Public

Issue 83 'Ensuring that the Buy Price Price Adjustment reflects all additional balancing costs'

Meeting 2

11 October 2019

ELEXON

Health & Safety

In case of an emergency

An alarm will sound to alert you. The alarm is tested for fifteen seconds every Wednesday at 9.20am

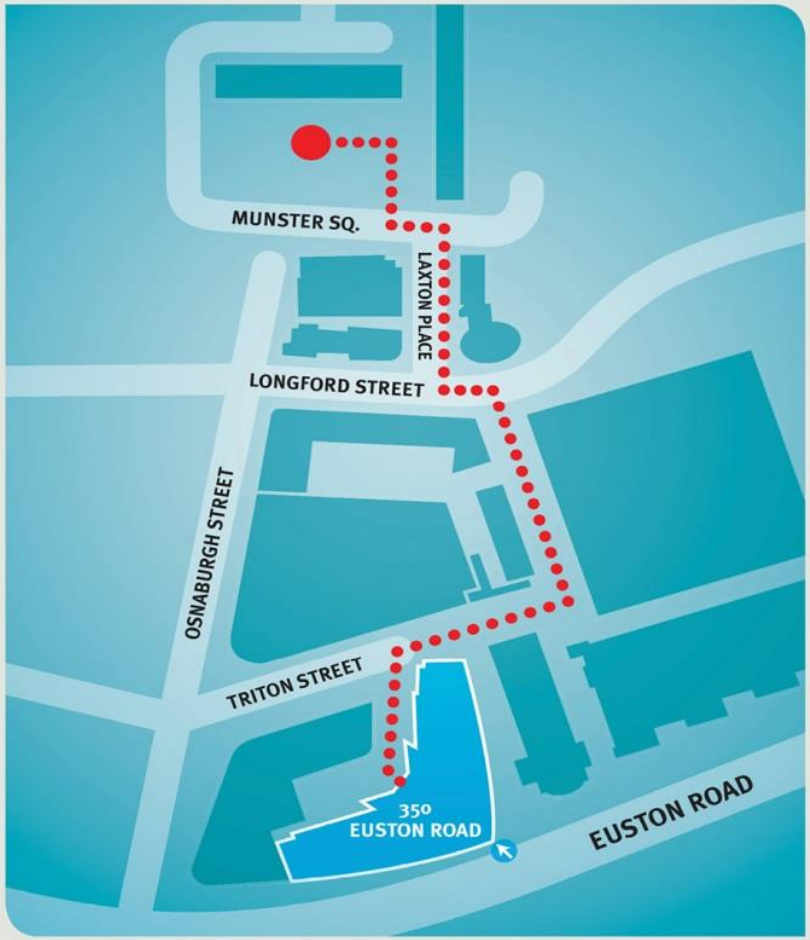
Evacuating 350 Euston Road

- If you discover a fire, operate one of the fire alarms next to the four emergency exits.
- Please do not tackle a fire yourself.
- If you hear the alarm, please leave the building immediately.
- Evacuate by the nearest signposted fire exit and walk to the assembly point.
- Please remain with a member of ELEXON staff and await further instructions from a Fire Warden.
- For visitors unable to use stairs, a Fire Warden will guide you to a refuge point and let the fire brigade know where you are.

When evacuating please remember

- Do not use the lifts.
- Do not re-enter the building until the all clear has been given by the Fire Warden or ground floor security.

Our team on reception is here to help you, if you have any questions, please do ask them.



Agenda

- Welcome and Housekeeping
- Review of meeting 1 and actions
- Detailed walk through of BPA calculation process and what the BPA seeks to achieve. What is the value of the BPA?
- Discussion of what products are used for what purpose and what costs should appropriately be reflected in any price adjuster
- How does the EBGL allow adjusters to be reflected? What is the preferred mechanism to capture the costs going forwards?
- Next steps and A.O.B.

