2	1	0	0
Do you agree with the Panel that the redlined changes to the BSC deliver the intention of P444 for the Proposed and Alternative Modifications?	2	1	0	0
Do you agree with the Panel's recommended Implementation Date?	2	1	0	0
Do you agree with the Panel's initial view that P444 should not be treated as a Self-Governance Modification?	3	0	0	0
Do you agree with the Panel's initial consideration that P443 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions related to balancing held within the BSC?	3	0	0	0
Do you have any comments on the impact of P444 on the EBGL objectives?	0	3	0	0
Do you have any further comments on P444?	0	3	0	0

There were mixed views, which are summarised below, on the Panel's initial views.

Views on Panel's initial recommendation that the P444 Alternative solution should be approved

Two respondents agreed with the view that the P444 Alternative solution should be approved and their arguments were in line with those they had previously given in both the Assessment Consultation and the P444 Workgroup.

One respondent who had not replied to the Assessment Consultation but had been present at the P444 Workgroups believes that P444 should not be approved, feeling that the P444 and P415 solutions as currently designed do not adequately compensate Suppliers for the associated risks of VLP actions.

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Redlined changes to the BSC

Two respondents agreed with the Panel that the redlined changes to the BSC deliver the intention of P444. One respondent replied negatively and explained that this was because they did not support the P444 solution as a whole.

Implementation Date

Most respondents disagreed with the Panel with the Panel's recommended Implementation Date for P444, with reasons echoing those already given in the Assessment Consultation or in the Workgroups (faster implementation preferred, with one respondent believing more time should be allowed for development).

Self-Governance

One respondent agreed with the Panel that the P444 should not be treated as a Self-Governance Modification and should therefore be sent to the Authority for decision, whilst the other respondents remained neutral and did not provide a view.

EBGL impacts

Respondents either agreed with the Panel's initial consideration that P444 does impact the EBGL Article 18 terms and conditions held within the BSC or remained neutral on this point. No further comments were offered.

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10 Recommendations

We invite the Panel to:

- **AGREE** that the P444 Proposed Modification:
    - **DOES** better facilitate Applicable BSC Objective (b);
- **AGREE** that the P444 Alternative Modification:
    - **DOES** better facilitate Applicable BSC Objective (b); and
    - **DOES** better facilitate Applicable BSC Objective (c);
- **AGREE** that the P444 Alternative Modification is better than the P444 Proposed Modification;
- **AGREE** that P444 should not be treated as a Self-Governance Modification;
- **AGREE** that P444 **DOES** impact the EBGL Article 18 terms and conditions held within the BSC but the impact is **positive**;
- **AGREE** a recommendation that the P444 Alternative Modification should be **approved** and that the P444 Proposed Modification should be **rejected**;
- **APPROVE** an Implementation Date for the Proposed and Alternative Modifications of:
    - 7 November 2024 and part of the Standard November 2024 BSC Release if a decision is received on or before 6 October 2023;
- **APPROVE** the draft legal text for the P444 Proposed and Alternative Modifications; and
- **APPROVE** the P444 Modification Report.

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Appendix 1: Workgroup Details

Workgroup's Terms of Reference

Specific areas set by the BSC Panel in the P444 Terms of Reference	Conclusion
Should P444 adopt the Supplier compensation mechanism functionality being developed for WM activity under P415?	Yes, it is appropriate
Is there any data on what volumes of energy have been used by VLPs to establish the impact on Suppliers and how this might change over the next 10 years?	The Workgroup seek additional information via the Assessment Consultation
How will P444 impact the BSC Settlement Risks?	No direct impact to Settlement risks, but emerging risks will be tracked
What changes are needed to BSC documents, systems and processes to support P444 and what are the related costs and lead times? When will any required changes to subsidiary documents be developed and consulted on?	Described above
Are there any Alternative Modifications?	Described above
Should P444 be progressed as a Self-Governance Modification?	Described above
Does P444 better facilitate the Applicable BSC Objectives than the current baseline?	Described above
Does P444 impact the EBGL provisions held within the BSC, and if so, what is the impact on the EBGL Objectives?	Described above

Assessment Procedure timetable

P444 Assessment Timetable	
Event	Date
Panel submits P444 to Assessment Procedure	1 September 2022
Workgroup Meeting 1	7 October 22
Workgroup Meeting 2	7 December 22
Assessment Procedure Consultation	January – February 2023
Workgroup Meeting 3	28 February 2023
Workgroup Meeting 4	28 March 2023
Panel considers Workgroup's Assessment Report	April 2023

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Assessment Procedure Consultation Responses

P444 'Compensation for Suppliers and Virtual Lead Parties for Virtual Lead Party actions in the Balancing Mechanism (BM)'

This Assessment Procedure Consultation was issued on 25 January 2023, with responses invited by 20 February 2023.

