WESTERN POWER DISTRIBUTION

INNOVATION

NEXT GENERATION NETWORKS

IntraFlex

Initial Market Design

Contents

1 Executive Summary

This document summarises the initial market design for the IntraFlex project and is intended to help facilitate engagement with relevant stakeholders to stimulate discussion and refinement of the design to ensure maximum value for the UK electricity customer before any trialling begins.

The recently registered Network Innovation Allowance (NIA) project is looking to address the disconnect between Distribution Network Operator (DNO) flexibility service procurement and the imbalance it creates on the electricity network.

Due to the limited volumes procured to date, the impact of these calls is currently de-Minimis. However as DNO's commit further to the procurement flexibility services, this impact is expected to increase. As such the project aims to understand how links could be created between DNO service procurement and the energy market to minimise any risk as well as understand how this would impact on both market participation and prices seen.

The solutions to be trialled are detailed in the document below and consist of the operation of a new closer to real time markets for DNO services facilitated by the NODES market platform. This new market will have two imbalance mitigation services. The first will cover the time between current service procurement (week ahead) and the day ahead energy auction, and will simply provide enhanced information on DNO actions to Balance Responsible Parties (BRP). The second, in the intraday timeframe, where imbalance caused by the DNO is automatically rebalanced through a link to the intraday market.

Initial overviews of the expected participant journeys and technical interfaces are also provided to help provide further context on how we see the trial proceeding and trigger further comment.

We welcome any feedback on the provided questions, or the project as a whole. Please contact WPDInnovation@westernpower.co.uk .

2 Project Background

2.1 DNO procurement of flexibility

Following a number of innovation trials all UK DNO's have now committed to the consideration of Flexibility services for relevant network reinforcement of significant value[1].

Within WPD, this procurement is conducted under our Flexible Power[2] brand. This comprises a set of tools and processes to allow for the procurement and operation of flexibility services to manage DNO constraints. These services are procured ahead of time through a dynamic purchasing systems, with actual calls accepted on a weekly basis from availability supplied by participants. This is highlighted in the figure below.

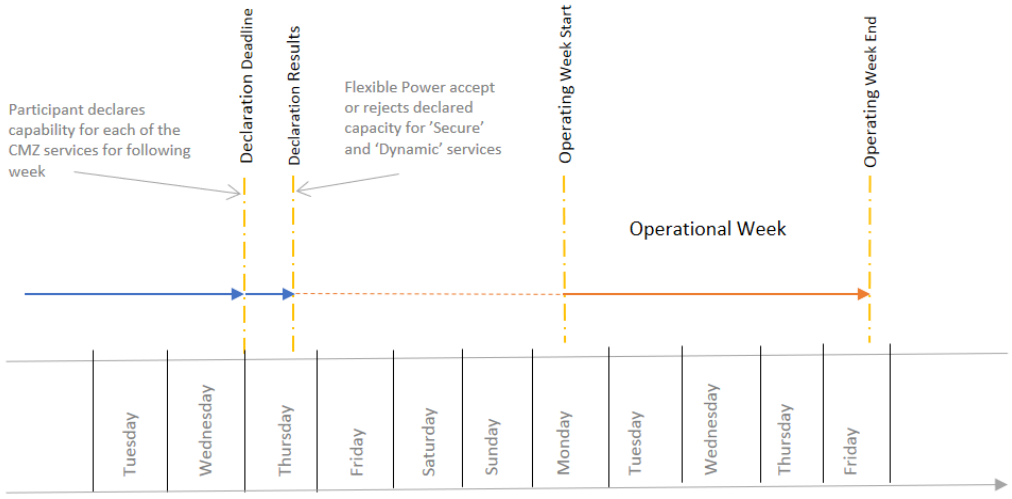

Figure 1: Flexible Power operational timeline

WPD currently procures three services for active power reduction. These are detailed in the table below and align with the products defines as part of the cross industry Open Networks project[3] (see table 2).

[1] http://www.energynetworks.org/assets/files/ENA%20Flex%20Committment.pdf
[2] www.flexiblepower.co.uk
[3] http://www.energynetworks.org/assets/files/ON-WS1-P2%20DSO%20Service%20Requirements%20-%20Definitions%20-%20PUBLISHED.pdf
http://www.energynetworks.org/assets/files/ON-WS1-P2%20Product%20Definition_Final_7Sept2018%20-%20PUBLISHED.pdf

Table 1: Flexible Power services

	Secure	Dynamic	Restore
Advance Payment	Arming	Availability	None
Utilisation	Medium	High	Premium
Participant declaration	Week Ahead	Week Ahead	Week Ahead
FP Accept / Reject	Week Ahead	Week Ahead	Automatic Accept
Dispatch Notice	Week Ahead *	15 minutes	15 Minutes
Seasonal Requirement	All	Summer	All
Site Type	Half Hourly Metered	Half Hourly Metered	Half Hourly Metered
Generation	✓	✓	✓
Load Reduction	✓	✓	✓

Table 2: Open Networks Products

Service Characteristics	Scheduled Constraint Management	Pre-fault Constraint Management	Post-fault Constraint Management	Restoration Support
When to act	Pre-fault	Pre-fault	Post-fault	Post-fault
Triggering action	Time	DSO forecast; or Asset Loading	Network Fault	Network Fault
Certainty of utilisation	Very certain	Uncertain	Uncertain	Very uncertain
Efficiency of utilisation	Low	Medium	High	Low
Risk to network assets	Low	Medium	High	Low
Frequency of use	High	Medium	Low	Low

The Flexible Power Services were designed to sit alongside wider market mechanisms to ease participation in the services.

2.2 Existing NODES Market design.

NODES is an independent marketplace for a sustainable energy future where grid owners, producers and consumers of energy can trade decentralised flexibility and energy. NODES is owned equally by Nord Pool, Europe's leading power market, and the energy company Agder Energi. More information is available on: www.nodes.energy

NODES launched its innovative market design at European Utility Week in 2018. The market design is a result of the work of an international work group consisting of experts from UK, The Netherlands, Germany and Norway. Experts where sourced form DNV GL, Pöyry, E-Bridge, Cognizant, Nord Pool and Agder Energi as was led by Edvard Lauen from Agder Energi.

The market design has been developed bottom-up and allows flexibility (Real Power) to be traded in various constraint zones (Grid Locations) at any voltage level of the grid. Grid locations will be defined by the DNO and may or may not be part of a larger grid location at a higher voltage level thus enabling the DNO to model any constraint in the regional or local grid.

The NODES market design allows for technical aggregation of flexibility up to the transmission grid making this flexibility available to the Electricity System Operator (ESO). This functionality will be trialled within the NorFlex project involving the Norwegian TSO Statnett and Distribution System Operators (DSO) Agder Energi, Glitre Energi and Mørenett. Market design for NorFlex and a practical approach to the functionality is being established in the project with the Norwegian regulator as observer in the market design workshops.