Overview of the defect

Actions (1 of 2)

No.	Action	Update
1	Provide additional clarity on exactly what is included in the BPA and how it is calculated.	Will be discussed in detail in this meeting
2	Provide an overview of how different products, including spin gen amongst others, are used, with reference to system and energy balancing.	Raised internally at NGESO, a future response and reserve product plan is due out in the next month, including a plan for spingen as we have listened to industry feedback about it not being transparent enough.
3	Investigate whether ESO has a more updated view of future system needs and developments compared to the examples in the June 2017 SNAPS report seen by the Issue Group.	Same as above, there will also be a C16 meeting on the 5th November where NGESO will propose changes to the statements that should give better clarity on what we need going into the future.

Actions (2 of 2)

No.	Action	Update
4	Seek attendance at a subsequent meeting of people with expertise in the EBGL requirements.	Peter Frampton, who is leading on the Article 52 T&Cs in ELEXON will support discussions.
5	Further investigate the rationale for removing STOR actions from the BPA calculation.	Actions aren't priced at the time of use, with the Utilisation Prices for STOR Actions set in advance and therefore not reflecting the prices at the time they are called upon. Availability fees are set at a fixed level and therefore do not reflect tight margins or STOR usage.
6	Investigate whether spin gen can be better categorised for reporting purposes.	As with update 2 please see response and reserve product roadmap when it is released

BPA calculation

Buy Price Adjuster

What is it?

The Buy price adjuster is a fee calculated by NGESO that forms a component of the imbalance settlement price, it is based on actions taken by the control room outside of the BM to potentially balance the system.

Due to the amount of intermittent generation of the system NGESO cannot always guarantee that a generators capacity will be met. The NGESO control room will issue a warming instruction to a BMU via the Sonar System,(calculations will take place to ensure where possible it is the cheapest option) where they have forecasted a margin issue due to a potential generator not being to fulfil its capacity.

The control room will either bring a BMU unit on earlier than scheduled or instruct one to start warming in preparation to come on.

The data of each buy price adjuster is sent to Elexon with all other Balancing Service Adjustment Data at the end of each settlement period.

The calculation and description of the buy price adjuster is held within the BSAD (Balancing Service Adjustment Data) statement which is part of suite of statements held under the C16 licence code.

The value of each BPA is dependent on the service NGESO has procured and there is a standard calculation used to determine to overall adjustment price

Buy Price Adjuster

How is it calculated?

$$BPA_j = \frac{\left(\sum RC_j + \sum FC_j\right)}{\left(cR_j + cF_j\right)} + \sum \frac{BC}{cB}$$

j = indicates the variable is directly related to a settlement period
RC = Cost of purchases of FRR (Firm regulating reserve) option fees (£)
FC = Cost of purchases of forward contract fee option fees (£)
cR = Capability of firm regulating reserve contracts for the relevant settlement period (MWh)
cF = Capability of forward contracts for the relevant settlement period (MWh)
BC = Cost of BM StartUp instructions to minute (£)
cB = Volume of capability of BM Startup instructions over the defined BPA period to the minute (MWh)

Buy Price Adjuster

Example of a calculation

- **No firm Regulating Reserve contracts have been purchased**

RCj = £0
cRj = 0MWh

- **Forward contract option fees purchased**

FCj = £100
cFj = 20MWh

- **BM Start-Up costs**

BM Start-Up cost = £2000 / hr
Period unit is warmed = 8hrs
BC = £2000 * 8hrs
BC = £16000
Generator capacity = 250MW
Requirement period = 4hrs
cB = 250MW * 4hrs
cB = 1000MWh

$$BPA_j = \frac{\left(\sum RC_j + \sum FC_j\right)}{\left(cR_j + cF_j\right)} + \sum \frac{BC}{cB}$$

$$BPA_j = \frac{(£0 + £100)}{(0MWh + 20MWh)} + \sum \frac{£16000}{1000MWh}$$

$$BPA_j = £5/MWh + £16/MWh$$

$$BPA_j = £21/MWh$$

What does the BPA seek to achieve? What is its value?

Why does the BPA exist?

