Balancing Services Charges

Webinar
7 March 2019

We will begin the webinar shortly

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Purpose of today

- **General update** from the Task Force: drivers, scope and work programme
- **Deliverable 1:** presentation of the conclusion of the Task Force to date
- **Deliverable 2:** presentation of potential options identified by the Task Force to date
- **Q & A**

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General Update

Colm Murphy

Electricity Market Change Delivery Manager, ESO

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Drivers of the Task Force

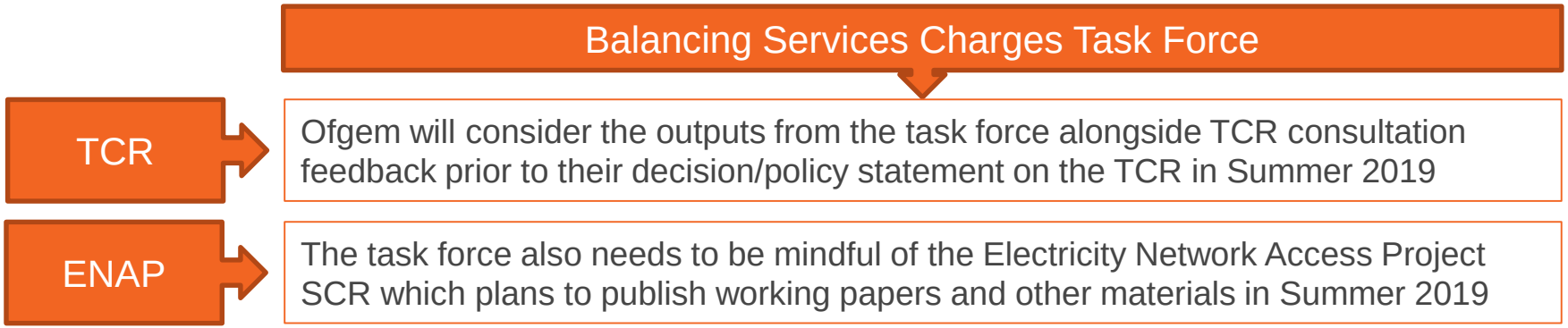
Balancing Service Charges?

- To recover costs from National Grid ESO in respect of operating the national electricity transmission system.

Why now?

- The energy system is changing, there are questions about how balancing services charges work (cost-reflectiveness, volatility, etc.)

Wider context:



Scope of the Task Force

- The objective of Task Force is to provide analysis to support decisions on the **future direction of balancing services charges**
- The Task Force will run from January 2019 and will deliver a **final report in May 2019**

	Deliverables	Date
D1	Task Force document assessing the extent to which elements of balancing services charges **currently** provide a forward-looking signal that influences the behaviour of system users.	Feb 2019
D2	Task Force document assessing the **potential** for existing elements of balancing services charges to be charged more cost-reflectively and hence provide better forward-looking signals.	March 2019
D3	Task Force document assessing the **feasibility** of charging any identified potentially cost-reflective elements of balancing services charges on a forward-looking basis.	April 2019 (draft report)
	Based on the candidate elements of balancing services charges from the previous stage, assess the **feasibility** of charging these elements to **influence user behaviour**.	May 2019 (final report)