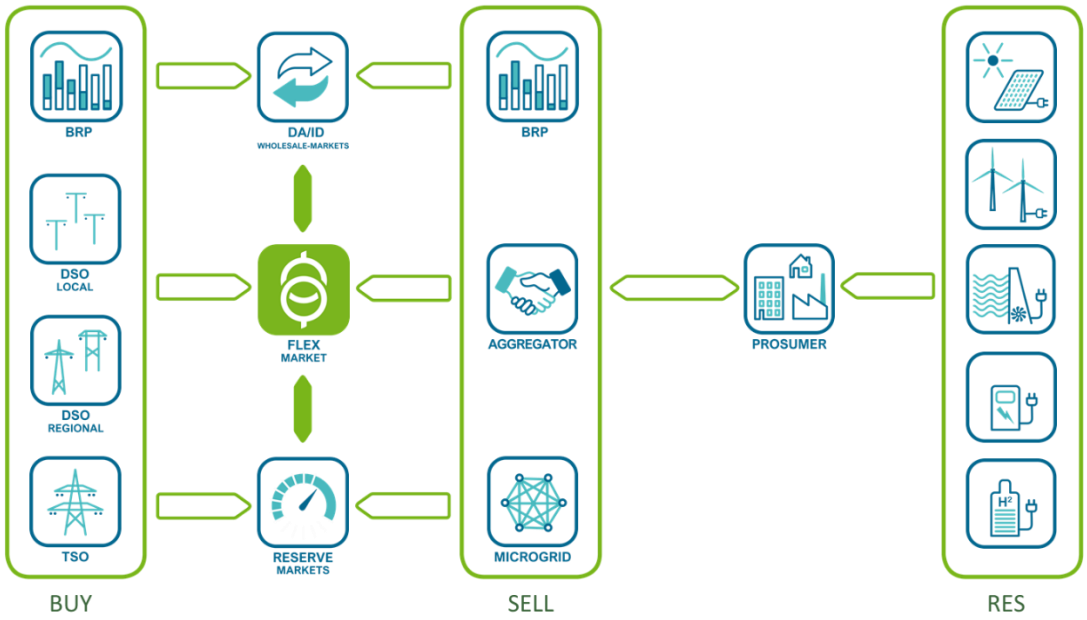

Figure 2: NODES Market Design

It should be noted that within the area of flexibility services and energy markets, variable terminology is used across Europe. Within this document we use the following terminology (interchangeably):

- DSO/DNO: The entity responsible for the operation of the Distribution Network;
- BRP/Energy Supplier: The entity responsible for the management of energy Imbalance;
- ESO/TSO: The entity with residual balancing responsibility;
- Aggregator /Flexibility Service Provider (FSP): This is the seller of flexibility services. This could be for a single prosumer or many.

2.3 Limitations of the current arrangements for the procurement of DNO flexibility

The current processes for the procurement of DNO flexibility provide a means for the delivery of value to distribution customers. However as they scale up, they may cause issues in the wider electricity market as volumes increase.

The figure below depicts, in a simplified manner the current process for the procurement of DNO flexibility services.

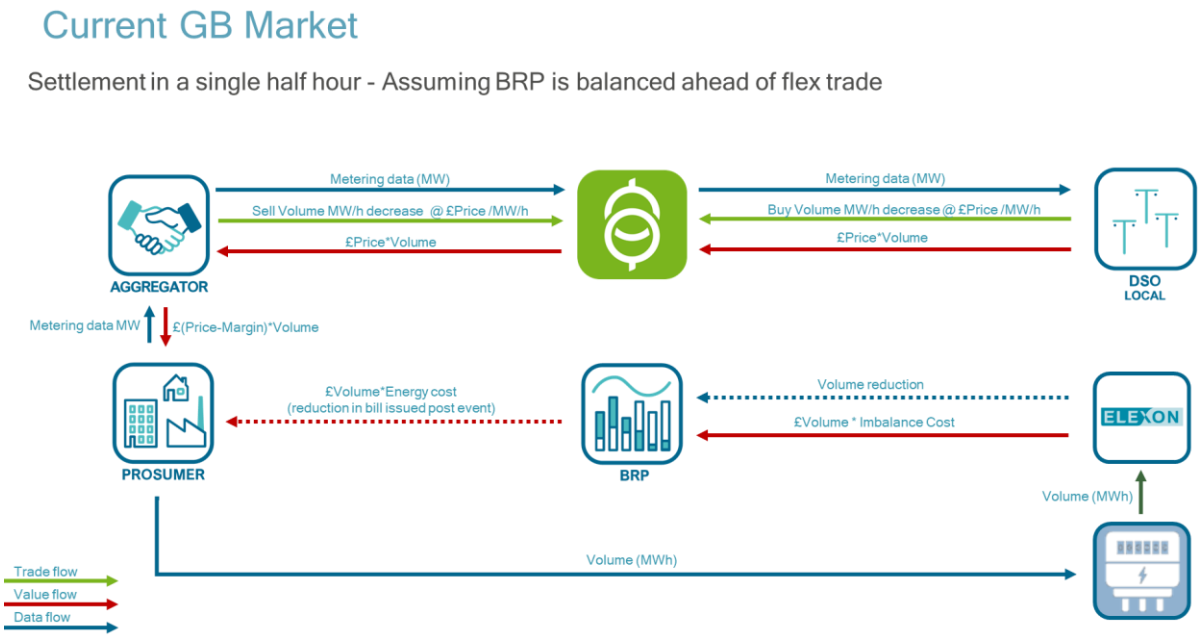

Figure 3: Current GB market

As there isn't always a formal contract between the Aggregator or the DNO and the BRP, the purchase of flexibility can result in an energy imbalance. This results in the BRP being charged with an Imbalance cost. In addition the BRP loses value from the loss of the energy sale.

The figure below adds some examples of the potential value flows. It should be noted that the numbers are purely illustrative and should not be taken as expected values. For example, imbalance costs ranged from -£65.98 to £48.03 for a long system in October 2019.

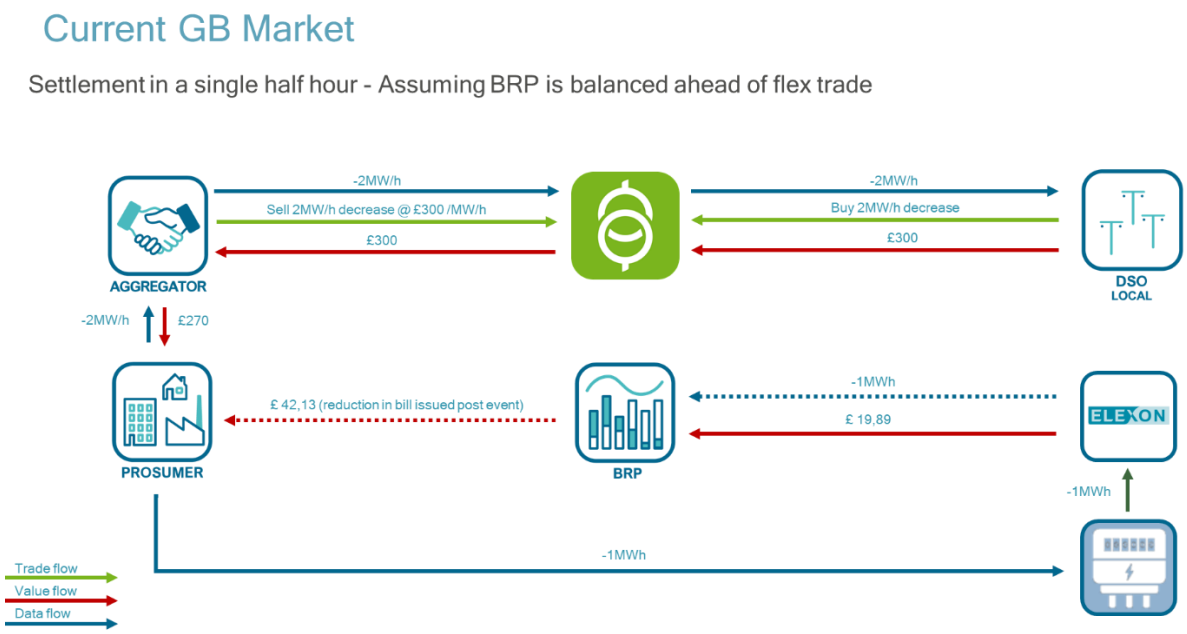

Figure 4: Example of Current GB market

As part of their letter on the design of arrangements to accommodate independent aggregators[4], Ofgem re-iterated the benefits of independent aggregation, whilst acknowledging the requirement for careful design of market arrangements. One of these was that delivery risk and balancing cost should be aligned with the party that creates them.
Section 7 details a number of industry actions focussed on improving access to services for independent aggregators.

Q1: Does this accurately describe the current marketplace, if not please let us know why?