- With the exception of STOR services, where National Grid pays option fees to either, facilitate access to MW capacity within the Balancing Mechanism or to facilitate the withdrawal of MW capacity from the Balancing Mechanism, such fees will be represented through the Price Adjusters. Specifically, fees paid to facilitate additional MW capacity will be represented through the Buy Price Adjuster and fees paid to facilitate the withdrawal of MW capacity through the Sell Price Adjuster.

Pre P003

- BSAD will only include contracts required for energy balancing purposes. Contracts for transport related reasons are specifically excluded from BSAD. All costs and volumes will be targeted to the half-hours in which they are incurred/utilised.
- The allocation of the contract costs associated with energy balancing services can, in a specific set of circumstances, lead to high imbalance prices. Specifically, in settlement periods when only a small volume of Offers and Bids has been accepted (or only a small volume is left to include in the imbalance pricing calculation after the tagging out of non-energy related costs), even a moderate set of costs for energy reserve options can result in large imbalance prices. This effect was seen during the first week of NETA operation.
- The original intention of the BSAD Methodology Statement was to allocate the fixed costs of balancing services costs to system imbalance prices, to ensure all the costs of energy balancing actions were included in Imbalance Cash-out Prices. When the methodology was designed it was expected that these costs would be small relative to the costs of actual Bid or Offer acceptances.

BSC Modifications P003

- P003 sought to prevent anomalous price spikes caused by option fees being paid by NGESO. It proposed to limit the contribution of option fees to 25% of the imbalance Price.
  - The Panel recommended rejection of P003 on the basis that the issue would be addressed by amending NGC's BSAD Methodology.
  - After consulting, NETSO proposed that Options fees were removed from the BSAD, and a price adjuster was included.

Ofgem decision on P003

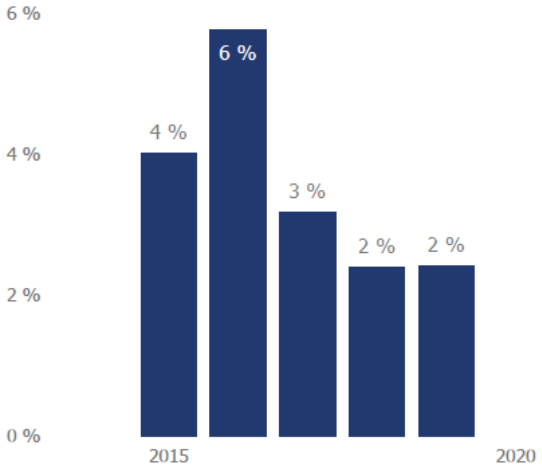
- Ofgem believed that all of the costs of energy balancing services purchased or sold should appropriately be targeted to energy imbalance prices and therefore to those participants who are out of energy balance. This includes both the option and utilisation fees of reserve services contracted by NGC prior to purchases in the BM
- Ofgem agreed that reserve contract option fees are properly a part of the total costs of energy balancing in any given period and should be targeted to energy imbalance prices and the need to hold reserve is in itself driven by uncertainty over the balancing performance of participants
  - the purchase of reserve is directly related to expectations of the balancing performance of participants. For this reason, it is appropriate to signal the costs of holding reserve to those participants who are out of energy balance
- Ofgem therefore rejected P003 and workaround 024 was implemented on a temporary basis

P003 workaround

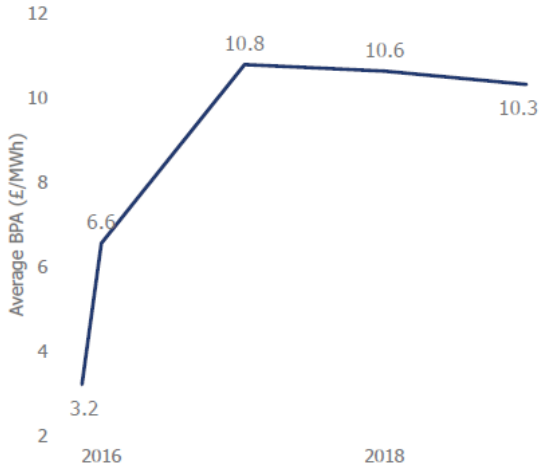
- Ofgem believed that option fees should be included in the calculation of energy imbalance prices.
- Instead of the P003 solution the Authority considered that the BSAD Methodology Statement should be revised. The Authority directed NGC not to make the revision to the BSAD Methodology Statement that removes option fees. The Authority considered that the addition of a price adjuster to the calculation of BSAD better facilitated the relevant objectives of the BSC.
- P008 was raised and implemented to retain the functionality of workaround 024.