Task Force

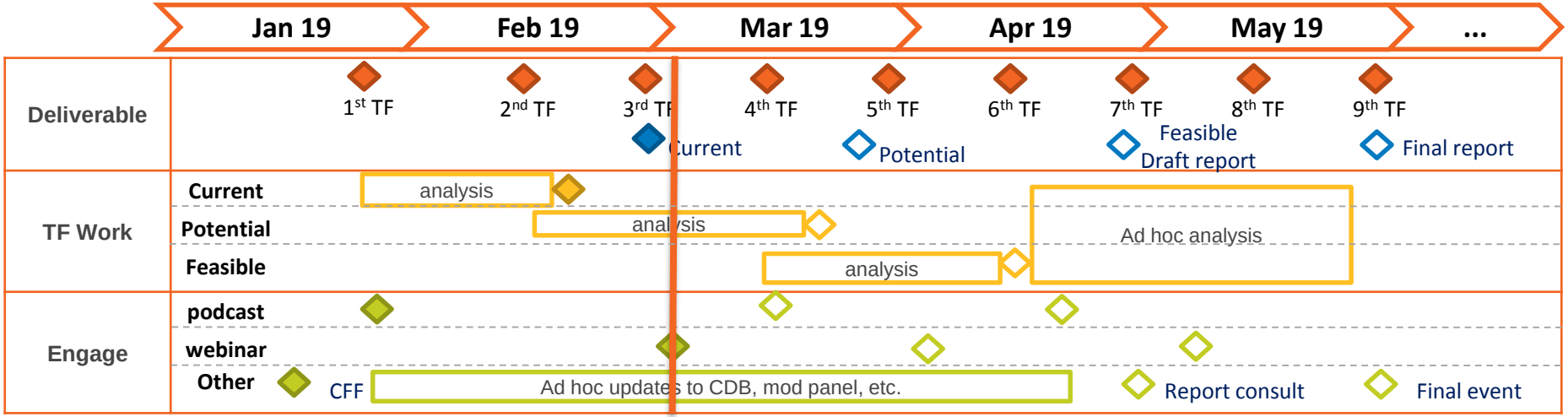
- **Task Force members** have a large range of experience and are representing a broad range of industry viewpoints

- The Task Force is **chaired by the ESO**, which is stepping up in their role as a more independent ESO.

- All the information regarding the Task Force (agenda, minutes, presentations, podcasts, contact details) is available and updated regularly on the Charging Futures **website** here.

Task Force programme plan

- **The Task Force work is progressing according to plan**, i.e. providing an initial assessment of Deliverable 1 (current situation) and progressing with the assessment of Deliverable 2 (potential options)
- **Wide engagement** has taken place since January (Charging Futures Forum 15th Jan) through various channels (TCMF, DCMDG, etc.). The webinar is our first formal engagement on the TF work.



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Deliverable 1

Grace Smith

Senior Regulatory Analyst, Sembcorp

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Deliverable 1 overview

Task Force Deliverable 1 (February 2019): assessing the extent to which elements of BSUoS currently provide a forward-looking signal that influences the behaviour of system users.

The tentative conclusion of the Task Force :

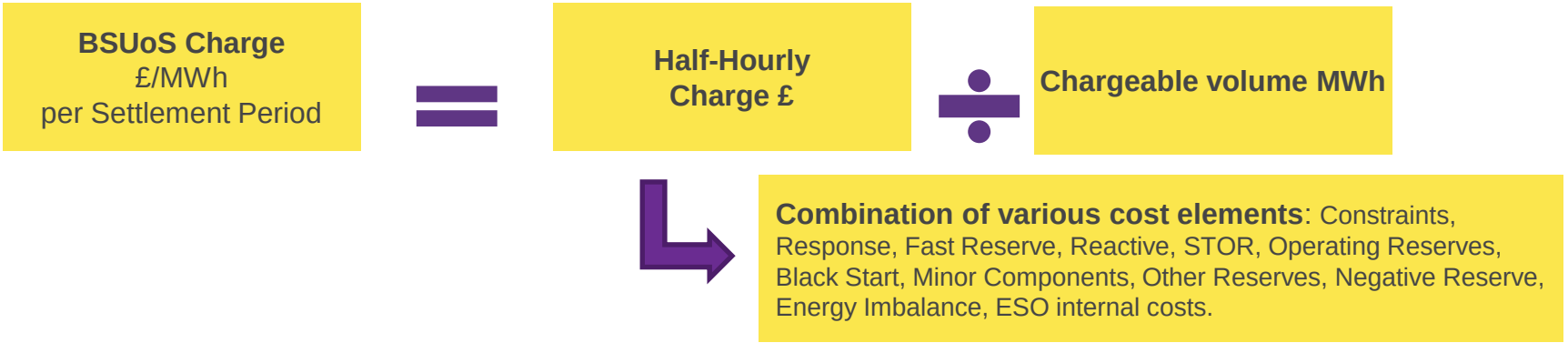
- In general, the existing elements of balancing services charges do not currently provide a forward-looking signal which influences user behaviour
- The exceptions identified being in relation to risk premia and overnight periods of high wind and low demand, neither of which are of benefit to the system or ultimately to consumers