Q2: Do you have any evidence on the scale of the issue/benefit associated with this market arrangement?

2.4 Scope of IntraFlex

The IntraFlex Project has a very specific scope, to better understand the impact of DNO service procurement on BRPs and develop tools to mitigate the associated risks.

This will be done through the operation of the NODES marketplace in closer to real time. Operating closer to real time should allow new participants to access the markets whilst key features such as a day ahead information services as well as an auto-rebalancing function to the intra-day market (described in the following sections) will

[4] https://www.ofgem.gov.uk/publications-and-updates/independent-aggregators-and-access-energy-market-ofgem-s-view

look to lower supplier exposure to imbalance costs and decrease the costs of providing flexibility in the long run.

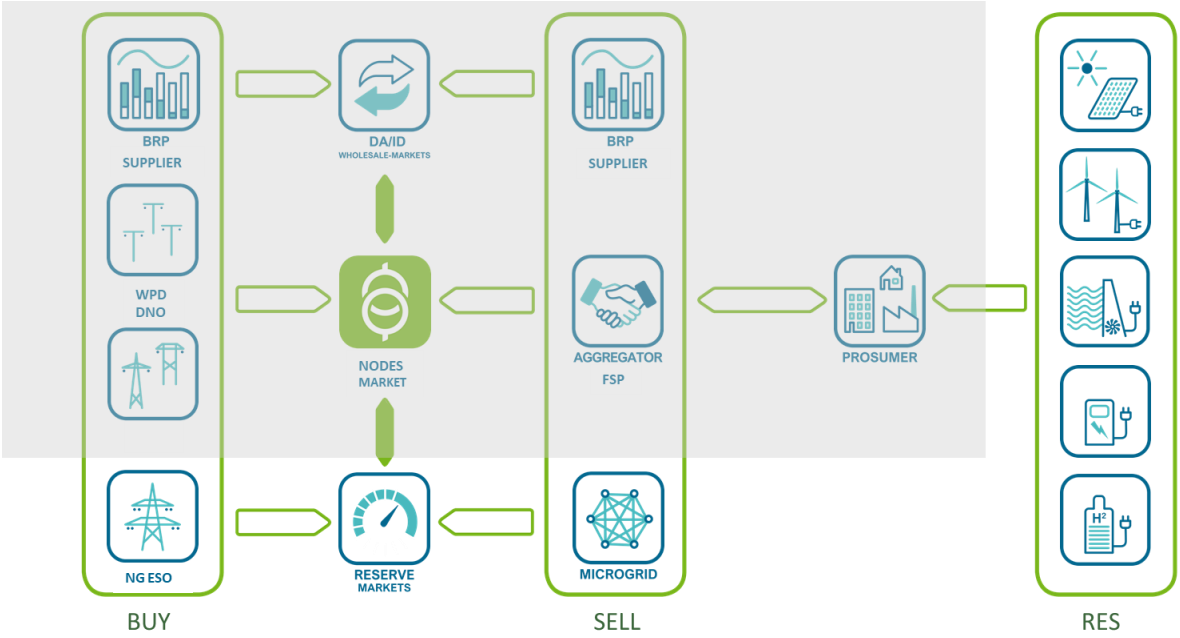

Figure 5: Scope of IntraFlex

We have explicitly avoided any markets that cover the post gate closure timeframe due to the complexity associated.

The project starts with stakeholder engagement aimed at validating the market design and ensuring its value to the UK electricity system. The project will then progress to two trials.

The project is funded under the Network Innovation Allowance and will be delivered by WPD, NODES and SGC.

3 New Market Options

3.1 Timeline

As detailed in section 2.1, current activation of flexibility services by WPD is done at the week ahead stage. Within the project we propose the development of new markets as shown in the timeline below:

- The NODES market is a continuous market that can be accesses at any time frame;
- WPD will use the NODES market after the current Flexible Power acceptance timeline;
- NODES will provide an information service to BRPs up until intraday timeframe on any activation already committed by the DSO.
- NODES will provide automatic rebalancing service in the intraday timeframe for trades that is being activated in the timeframe.
- Discussions with Elexon have highlighted the opportunity to operate the intraday service up to the Delivery Period. However, following discussions with the ESO, we have agreed to close all procurement ahead of Gate Closure (1 hour ahead of the Delivery Period). This will reduce the risk of conflicting with ESO services.

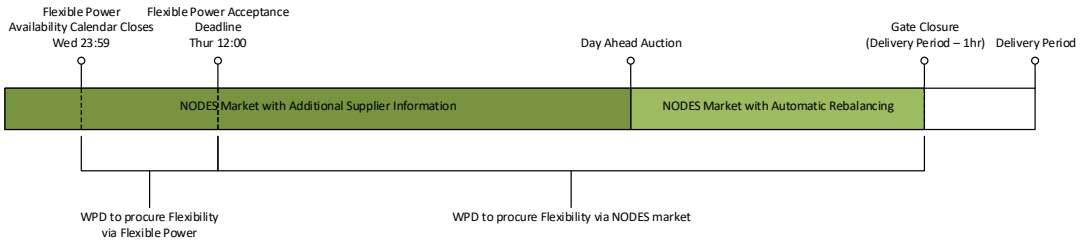

Figure 6: Market Timelines

We anticipate that beyond the trial, these markets would operate in parallel with existing procurement timelines and other markets being developed. DNO procurement strategies would look to procure across the timeframes to balance the benefits of improved forecasts and alternative participants closer to real time against the risks of price uncertainty. This will depend on the levels of liquidity of each market.

It should be noted that we are only considering Pre-Fault Constraint Management services (equivalent to the Secure service). This is simply due to the nature of the services and their required dispatch timelines. Scheduled Constraint Management requirements should be understood within these market timeframes, whilst any Post-Fault services may be deployed post gate closure.

More details of each service can be found in the sections below.

Q3: Are there any perceived limitations/challenges to this timeline?

Q4: Are there any modifications that will make it more practical? (For example are there any potential negative interactions with other processes)?

3.2 Information service for BRPs up to intraday timeframe

As part of the up to day ahead market, NODES will simply provide suppliers with information on the calls made to date by the DSO. This will allow them to correct their position and avoid the associated imbalance costs. This relatively simple process requires minimal intervention from NODES and allows BRPs full control over their portfolio. It is expected this information will be in the form of an API or a page in the NODES portal. This process is highlighted in the diagram below.