Impact of the BPA

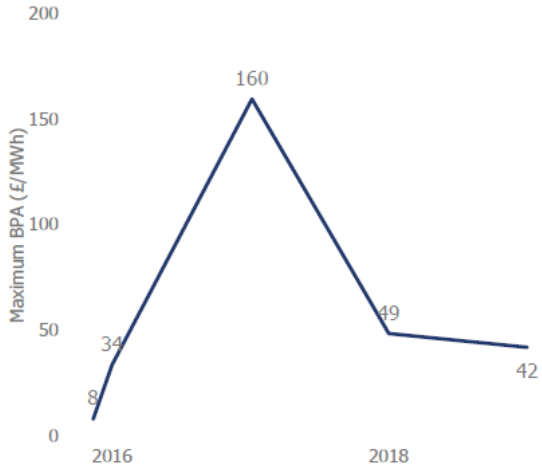
Percentage of Settlement Periods with a BPA



Average non-zero BPA



Maximum non-zero BPA



Pricing Calc

P305

Pre-P305

Settlement Date range

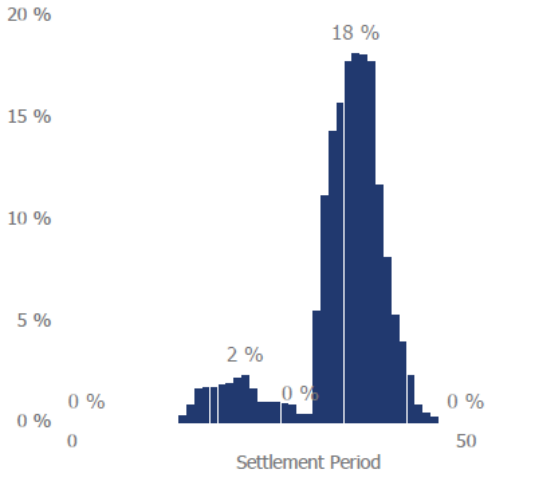
06/11/2015 31/07/2019

These graphs show the percentage of Settlement Periods with a non-zero Buy Price Price Adjuster (BPA) and average of the non-zero BPA's by date or by Settlement Period.

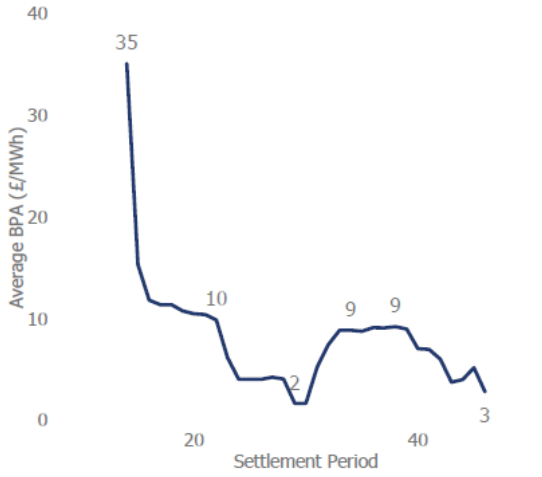
Use the pricing calc filter above to filter for the P305 BPA calculation or Pre-P305 BPA calculation. The Settlement Date range can also be adjusted to change the date range.

You can drill down into the two graphs that are shown by date to see the data by month or by day. Use the down arrows in the top left and right hand corners of these graphs to drill down, use the up arrow to return to the by year view.