Objective of this presentation

- Reminder of the **current balancing services charges methodology**
- Why the Task Force concluded that: **in general, the existing elements of balancing services charges do not currently provide a forward-looking signal which influences user behaviour**
- Explanation of the exception in relation to **risk premia** and why it is not of benefit to the system or consumers
- Explanation of the exception in relation to **overnight periods of high wind and low demand** and why it is not of benefit to the system or consumers
- **Conclusion**

Reminder: The current balancing services charges

- In order to operate the GB transmission system, the ESO procures Balancing Services and recovers the related costs through Balancing Services charges (called BSUoS). The current methodology is as follows:



- Two important comments:
  - Balancing services charges are calculated as a **flat tariff per Settlement Period (30min).** In general, the Task Force therefore expect that users will react on the total BSUoS charge
  - The charges are **defined ex-post**. This highlights the importance of forecasting in order to provide a forward-looking signal that influences behaviour.

Why elements of BSUoS do not provide a signal

- The Task Force concluded at this stage that: **in general, the existing elements of balancing services charges do not currently provide a forward-looking signal which influences user behaviour (with some exceptions).**
- This is due to four main reasons:

1. Balancing Service Charges are **hard to forecast**

2. Balancing Services Charges are **complex**

3. Balancing Services Charges are **increasingly volatile**

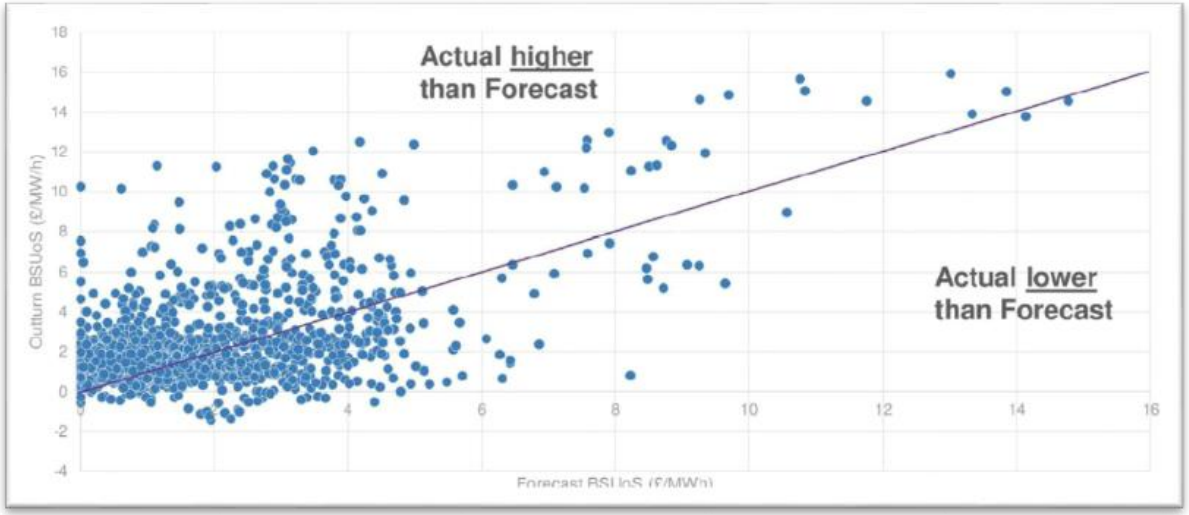
4. **Other market elements** take precedence

- Note that by forward-looking signal, the Task Force understands any signal which in theory could incentivise market parties to take some actions. This does not necessarily mean they may be useful, or effective forward looking signals.

Reason 1: Balancing Service Charges are hard to forecast

- Market parties currently react to balancing services charges based on a forecast of the likely charge to be incurred on an ex-post basis.
- In order to have an efficient forward-looking signal based on forecasted charges, the ability to accurately forecast is important.
- As highlighted by the figure, it is proven to be difficult to forecast accurately BSUoS charges (numerous time where the charge £/MWh is over/under forecast)