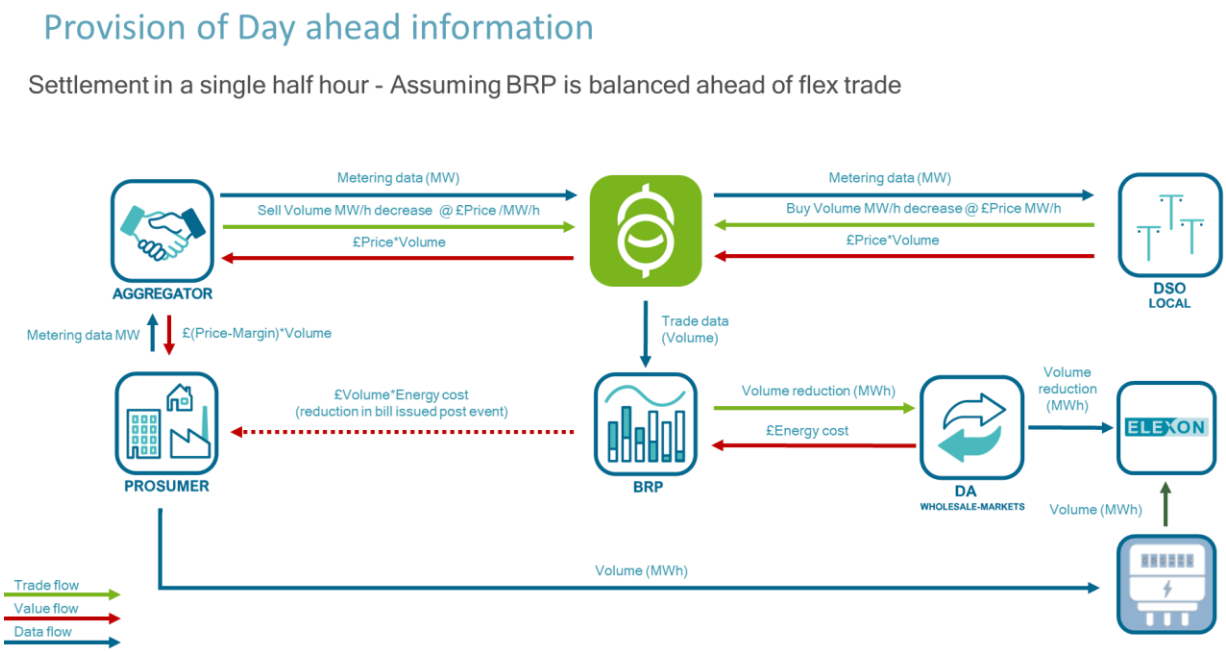

Figure 7: Information Service

Example values are provided below. As per earlier sections, these are illustrative to ease understanding rather than stating expected values.

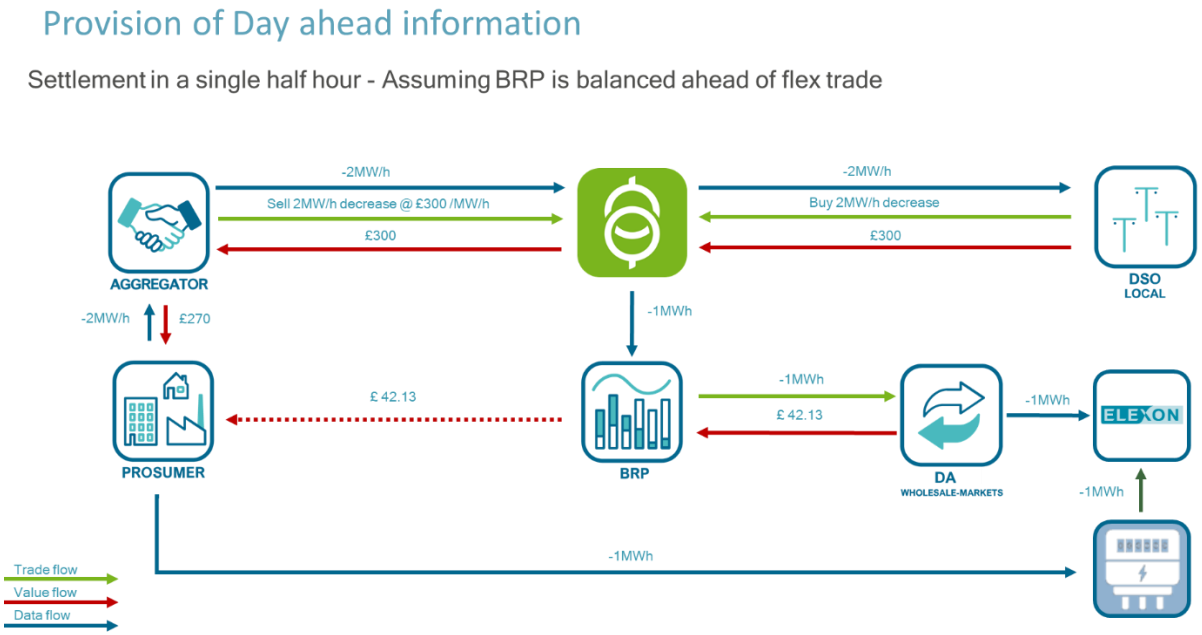

Figure 8: Example of the Information service

A key remaining refinement is to define how this information service is structured. The current assumption is that it should be pulled by suppliers via an API. This allows the BRPs to time the information to align with their processes. It also simplifies the interfacing systems.

Another key element to consider is the flow of potentially commercially sensitive information between the aggregator and the BRP to allow for this service to operate. Considerations of the required level of anonymization and aggregation will be needed to ensure that all parties involved are comfortable with the information being shared whilst still allowing value to be created.

Q5: How valuable would this information service be? Any specific details on the value it creates would be beneficial.

Q6: Do you agree that the information service should be pulled by the BRP? If not please detail why.

Q7: Do you see value in extending the information service into intraday timeframes? Would this be too late to take actions?

Q8: Do you see potential issues with the level of data being shared? If so, what mitigations could be put in place to limit the issues?

3.3 Intraday rebalancing service

A key feature of the NODES market in the intraday timeframe will be an auto-rebalancing feature for the BRP. This is detailed below and simply aims to offset any action taken by the DSO with an automatic counteraction in the intraday energy market. In normal operation this should release value back to the BRP. This is explained shown in the figures below.

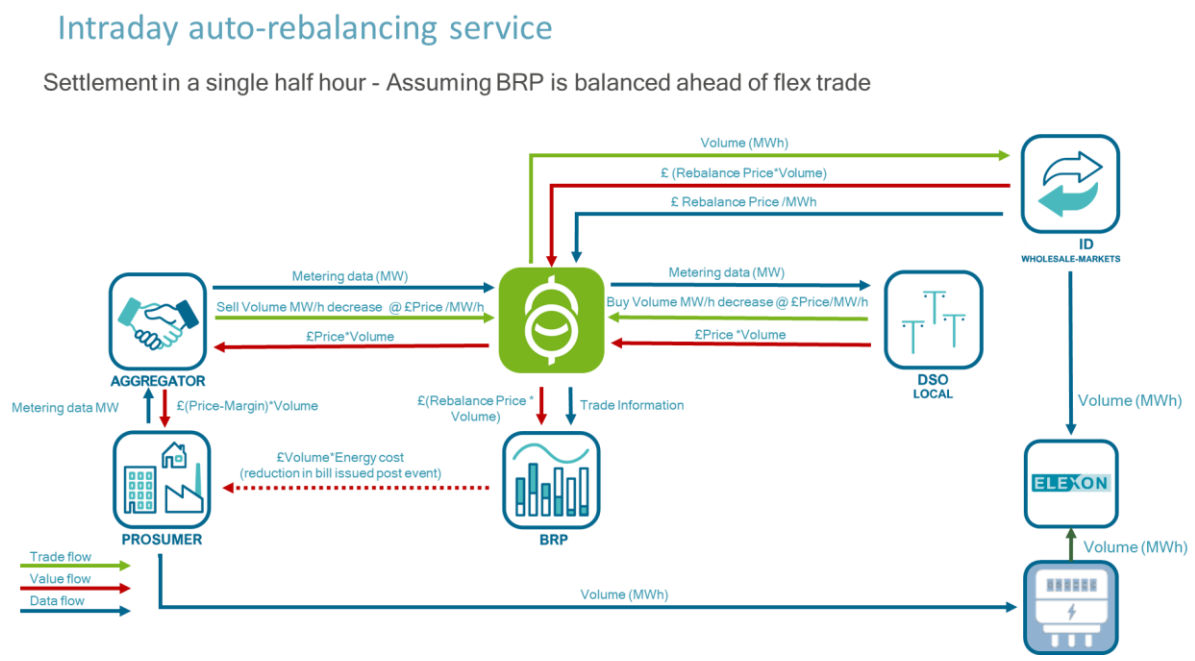

Figure 9: Auto Rebalancing Service

Example values are provided below. As per earlier sections, these are illustrative to ease understanding rather than stating expected values.