Phase

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

Consultation Respondents

Respondent	Role(s) Represented
Enel X	Virtual Lead Party
Association for Decentralised Energy (ADE)	Trade Body
Flexitricity	Supplier, Virtual Lead Party
National Grid ESO	NETSO

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Question 1: Do you agree with the Workgroup's initial unanimous view that P444 does better facilitate the Applicable BSC Objectives than the current baseline?

Summary

Yes	No	Neutral/No Comment	Other
3	1	0	0

Responses

Respondent	Response	Rationale
Enel X	Yes	We agree that, by removing a distortion, it will further objectives (b) and (c). What's more, by harmonising with P415 (assuming it is implemented), it will further objective (d).
ADE	Yes	We would refer Elexon to our consultation response on P415 'Facilitating Access To Wholesale Markets For Flexibility Dispatched By VLPs' for all below questions. We support the progression of P444 in line with our opinions on P415.
Flexitricity	Yes	Yes – P444 addresses a market distortion that exists following the introduction of P344. BSC Modification P344 created the concept of Virtual Lead Parties (VLPs) to allow independent aggregators to access the Balancing Mechanism (BM). P344 introduced a mechanism to adjust each Supplier's position to remove the volume dispatched by VLPs at sites registered to that Supplier. However, when a VLP takes an action on a Supplier's customer, while the volume of the action is removed from the Supplier's imbalance position, it remains present in the customer's meter. This means that volumes billed between customer and Supplier do not match the volumes against which the Supplier is settled for imbalance, even where the Supplier has correctly hedged the customer's volume. This result of this is that the VLP gains value in Offers and loses value in Bids, which impacts VLPs ability to compete on a level playing field. P444 introduces a compensation mechanism to correct the impact of VLP actions by assigning a price to these volumes. This is similar to the compensation mechanism potentially introduced by

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Respondent	Response	Rationale
		P415 and aligning this compensation mechanism with P415 would be efficient. P444 therefore better facilitates the following BSC Objectives, compared to the current baseline: (b) Because it will allow greater volumes of flexibility from VLPs in the BM, and support flexibility more generally (c) Because it will allow effective competition between VLPs, generators and suppliers (d) Because if implemented alongside P415 it will lead to a more efficient outcome
National Grid ESO	No	As per our response to P415, against objective (b) we do not agree that P444 is better than current baseline. In our response to P415, we detail issues that will arise from supplier compensation which may cause distortions and inefficiencies, we believe this may also carry over in to P444. Please see our P415 responses to Q12-15 for more detail. Against objective (c), whilst we note that this modification may result in better market access for VLPs the consequences of implementation of supplier compensation outweigh the benefits and as such we do not support the implementation of supplier compensation.

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Question 2: Do you agree with the Workgroup that the draft legal text in Attachment B delivers the intention of P444?

Summary

Yes	No	Neutral/No Comment	Other
3	0	0	0

Responses

Respondent	Response	Rationale
Enel X	Yes	Yes, it seems a quite straightforward, when considered as an incremental change over P415.
Flexitricity	Yes	Yes we agree.
National Grid ESO	Yes	We believe the legal text reflects the intent of the proposal

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Question 3: Do you agree with the Workgroup's recommended Implementation Date?

Summary

Yes	No	Neutral/No Comment	Other
3	0	0	0

Responses

Respondent	Response	Rationale
Enel X	Yes	It should be aligned with P415, so long as this doesn't delay P415.
Flexitricity	Yes	We support the earliest possible implementation of this Modification but understand there are efficiencies with implementing alongside P415 so agree with the proposed implementation date.
National Grid ESO	Yes	The suggested implementation date should give sufficient lead time.

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Question 4: Do you agree with the Workgroup's assessment of the impact on the BSC Settlement Risks?

Summary

Yes	No	Neutral/No Comment	Other
2	0	1	0

Responses

Respondent	Response	Rationale
Enel X	Yes	We agree that this modification introduces no additional risks beyond those of the other Wider Access reforms, which are already being tracked.
Flexitricity	Yes	Yes, we agree there would be no impact on BSC Settlement Risks.
National Grid ESO	No comment	No comment

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Question 5: Do you agree with the Workgroup's assessment that P444 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC?

Summary

Yes	No	Neutral/No Comment	Other
3	0	0	0

Responses

Respondent	Response	Rationale
Enel X	Yes	The proposed legal text does change an EBGL-relevant clause.
Flexitricity	Yes	We believe this modification better supports the EBGL terms and conditions.
National Grid ESO	Yes	The modification clearly impacts EBGL Article 18 so the ESO would agree with this assessment

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Question 6: Do you have any comments on the impact of P444 on the EBGL objectives?