Actual versus ESO day-ahead forecast of BSUoS charges



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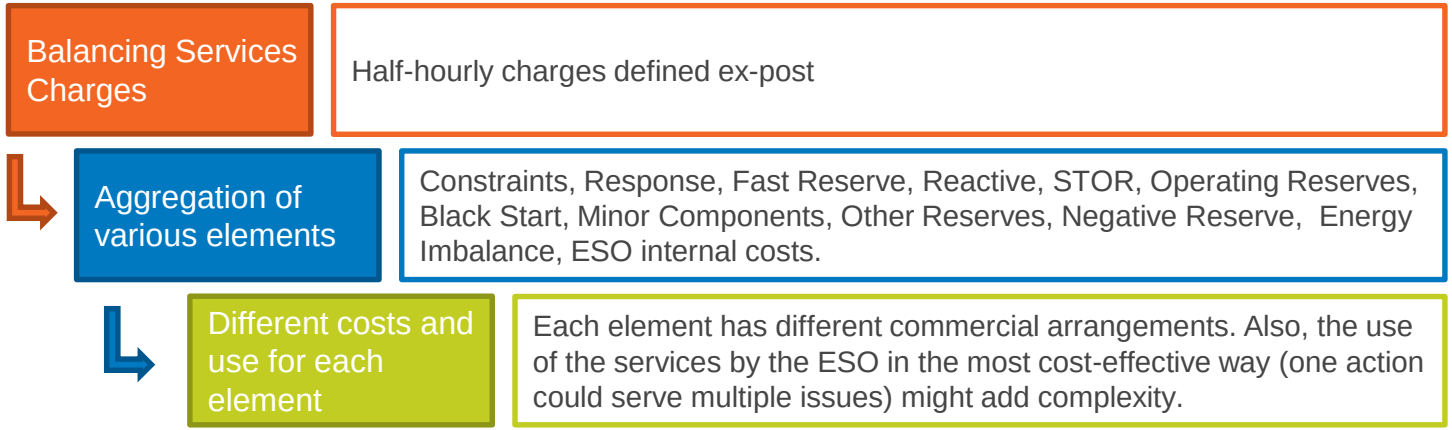
Reason 2: Balancing Service Charges are complex

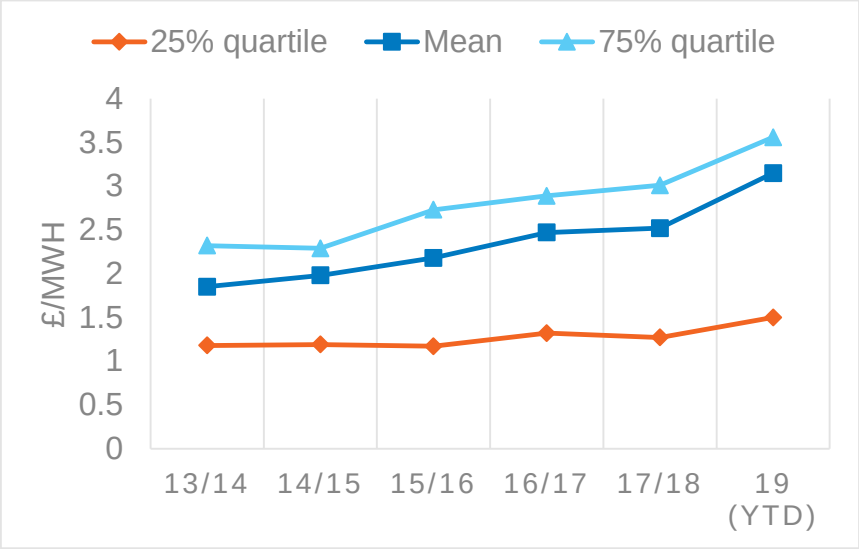
- Market parties often highlighted that they do not understand the balancing services charge completely.
- The Task Force understands that the complexity of the charge structure and components of the charge (such as what a service might be called upon, what that might cost and the effect of the service called upon) adds to the challenge market parties face in accurately forecasting the charge.
- The complexity of balancing services charges is highlighted in the figure below



Reason 3: Balancing Service Charges are increasingly volatile

- Balancing services charges are increasingly volatile, as evidenced by the figure below which shows that the mean £/MWh charge per settlement period is increasing but also that the 75% and 25% quartiles are diverging.
- The Task Force understands that market parties find high volatility adds complexity to provide an accurate forecast.