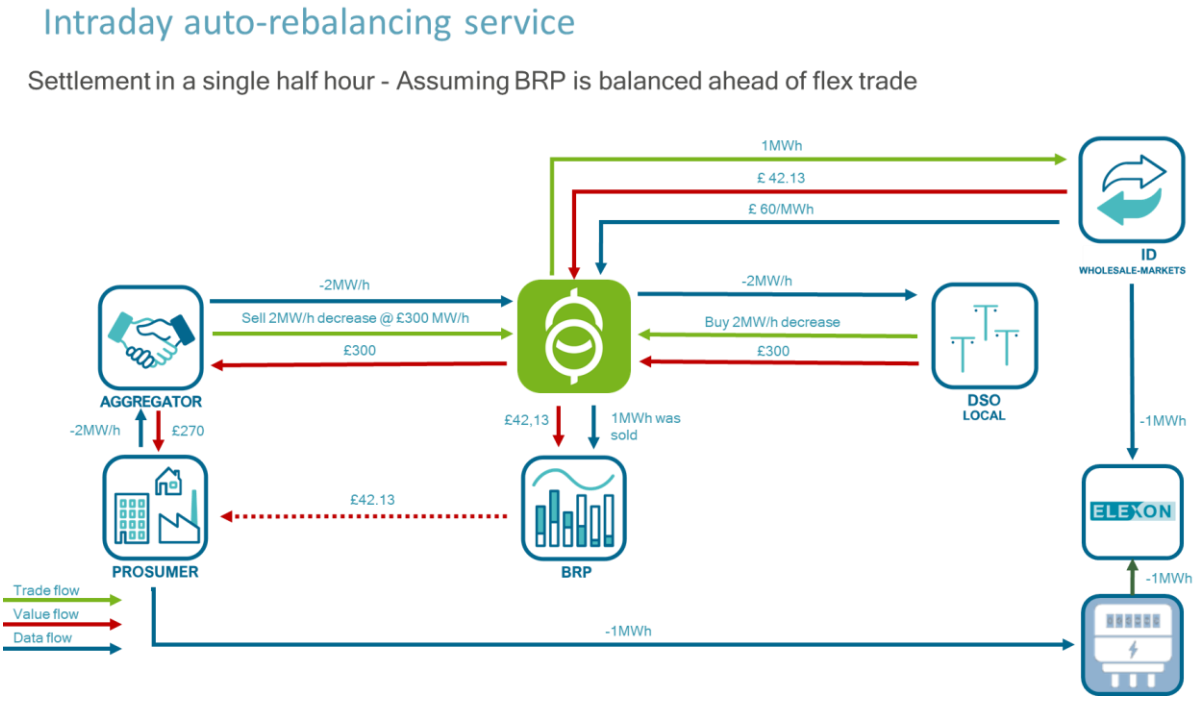

Figure 10: Example of the Auto Rebalancing Service

However in the case of negative pricing in the intraday market the cost of this action will be presented to the DSO at the time of purchase. In this scenario the DSO would pay the sell price which would be passed onto the aggregator and the rebalance price which would be passed into the intraday market.

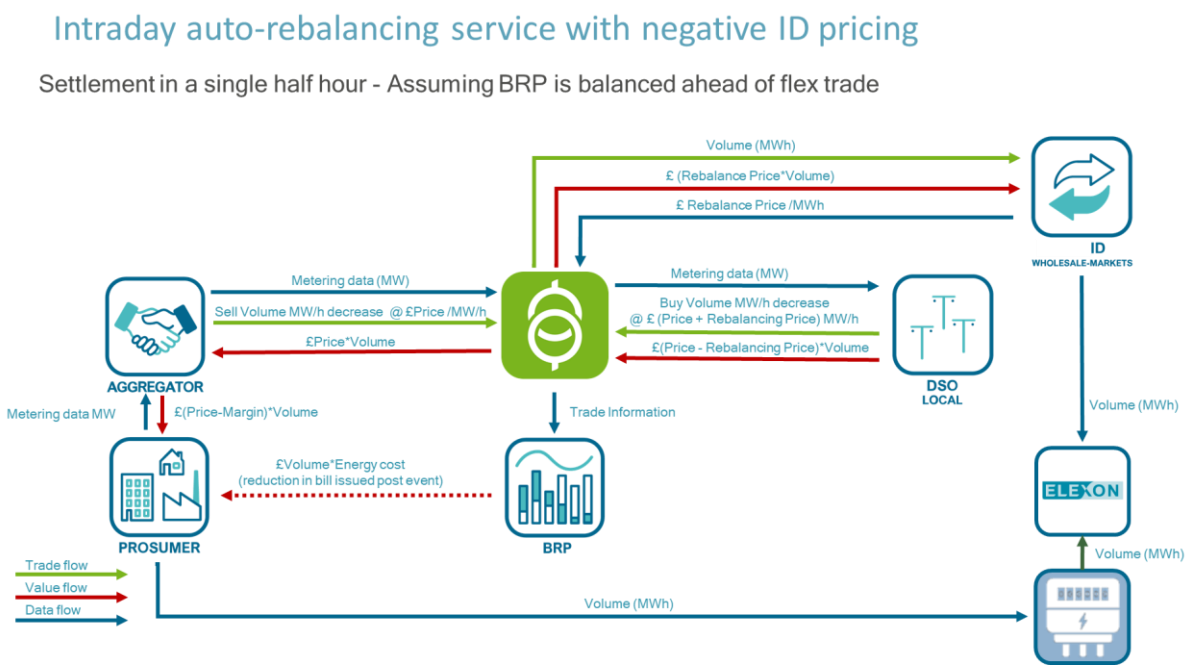

Figure 11: Auto Rebalancing Service with Negative Pricing

With this service the need for an override/blocking feature has been considered. This would allow the BRP to block the NODES market from taking a counteraction if this would help their energy position (i.e. they are short).

In addition, due to the non-geographic nature of the intraday market, there is a risk that the counteraction is in the same geographic area as the constraint the DNO is trying to avoid. This is dependent on the scale of DNO constraint zones.

Q9: How useful would this auto-rebalancing service be? Any specific details on the value it creates would be beneficial.

Q10: How valuable would an override/blocking feature be? How best should this be implemented?

Q11: Are there any proposed options for managing the risk of the counteraction taking place in the constrained area?

3.4 Variances depending on contractual relationships

NODES market design describes the role of an FSP. This role could be held by companies that already have balance responsibility or by independent aggregators that do not have a balance responsibility. In the Clean Energy Package, the EU is welcoming a role for an independent aggregator.

A power trade executed in a local market like NODES will always result in an imbalance position for the BRP. One option could therefore be to insist that all FSP should be BRP, then any imbalance would be the FSPs own responsibility. This would however prevent independent aggregators to access the flexibility market.

If independent aggregators are allowed to participate in flexibility markets without having a balance responsibility role, then all imbalances will be carried by the BRP and this represents a risk that the BRP are not necessary aware of.

In TSO markets in Germany the Aggregator must enter into contractual relationship with the buyer, in this case the TSO, the Asset Owner and the BRP. This relationship is often difficult as the BPR might be a competitor to the Aggregator.

Current thinking is that NODES should act as act as a service provider for BRPs and auto rebalance on their behalf.

This will lower the barriers for independent aggregators to participate in the market and hence result in more flexibility being available as a whole.

Q12: Are the any other option for the relationships mentioned above?

Q13: How do differing relationships impact the potential value streams?

Q14: Does this help the implementation of independent aggregators?

4 Commercial details

To date the services procured to date by DNOs have been done so in advance. As the markets within the trials are closer to real time, it will be necessary to develop appropriate commercial terms to reflect this. For example it is expected that participants will not be paid availability or arming payments.
As such new payment mechanics and baselining techniques will be needed for the trial.