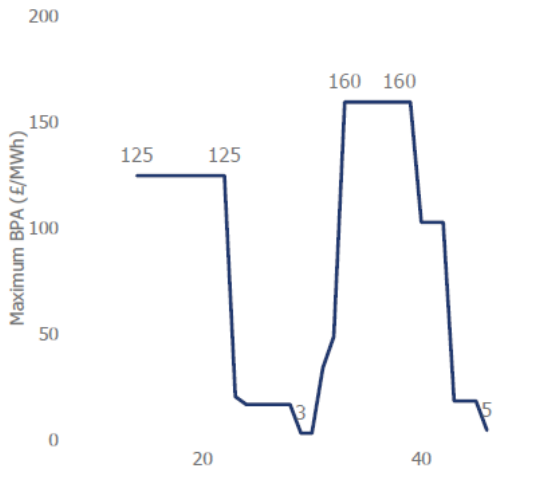
Percentage of Settlement Periods with a BPA



Average non-zero BPA



Maximum non-zero BPA



Mapping of products to uses and how costs are/should be reflected

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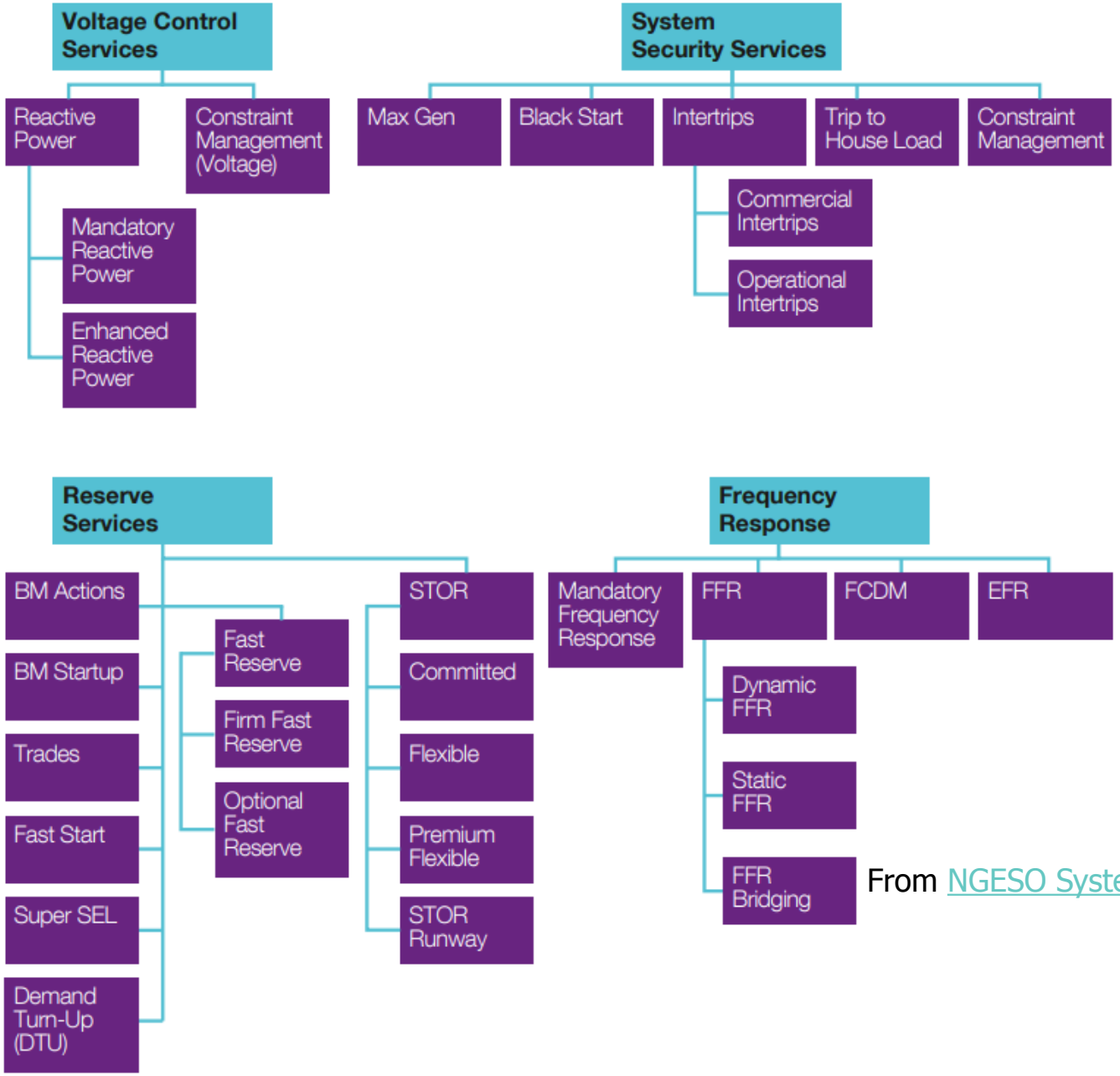
Product landscape