Evolution of mean and volatility of BSUoS



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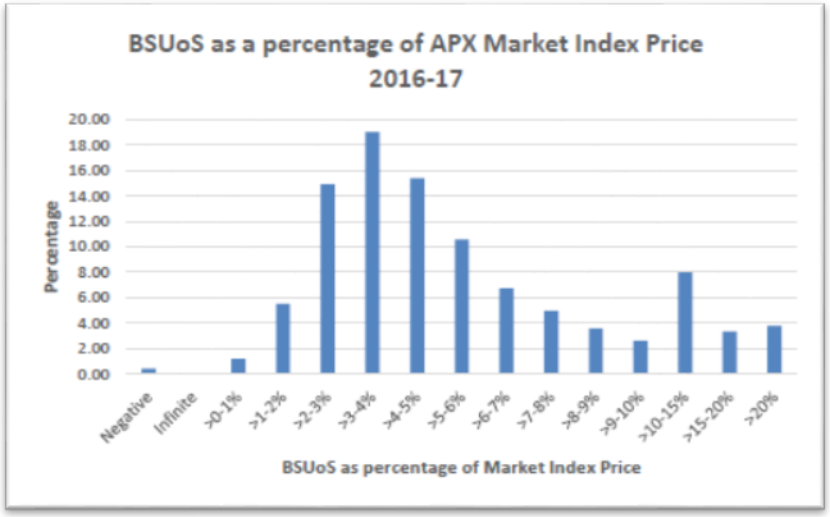
Reason 4: Other market elements take precedence

- The balancing services charges are relatively small compared to other forward-looking signals provided in the market (e.g. wholesale market, capacity market, imbalance settlement price, etc.).
- The Task Force understands that market parties will therefore prioritise reacting to other signals
- For example, the workgroup for CMP250 compared the average cost of BSUoS to the average price of day ahead power prices. As such BSUoS constituted 5.54% of the average day ahead price for 2015.

BSUoS as a percentage of APX Market Index Price



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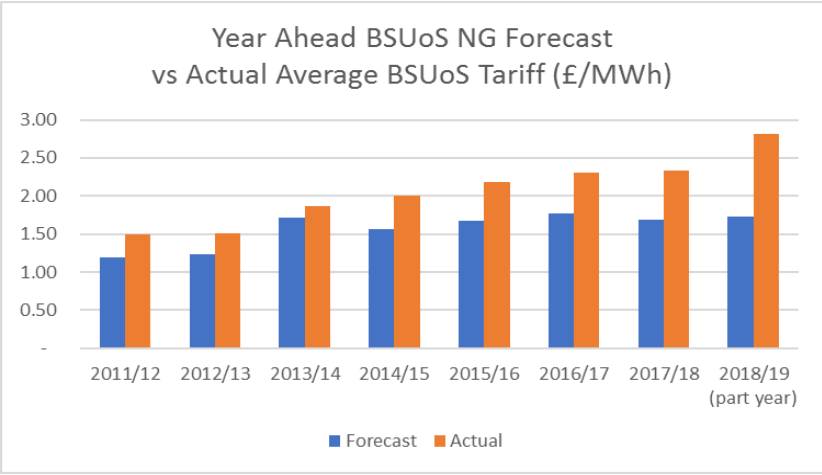
Exception: risk premia

- In theory, we expect power prices to adjust as BSUoS varies but this is not borne out by the evidence. Market parties have reported that the short-term variability of balancing services costs is currently not identifiably reflected in the power price.
- In addition, the figure below shows that over recent years ESO has under-forecast the annual average BSUoS price; forecasting is a challenge. The Task Force understands suppliers and generators add a risk premia to avoid being exposed to fluctuations and uncertainty of BSUoS.

Year ahead average BSUoS forecast versus actual



- The Task Force believes that a risk premium is added to prices to manage the related risk.
- This signal is not adequate and might lead to additional costs for consumers.

Exception: high wind and low demand

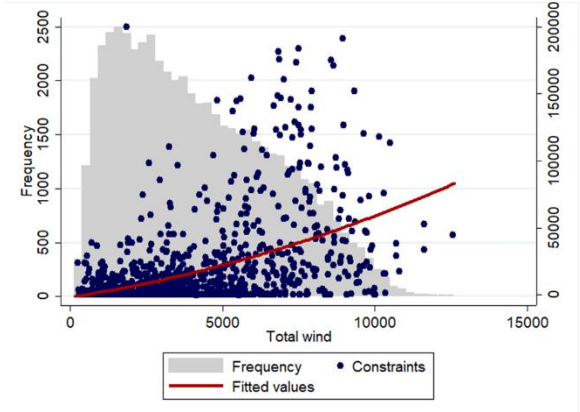
- Constraints costs are currently to most significant cost proportion of BSUoS and are being thought to provide some signals.