4.1 Link between DNO requirements and energy produced/avoided

It is also important that the commercial terms reflect the requirement of a DNO for the delivery of a capacity reduction over time rather than an energy purchase, although the two are inextricably linked. For example, a DSO may wish to procure a reduction in demand by 2MW for an hour to keep an asset from being overloaded during a peak period. This is represented by the orange line in the figure below and demonstrates the desired delivery from a generator over the full period. This results in the production of 2MWh as a by-product of the action. If we were to only measure delivery using conventional half hourly metering resolution, then the participant could alternatively deliver 4MW for 15 min in each of the half hour periods as shown by the broken red line and could arguably have delivered the correct volume of energy. However, in this example the asset would remain overloaded between 01:00 to 01:15 and again from 01:45 to 02:00.

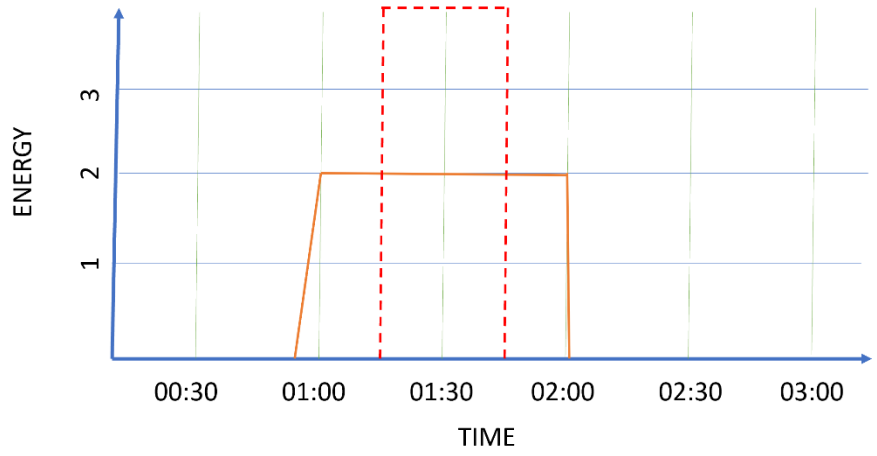

Figure 12: DNO requirement vs energy procurement

4.2 Market mechanics

The NODES marketplace is centred on the concept of parametrisation. Compared to existing organised marketplaces for exchange of wholesale electricity products with physical delivery, NODES allow market participants to register assets with a wide array of characteristics. This is a fundamentally different approach compared to current energy-only markets where orders are characterised by price, quantity and bidding zone (spatial information, mostly based on politically determined borders). In NODES, more detailed locational information is required and technical properties can be included in

the asset registration process. Applying filtering functionality, grid operators will be able to screen the NODES order book for flexibility offers that meet the technical minimum requirements for solving their grid problem.

Upon successful asset approval by the DSO, flexibility providers will be able to enter orders in the flexibility market. FSPs will group their assets into asset portfolios and submit buy or sell orders based on these portfolios. The DSO will create grid locations in the NODES platform which enables them to create spatial boundaries for flex offers that are valuable for the grid operator.

Buy and sell orders are entered with a number of properties:

- Order-type: Buy or Sell
- Regulation: Up or Down
- Fill type: Limit, Fill-and-Kill, Fill-or-Kill
- Activation price: Price in £
- Reservation price: Price in £
- Quantity: in MW
- Time: Parameters regarding start time, end time, expiry
- Location: Grid location for order
- Asset portfolio: Choose relevant portfolio for entering order

In IntraFlex, flex orders will be entered with a minimum duration matching the imbalance settlement period in GB, i.e. 30 minutes. A trade in NODES within a specific grid location for a given time period, obliges the flex provider to a constant active power deviation from a given baseline for its asset portfolio.

NODES apply pay-as-bid matching logic in which market participants enter a price for each unit they want to buy or sell. The market clears at the point where supply matches aggregate demand and winning bidders pay their bid price for each unit. Compared to existing pay-as-bid markets (e.g. GB intraday) where price is the primary matching criterion, NODES applies pre-filtering based on buyers' preferences prior to matching on price.

NODES, being the counterpart to transactions in the flexibility market, will be responsible for handling clearing and settlement of trades on the marketplace. The NODES rulebook will determine how to cope with cases where flexibility providers do not deliver according to expectations from the buyer. For IntraFlex, cases of non-delivery are covered in the next section.

4.3 Potential Payment mechanics

A vital component of any flexibility services offering is an understanding of how the procurer expects a participant to behave in response to a request to deliver capacity. This can be different depending what technologies they are using, whether it is dedicated to that purpose or has other standard duties at that time.

The payment mechanics must acknowledge the typical behaviour of that asset outside for flexibility events, which to a large extent is achieved through the baseline methodology (see section below). It is critical that the payments strike a reasonable balance between incentives and punitive measures to achieve reliability. As a result, it is unlikely that a simple payment based on volume of energy displaced in terms of kWh is sufficient. The payment mechanics will need to support the granularity of data that will enable the DSO to determine the shape of the delivery rather than just the overall volume delivered.

The trial will therefore have a specific work stream to identify and document options from existing mechanisms already in use as well as considering further alternatives from stakeholders who will be invited to present new concepts for consideration.

- **Varying Proportional Penalty**: this approach has already been adopted within the Flexible Power programme. There are different versions of the principle for each of the three service, but they typically award delivery that is close to or above what was committed under contract but for each percentage point below the threshold an increased proportion of the payment is lost. This reduction ratio ranges between double and triple reduction of payment per minute across the services.

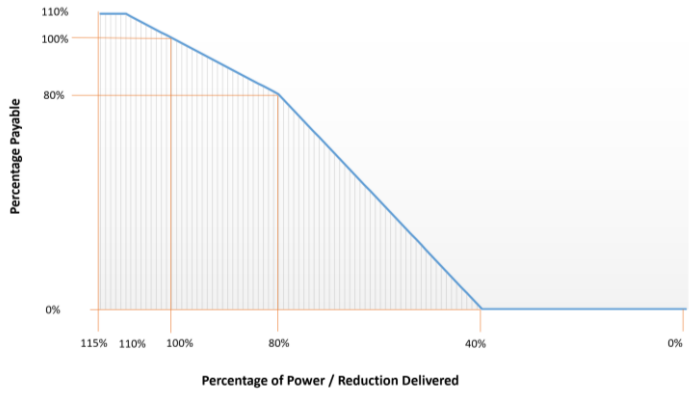

Figure 13: Payment Mechanic used in the Restore Service

- **Cost Reflective:** If it is possible to calculate the impact of under delivery, either through determining the potential damage incurred by overloading of assets or potentially purchasing from another provider at a potentially higher cost, a more directly relative penalty could be applied. The obvious difficulty of this is establishing the magnitude of the penalty with such a wide range of variables, but it would by its very nature be regarded as equitable to both parties. This is the general principal that is adopted by the Balancing Mechanism when calculating imbalance penalties.

- **Fixed penalties:** The simplest method to administer are setting out arbitrary penalties for under delivery. They can take the form of large reductions to the participant payments or even charges. Alternatively, they can take other non-financial forms such as termination of contracts and removal from future

tenders. These can often be seen as strong disincentive when looking to recruit participants and must be reasonable compared to value gained.

Q15: Do you have any preferences on payment mechanic?

Q16: What level of reliability should be expected from FSP?

4.4 Baselines

A new baseline methodology will need to be developed in conjunction with the payment mechanics. It may be the case that more than one baseline option will be necessary in order to present a fair opportunity for different asset types to participate while not handicapping any particular technologies. It is however a notoriously complex challenge to offer a simple and yet fair method of baselining and is inherently a compromise.

- **Baseline based on previous day(s) meter:** The easiest method is to look at historical data over a defined period and take an average as the baseline. This principle can take many variations relating to which period is best. Ranging from the previous day through to a full month average can have dramatic variations. Additionally it has to be considered whether the baseline is applied from the start of the event and maintained or whether it should be shaped to follow the past profile.
- **Baseline based on previous day(s) meter minus previous activations:** The basic historic data method does not allow for the impact that any previous events may have on that past data. So while it is still subject to all the complexities of selecting the correct term from which the data will be analysed it will also extract any periods during which they have been dispatched. Depending on how long the period from which the data is taken and how regularly it was utilised it could limit the sample size and distort the results.
  Baseline based on documentation from FSPs: An alternative approach is to revert the calculation of the baseline to the participant to provide their forecast and supporting evidence for the assumptions they have made. The accuracy of the baseline can then be checked by the DNO on days where there are no events. It should be noted that this methodology adds additional burden to the service provider which will need to be recompensed.