- There is a new product road map coming out within the next month that will detail all of the products and where they map (including spingen) for response and reserve.
- Where NGESO procure things that form part of the BPA these are predominantly replacement reserve and BM start up products (they can be others) where NGESO feel that we can't trust the output from intermittent generation. The decision on what is used is very inter dependant to the situation faced.
- Reserve products currently detailed in the C16 procurement guidelines which are up for review forward along with the roadmap that's being produced:
  - Demand Turn Up
  - BM Start Up
  - Maximum Generation
  - Hydro Optional Spin Pump
  - Hydro Rapid Start
  - BM Warming
  - Spin Gen no low frequency trigger

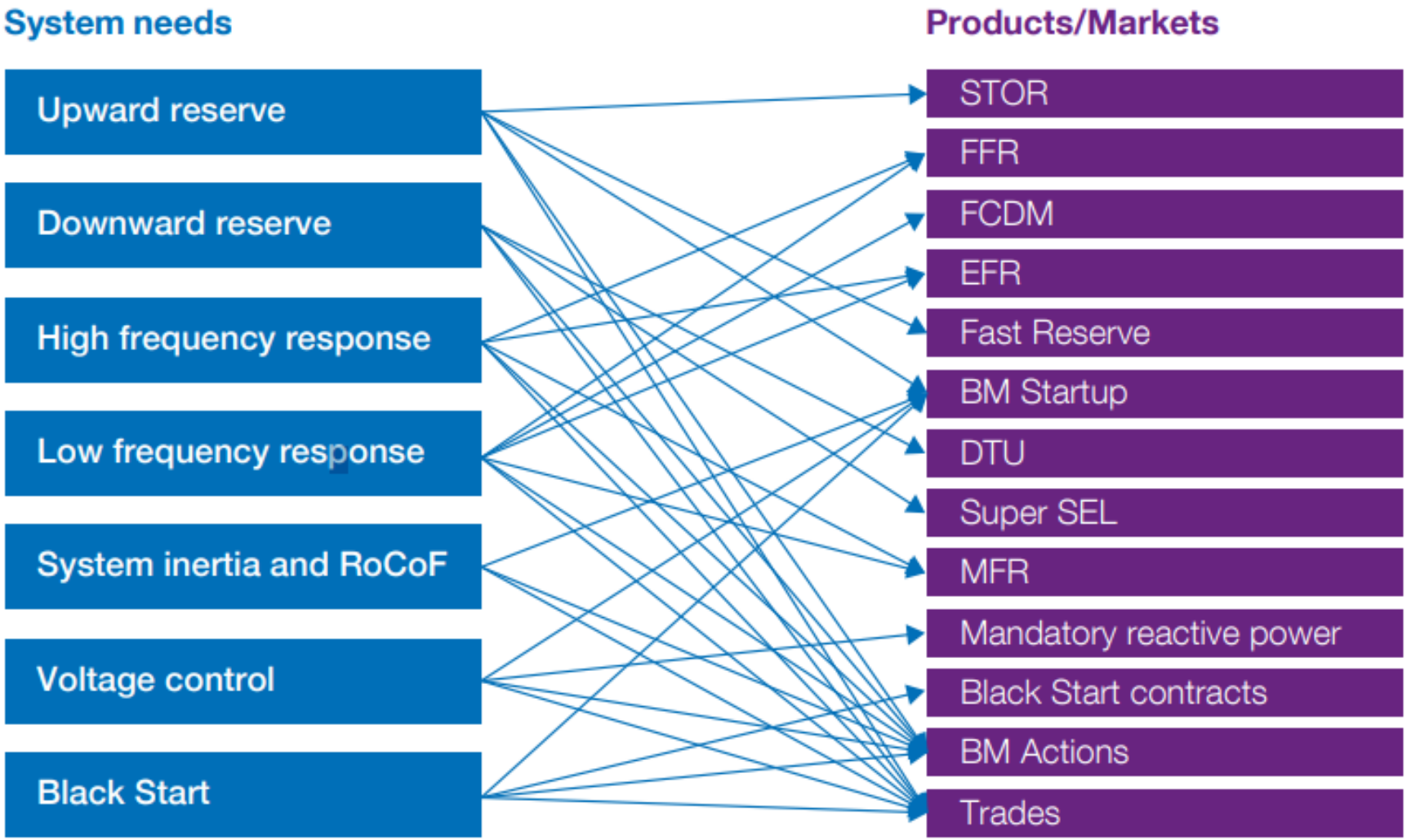
NETSO Product Suite



From NGESO System Needs and Product Strategy

From June 2017

Mapping products to needs



From NGESO System Needs and Product Strategy

From June 2017

How does the EBGL allow adjusters to be reflected?

Buy Price Adjuster

Article 52 Implications

Article 52 doesn't allow option and availability fees to be used in the imbalance price calculation.

As the Buy price adjuster is formed of these fees for units to be "warmed" and available we will need to find a place for these fees to sit.

We cannot remove them due to the constraints of being a single island and the increase in intermittent generation we believe we will always need to have the option to use certain BM units to cover the margin.

Ofgem decision on Article 18 Terms and Conditions

- Article 16(6) EBGL states that the price of balancing energy should not be predetermined in a contract for balancing capacity, unless an exemption is sought under Article 18 EBGL. Such an exemption should only apply to specific products activated locally without exchange. The exemption must also be accompanied with a justification demonstrating higher economic efficiency.