Responses

Respondent	Rationale
Enel X	No
Flexitricity	P444 better supports objectives: (a) because it supports a level playing field in the BM (b) because greater levels of competition and volumes in the BM would lead to greater market efficiency (e) because it would lead to lower barriers of entry and increase liquidity in the BM (f) because it would support demand side and aggregated capacity in particular
National Grid ESO	No

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Question 7: Will P444 impact your organisation?

Summary

High	Medium	Low	Other
0	1	1	1

Responses

Respondent	Response	Rationale
Enel X	Low	So long as P415 is implemented, the additional work for P444 will be minimal. In fact, having the settlement of different types of dispatch settled on the same basis will simplify some processes.
Flexitricity	Medium	Yes – it will have a positive impact as it will allow us better participate in the BM
National Grid ESO	Other	We are supportive of greater competition and participation to help drive the most optimal cost for consumers. We consider that increased VLP participation should encourage more efficient use of the system, as well as reducing barriers to entry and widening of the market, which in turn will enable additional volumes of demand flexibility. However, as currently defined, this modification would not require VLPs to provide data to ESO or their supplier. Without this data, additional demand flexibility will simply manifest as additional demand uncertainty when operating the system. For example, additional reserve capacity required to manage the increased uncertainty in demand will significantly increase costs and offset the potential benefits of the solution this runs contrary to the investments in Forecasting that were made in BP1 and continue to be made in BP2 and is to the detriment of the end consumer.

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Question 8: How much will it cost your organisation to implement P444?

Summary

High	Medium	Low	Other	None
0	0	1	1	1

Responses

Respondent	Response	Rationale
Enel X	Low	We do not foresee any material implementation costs, so long as P415 is also implemented.
Flexitricity	N/A	NA – we believe the change will have a net positive impact, so costs are negative
National Grid ESO	None	No cost impact anticipated

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Question 9: What will the ongoing cost of P444 be to your organisation?

Summary

High	Medium	Low	None	Other
0	0	1	1	1

Responses

Respondent	Response	Rationale
Enel X	Low	So long as P415 is also implemented, P444 will reduce, rather than increase the administrative burden on VLPs.
Flexitricity	Other	We expect to have ongoing FTE to support wholesale trading and operational activities. This will be spread across a number of teams and support existing functions.
National Grid ESO	None	No ongoing cost impact anticipated

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Question 10: How long (from the point of approval) would you need to implement P444?

Responses

Respondent	Response	Rationale
Enel X	4 Months	There is nothing in the proposal that would require a long lead time for us.
Flexitricity	1-2 Months	Our expected lead time would be low (1-2 months) as we are already trading in the BM.
National Grid ESO	-	We believe the suggested lead time should be sufficient

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Question 11: If you are a VLP, what volumes of flexibility have you delivered and how this might change over the next 10 years? This information will help establish the impact on Suppliers.

Responses

Respondent	Response
Enel X	So far, we have delivered very little in the balancing mechanism, because we have been waiting for the implementation of P376. We expect to grow our participation substantially. For context, our capacity market portfolio is in the hundreds of MW; we would expect a fair proportion of our capacity market customers to also be interested in balancing mechanism participation.
Flexitricity	NA – this is commercially sensitive information
National Grid ESO	Not Applicable

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Question 12: Would the addition of Supplier compensation into the BM under P444 change your organisation's investment plans or otherwise induce a change to your business model?

Summary

Yes	No	Unsure	Other
1	1	0	1

Responses

Respondent	Response	Rationale
Enel X	No	No
Flexitricity	Yes	It would allow us to better participate as a VLP in the BM.
National Grid ESO	Other	We have highlighted our concerns around supplier compensation in our response to P415

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Question 13: Do you agree with the Workgroup that there would still be value in progressing P444 even if P415 is not approved?

Summary

Yes	No	Unsure	Other
1	1	1	0

Responses

Respondent	Response	Rationale
Enel X	No	We don't think it's worthwhile considering a scenario in which P415 is not approved.
Flexitricity	Yes	Yes, we believe this change should be seen as standalone. There is a strong case for amending the BM VLP arrangements, even if changes to allow VLPs into the wholesale market are not made. Where P415 is not implemented, Supplier Compensation Method 1 from P415 should be implemented.
National Grid ESO	Other	We are agnostic on this point due to broader concerns around supplier compensation.

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Question 14: Do you have any further comments on P444?

Responses

Respondent	Response
Enel X	No
Flexitricity	Yes – we favour Supplier Compensation Method 1 from the P415 solution. The other compensation methods risk causing a market distortion. However this is primarily a question for the P415 Modification. Above all, the compensation methods should be aligned between wholesale and BM.
National Grid ESO	No thank you

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P444 'Compensation for Suppliers and Virtual Lead Parties for Virtual Lead Party actions in the Balancing Mechanism (BM)'

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Phase

Initial Written Assessment

Definition Procedure

Assessment Procedure

Report Phase

Implementation

This Report Phase Consultation was issued on 17 April 2023, with responses invited by 17 May 2023.