Q17: Do you have any preferences on Baseline Methodology?

Q18: Are there any options that have been missed?

5 Systems overview

To enable the market to function, a number of systems and interfaces are required. These are intended to balance the requirement for simplicity whilst providing the required level of functionality. Figure 15 highlights the expected systems to be put into place within the trial.

We see the systems as split into two area, commercial systems and the operational systems.

NODES will provide the commercial systems with participants able to interact via a GUI or API.

For the trial the operational systems (the project, dispatch and metering) functions will be provided through integration with existing WPD dispatch capability. This is to facilitate the timely deployment of the trial as well as the de-risking of the project rather than the mandated long-term solution.
It is expected that beyond the trial, as the market for flexibility services matures, this function may be taken on by an independent operator (NODES or another party). The provision of dispatch services is a key discussion within Ofgem's Future Insights paper on Flexibility Platforms in electricity markets.

As detailed in section 2, there are still some refinements needed to the market design. These will have a knock-on effect on the systems design.

Q19: Are there any perceived limitations with the proposed systems?

Q20: In what formats should the day ahead information be presented? (Linked to Q5)

Q21: How should a "don't rebalance" signal be implemented? (Linked to Q8)

Q22: Are there any perceived issues with the use of WPD dispatch capabilities?

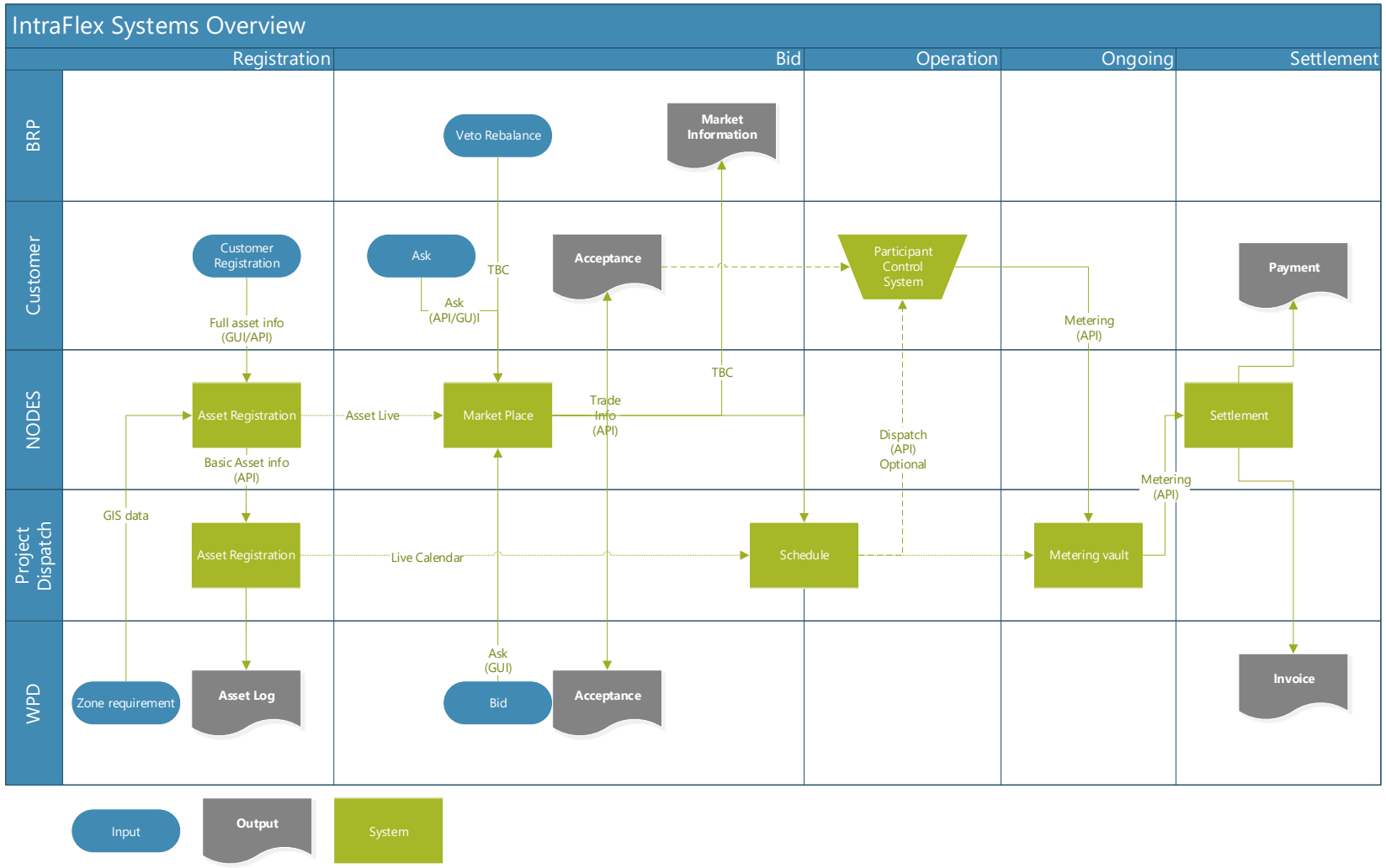

Figure 14: Systems Overview

6 Participant Journey

Within the trial we envisage participant interactions to broken into a number of key stages:

- Information provision to FSPs and other stakeholders
- Participant Registration on the NODES platform
- Technical integration with NODES and dispatch
- Trading on NODES
- Operation by NODES
- Settlement by NODES
- Queries and complaints to NODES and WPD.

Going forward, it is expected that participants will contract with and interact with market operator (NODES) directly. Direct interaction with WPD and other parties should be minimal.

SGC will provide additional support to NODES for the duration of the trial to account for the additional complexity of innovation projects and the requirement to utilise the WPD dispatch systems.

Q23: Are there any perceived issues with this participant journey?

Q24: Are there any supplementary roles and responsibilities that should be performed by other organisations in and beyond the trial?

7 Other work in this space

We recognise that this project is operating in a complex and ever changing market environment. As such we are keen to ensure we consider these changes and work to ensure the work in the project remains relevant and provides the most value to electricity customers.

Ofgem Insights Paper on Flexibility Platforms[5]: This paper looks into the options for flexibility platforms going forward. We feel this project aligns well with the recommendations put forward with the use of an independent market operator for the delivery of the Coordination and Flexibility Procurement functions. As detailed in section 6, we will look to repurpose WPD's existing dispatch capabilities for the delivery of this trial to simplify the trial and remove cost and risk. However, this could be provided by an alternative source beyond the trial.

[5] https://www.ofgem.gov.uk/publications-and-updates/ofgem-s-future-insights-paper-6-flexibility-platforms-electricity-markets

Fusion (USEF) and other TEF work: USEF published their white paper on Flexibility Platforms [6] in November 2018. In this white paper USEF discuss the different position market platforms take in relation to the USEF Flexibility Value Chain.

The white papers paragraph 2.2.3 Option 3 describes market platforms as a gateway to ancillary services and this description is the one that is closest to the Market Design NODES is offering.