- There is some correlation between wind and constraint costs, with high wind typically being associated with higher constraint costs.

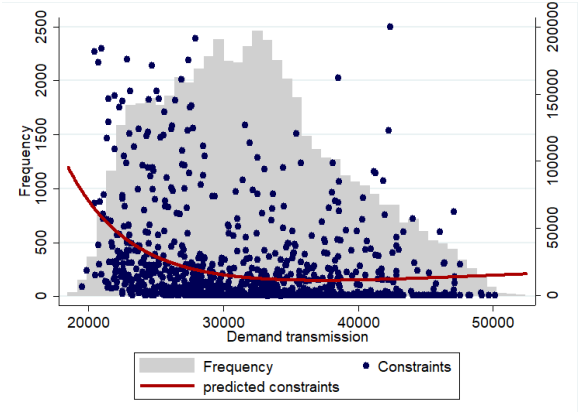
- There is some correlation between demand and constraint costs, with low demand typically being associated with higher constraint costs.

- In addition, there is a reinforcing effect when both wind is high and demand is low

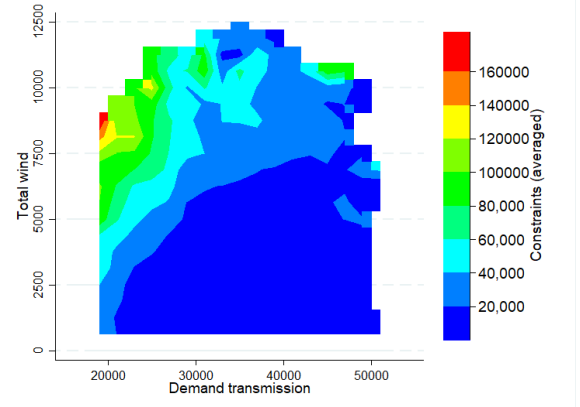
Shape of the relationship between constraints costs and wind



Shape of the relationship between constraints costs and demand



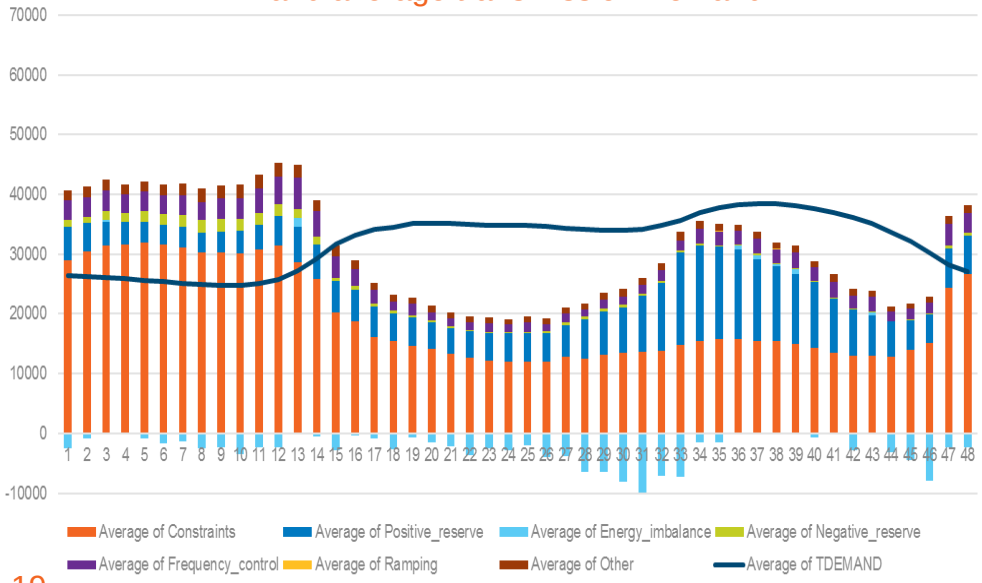
Constraints costs value for wind and demand



Exception: high-wind and low demand → overnight periods

- The figure below illustrates that high balancing services costs mainly occur overnight and not during daytime. This corresponds in general to lower demand periods.