Consultation Respondents

Respondent	Role(s) Represented
E.ON UK	Supplier
Association for Decentralised Energy (ADE)	Trade Body (The ADE is the UK's leading decentralised energy advocate, focused on creating a more cost effective, low-carbon and user-led energy system. The ADE has more than 160 members active across a range of technologies, including both the providers and the usersof energy equipment and services. Our members have particular expertise in demand side energy services including demand response and storage, combined heat and power, heat networks and energy efficiency.)
Drax BSC Parties (including Opus Energy and Drax Energy Solutions)	Generator, Supplier, ECVNA, MVRNA

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Question 1: Do you agree with the Panel's initial unanimous recommendation that the P444 Alternative solution should be approved?

Summary

Yes	No	Neutral/No Comment	Other
2	1	0	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive of Compensation 1 - VLP pays Supplier compensation)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive of Compensation 1 - VLP pays Supplier compensation)
Drax BSC Parties	No	We do not believe this solution is cost-effective, proportionate or practical. Significant work is still required, alongside P415, to ensure that a cost-effective solution is developed, that ensures a level playing field is achieved, and doesn't introduce unnecessary risk and costs to industry participants. The P444 solution as currently designed does not adequately compensate Suppliers for the associated risks of VLP actions. It also underestimates the scale of changes required to Supplier systems. As set out in our response for P415 above, proposed changes would result in a need for more granular forecasting on a site basis and more complex hedging requirements with associated system and process impacts. Also as set out above, the solution as currently drafted is open to potential abuse/gaming. The Day Ahead Price could be different to the price that a Supplier may have originally locked for this volume where hedging years in advance. The wholesale element of the price cap and the price cap itself will have changed and, although reflective of the market conditions, Suppliers may not get the full value that they originally forecast for this volume. For all the reasons set out above, we believe that P444 would be negative towards: • Objective b) - "The efficient, economic and co-ordinated operation of the National Transmission

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Respondent	Response	Rationale
		System" - because we do not agree that P444 is better than the current baseline. As detailed above, there are a number of issues regarding the proposed Supplier compensation together with the potential for abuse/gaming by VLPs. P444 as currently proposed introduces significant complexity and risk of consumer harm for an unquantified and non-specific benefit. • Objective 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" - given the potential for abuse/gaming by VLPs and non-level playing field of Supplier impacts, including to systems, processes and credit cover. • Objective d) – "Promoting efficiency in the implementation and administration of the balancing and settlement arrangements" - given the added complexity associated with the solution.

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Question 2: Do you agree with the Panel that the redlined changes to the BSC deliver the intention of P444 for the Proposed and Alternative Modifications?

Summary

Yes	No	Neutral/No Comment	Other
2	1	0	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive)
Drax BSC Parties	No	Although we support mechanisms to enhance and extend the value and access of consumer flexibility in the wholesale market, and with increased engagement of demand side response we not believe that P444 achieves this in a proportionate, practical and efficient way. We believe that further review and cost benefit analysis is required.

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Question 3: Do you agree with the Panel's recommended Implementation Date for P444?

Summary

Yes	No	Neutral/No Comment	Other
2	1	0	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive)
Drax BSC Parties	No	We believe that, for the reasons as set out in our response above, considerable work is still required in order to ensure that a practical and cost-effective solution is developed, and which does not introduce unnecessary risk to industry participants. Once this has been achieved, we would require at least 12 months lead time following an Authority Decision in order to implement required changes to our systems and processes.

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Question 4: Do you agree with the Panel's initial view that P444 should not be treated as a Self-Governance Modification?

Summary

Yes	No	Neutral/No Comment	Other
3	0	0	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive)
Drax BSC Parties	Yes	Given the impacts and complexities associated with P444, and the risks that the current solutions introduce, we agree with the unanimous Workgroup and Panel opinion that it should not be treated as a Self-Governance Modification.

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Question 5: Do you agree with the Panel's initial consideration that P444 does impact the European Electricity Balancing Guideline (EBGL) Article 18 terms and conditions held within the BSC?

Summary

Yes	No	Neutral/No Comment	Other
3	0	0	0

Responses

Respondent	Response	Rationale
E.ON UK	Yes	Views have not changed since response to Assessment Consultation (Supportive)
ADE	Yes	Views have not changed since response to Assessment Consultation (Supportive)
Drax BSC Parties	Yes	We have no comments at this time.

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Question 6: Do you have any comments on the impact of P444 on the EBGL objectives?

Summary

Yes	No
0	3

Responses

Respondent	Response
E.ON UK	None
ADE	None
Drax BSC Parties	None

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Question 7: Do you have any further comments on P444?

Summary

Yes	No
0	3

Responses

Respondent	Response
E.ON UK	None
ADE	None
Drax BSC Parties	None

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