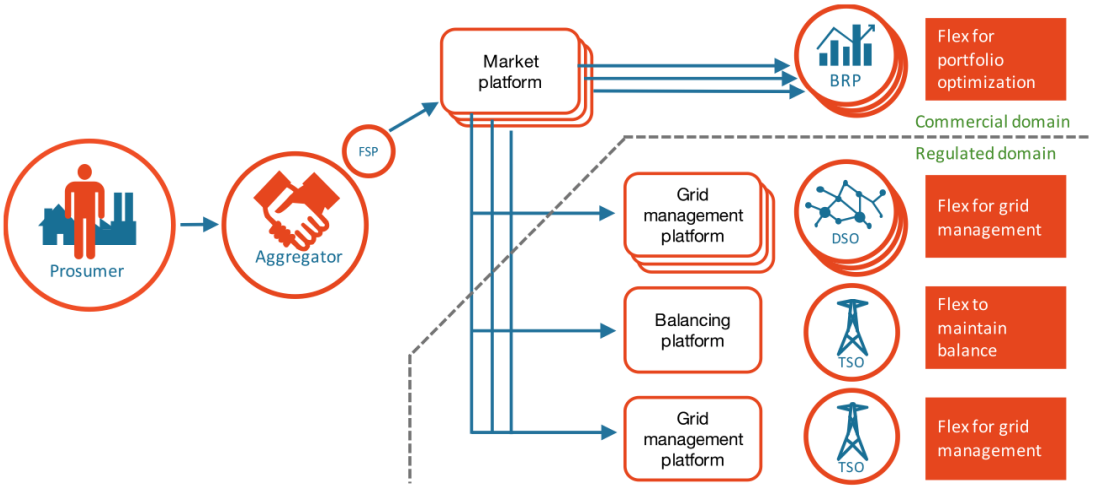

Figure 15: Option 3 of market platform from USEF Flexibility Platform Paper

This project focusses on the application of a specific market and the additional services it could provide rather than the full USEF framework as in FUSION. We will however ensure that there is engagement between the two projects to ensure learning is shared.

FleX competition[7]: BEIS has awarded funding for a number of flexibility platforms as part of their FleX competition. We believe that the focus on imbalance distinguishes this project from those projects awarded. However, we will keep a close watching brief to ensure that any relevant learning is utilised.

Elexon: There are a number of market changes that are currently taking place with regards to the BSC. Elexon have been identified as a key stakeholder within this project to ensure that the project is aligns with the direction of the market. To date we have identified the following relevant changes.

- The considerable work around accommodating project Terre and the wider access to the BM through changes such as P344. These create new market opportunities for independent aggregators and cements their role within the wider system
- P354 “Use of ABSVD for non-BM Balancing Services at the metered MPAN level”: this has been agreed, and seeks to account for the volumes of non BM services

[6] https://www.usef.energy/app/uploads/2018/11/USEF-White-Paper-Flexibility-Platforms-version-1.0_Nov2018.pdf

[7] https://www.gov.uk/government/publications/flexibility-exchange-demonstration-projects-flex-competition

called by the ESO through settlement. This effectively looks to remove any imbalance penalty from the participation of smaller services ESO flexibility services.
- The revision of acceptable metering and baselining methodologies through P375 & P376. Whilst not directly relevant it is important to ensure that requirements set within the project do not unnecessarily differ from emerging market standards.

Discussions with Elexon highlighted the technical possibility of adding DSO services within the ABSVD process. As discussed in section 8, the project will investigate this option in more detail.

ESO service changes: The ESO are currently investigating the procurement of closer to real time markets through their weekly auction trial for FFR services. We will engage with the ESO to gather any learning on the operation of closer to real time procurement.

Q25: Is there any other relevant industry work that has not been listed?

8 Other project work

Alongside the market design and the trial, there are two notable other pieces of work to be carried out in the project. These are:

- Initial discussions with Elexon highlighted the technical possibility of treating DSO services within the ABSVD process as an alternative solution to the impact of DSO services on the wider electricity market. There are a number of pros-and cons of this solution, which need to be investigated further to understand which might provide the best end solution to the wider customer. As such, a new work package has been added to investigate the feasibility and the economic value of such a solution and its comparison with the more market led solution proposed in this document.
- The development of improved validation and sense checking. This work look develop internal processes for the comparison of metering data provided by flexibility providers and settlement data. This will be used to cross check performance and allow for more lenient metering standards (for example of assets rather than site boundaries).
- A review of procurement processes. Procurement of services by DNOs is covered by the Utility Contracts Regulations 2016. This legislation has strict requirements on in terms of the processes used for DNOs above certain thresholds. As such the project will review the expected market design against these regulations to ensure the long term value of the marketplace.

9 Next Steps

Following this round of engagement the market design will be refined and developed into a final commercial and technical design and the relevant process and technology built.

We plan to trial the design in two phases. An initial trial will be conducted in August and September 2020 and will simply test the procurement of services closer to real time. This

will not trial the imbalance corrections measures, but will be used to trial the basic technology and processes. A second trial will then be held in April and May 2021 testing the full range of capabilities.

To facilitate these trials, two rounds of recruitment will be held over the summer and winter of 2020. If you are interested in participating in these trials please get in contact between.

It is anticipated that the trials will run in areas of current Flexible Power procurement (either already live or in procurement); however, the trials will be help out of actual requirements. This will allow existing Flexible Power providers to participate as well as removing any operation risk associated with potential service non-delivery.

10 Contact

If you would like to respond to the questions posed in the document, would like further information, or would be interested in participating in the trial please contact (WPDInnovation@westernpower.co.uk).

11 Summary of Questions

Limitations of the current arrangements for the procurement of DNO flexibility

Q1: Does this accurately describe the current marketplace, if not please let us know why?

Q2: Do you have any evidence on the scale of the issue/benefit associated with this market arrangement?

New Market Options: Timeline

Q3: Are there any perceived limitations/challenges to this timeline?

Q4: Are there any modifications that will make it more practical? (For example, are there any potential negative interactions with other processes)?

New Market Options: Information service for BRPs up to intraday timeframe

Q5: How valuable would this information service be? Any specific details on the value it creates would be beneficial.

Q6: Do you agree that the information service should be pulled by the BRP? If not please detail why.

Q7: Do you see value in extending the information service into intraday timeframes? Would this be too late to take actions?

New Market Options: Intraday rebalancing service

Q8: Do you see potential issues with the level of data being shared? If so, what mitigations could be put in place to limit the issues?

Q9: How useful would this auto-rebalancing service be? Any specific details on the value it creates would be beneficial.

Q10: How valuable would an override/blocking feature be? How best should this be implemented?

Q11: Are there any proposed options for managing the risk of the counteraction taking place in the constrained area?

New Market Options: Variances depending on contractual relationships

Q12: Are the any other option for the relationships mentioned above?

Q13: Are there any other potential value streams?

Q14: Does this help the implementation of independent aggregators?

Commercial Details: Potential Payment Mechanics

Q15: Do you have any preferences on payment mechanic?

Q16: What level of reliability should be expected from FSP?

Commercial Details: Baselines

Q17: Do you have any preferences on Baseline Methodology?

Q18: Are there any options that have been missed?

Systems Overview

Q19: Are there any perceived limitations with the proposed systems?

Q20: In what formats should the day ahead information be presented? (Linked to Q5)

Q21: How should a “don’t rebalance” signal be implemented? (Linked to Q8)

Q22: Are there any perceived issues with the use of WPD dispatch capabilities?

Participant Journey

Q23: Are there any perceived issues with this participant journey?

Q24: Are there any supplementary roles and responsibilities that should be performed by other organisations in and beyond the trial?

Other Work in this Space

Q25: Is there any other relevant industry work that has not been listed?

Glossary

Abbreviation	Term
ABSVD	Applicable Balancing Services Volume Data
BM	Balancing Mechanism
BRP	Balance Responsible Party
DNO	Distribution Network Operator
DSO	Distribution System Operator
ESO	Electricity System Operator
FFR	Firm Frequency Response
FSP	Flexibility Service Provider
NIA	Network Innovation Allowance
SGC	Smart Grid Consultancy
TEF	Transition – EFFS - Fusion
TSO	Transmission System Operator
USEF	Universal Smart Energy Framework
WPD	Western Power Distribution