- Ofgem concluded that the requirements listed in Article 16(6) EBGL were not met. Any new exemption submission should demonstrate how it would lead to higher economic efficiency and should explore:
  - expected changes in utilisation prices per balancing service if those are not contracted in advance, with a description on why the proxy is appropriate;
  - the ESO's expectations on the changes to the availability prices in a market where utilisation prices are no longer fixed and the rationale for such a change;
  - an analysis of alternatives available to the ESO in real time to those services and how this can affect the submitted prices and hence economic efficiency; and
  - a clear articulation of how all the factors considered lead to higher economic efficiency in GB.

Ofgem decision on Article 18 Terms and Conditions

- The ESO should remove from the proposed T&C any provision which provides for predetermined prices for balancing energy bids or integrated scheduling process bids from standard and specific products e.g. STOR SCTs Section 3.3.

Options for capturing BPA components

1. **Additive Component:**
   - Must be a specified case for either scarcity, incentivising component or ensuring financial neutrality of the TSO.
   - Issue Group considered that the unique boundary constraints that GB faces as an island could provide rationale for using an additive component.
2. **Separate Settlement mechanism:**
   - A mechanism to settle the other costs relating to balancing including procurement costs would need NRA approval.
   - Create a new mechanism charged at the same time and on the same volumes as the Imbalance Price.
3. **Separate existing mechanism:**
   - One option would be BSUoS, but this is not charged on a 'polluter pays' basis, and so may need a significant overhaul to fit in.

Next Steps