Average daily SP pattern of costs (£) of elements of BSUoS and average transmission Demand



- The Task Force noted that those signals occurring when demand is low and wind is high (mainly overnight) are not adequate to create an efficient response, e.g. they currently provide the same signal to both demand and generation, while their effective responses would be different.
- They do not lead to a reduction of costs for the consumers and instead may perversely increase costs by providing a signal to alter behaviour in a way which is of disbenefit to ESO.

Conclusion for discussion

- **In general, the existing elements of balancing services charges do not currently provide a forward-looking signal which influences user behaviour.**

1. Balancing Service Charges are **hard to forecast**	2. Balancing Services Charges are **complex**	3. Balancing Services Charges are **increasingly volatile**	**4. Other market elements** take precedence
It has been shown that forecasted values by the ESO are not accurately reflecting the actual ex-post balancing services charges	Charges being an aggregation of various services with different drivers and commercial arrangements	It has been shown by the divergence of the 75% and 25% quartiles of the charges	The charges are often relatively small compared to other signals currently provided by the market

- **The exceptions identified being in relation to:**
  - **risk premia** → to manage forecasting risks
  - **overnight periods of high wind and low demand** → as demonstrated by the analysis
- **However, neither of those exceptions are of benefit to the system or ultimately to consumers**

Conclusion for discussion

The tentative conclusion of the Task Force :

- In general, the existing elements of balancing services charges do not currently provide a forward-looking signal which influences user behaviour
- The exceptions identified being in relation to risk premia and overnight periods of high wind and low demand, neither of which are of benefit to the system or ultimately to consumers

➢ **Quick poll in MENTI:** On a scale of 1-10 (10 being fully agree) how much do you agree with the current conclusion of the Task Force for Deliverable 1?

Deliverable 2 – Potential Options and Provisionally Discounted Options

Mike Oxenham

Electricity Markets Development Manager, ESO

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Deliverable 2 Overview

- Deliverable 2 asks that the Task Force assess the **potential** for existing elements of balancing services charges to be charged more cost-reflectively and hence provide better forward-looking signals.

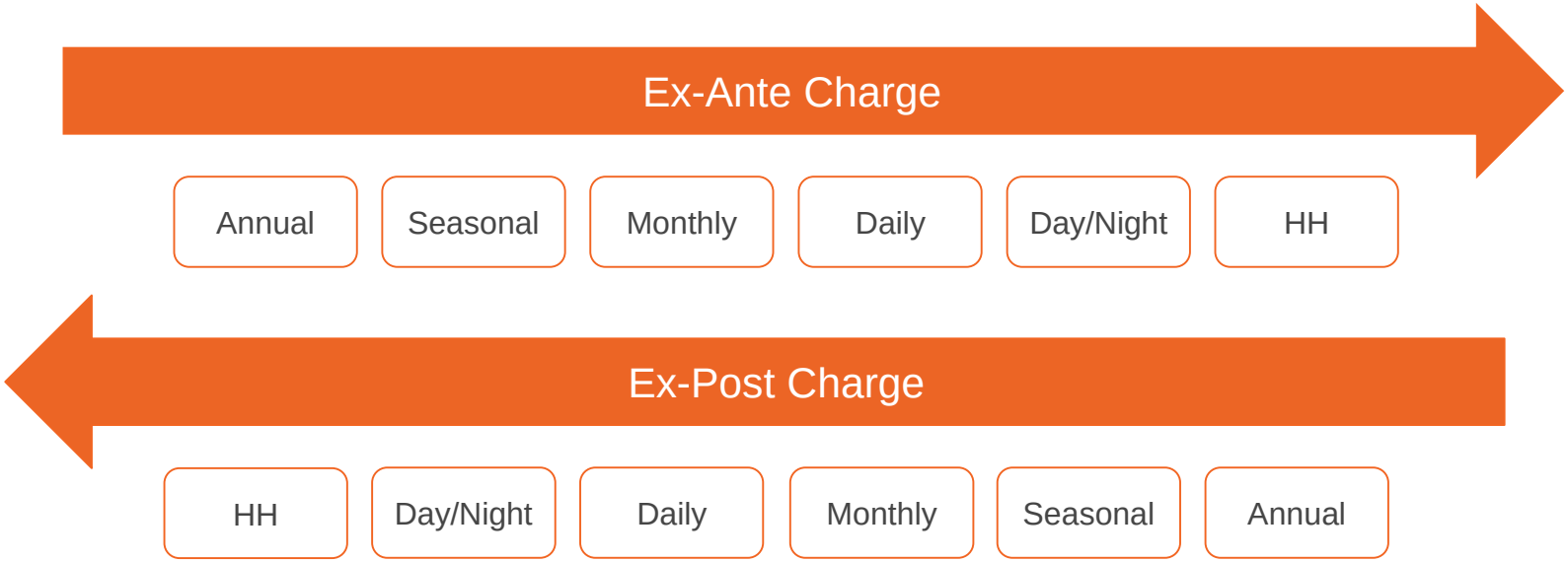
- The Task Force believes that the **Potential Options** covered within this Presentation could **potentially** be charged more cost-reflectively and provide better forward-looking signals.

- It is important to note that at this stage the Task Force has not assessed the feasibility of such **Potential Options**. As such these **Potential Options** should not be assumed to be feasible and/or that they are being endorsed as feasible options by the Task Force.

- So, the Task Force will further discuss and explore these **Potential Options** throughout March 2019 prior to a draft final report being published in April 2019.

Common Factors

- For each of the identified options there are common factors for consideration as follows.



- Assumption – at the Feasibility Stage the £/MWh charge structure will also be explored.
- Assumption – the detailed cost component allocation to options is for future consideration.

Potential Options

Locational Transmission Constraints	Locational Reactive and Voltage Constraints	Response and Reserve Bands	Response and Reserve Utilisation
For example, if in ‘Zone A’ there are transmission constraint costs being incurred across a particular boundary then those costs could be allocated to those specific parties behind the constraint and generating (or not taking demand) at the time of the constraint.	For example, if in ‘Zone B’ there is a voltage issue and costs are incurred resolving that voltage issue due to reactive power absorption payments then those costs will be recovered from those in ‘Zone B’ who are contributing to the need for reactive power absorption.	For example, if analysis has shown that an extra ‘X’ MW worth of response has been procured to continue to protect system frequency due to the largest loss then the costs of this additional response could be paid by those connections in the new range, or by those who are exacerbating the issue.	For example, a frequency service is automatically utilised for frequency support due to the trip of a generator so the costs associated with service utilisation are paid for specifically by the generator which tripped and caused the frequency issue at that time, whereas those other related costs are then treated as a cost-recovery charge.

Potential Options – Examples of Emerging Limitations

Are some of the costs there due to previous policy decisions e.g. Connect and Manage?

Is there potential for double-counting or double-charging e.g. in relation to access rights and TNUoS?

Would a useful signal be provided which would then incentivise user behaviour which is beneficial for the system and/or consumer?

How do you identify who is causing (or exacerbating) a given issue at a given point in time?

How will network capacity and availability be factored into any arrangements?

How are costs targeted when multiple different actions can be used to solve multiple issues?

How do you resolve any misalignment between system boundaries and metering arrangements?

Could there be a risk of polluting some of the other market signals e.g. Balancing Market and/or Wholesale Market?

What additional information (if any) could make these costs reasonably predictable?

Will it be proportionate and practicable and will there be any implementation challenges to consider?

Provisionally Discounted Options

What	Why
Black Start	The TF views these costs to effectively be insurance costs – whilst there are potentially options to make them slightly more cost-reflective, none of these options would appear to provide a better forward-looking signal and so these costs are not proposed to be progressed into Deliverable 3.
SO Internal Costs	Whilst there are potentially options to make these costs slightly more cost-reflective, none of these options would appear to provide better forward-looking signals to market participants and so these costs are not proposed to be progressed into Deliverable 3.
Energy Imbalance	The TF views that these costs cannot be further explored without consideration of cash-out and RCRC and as the comparative costs/benefits to other existing elements of balancing services charges are relatively small these costs are not proposed to be progressed into Deliverable 3.
Elements of Response and Reserve	With the exception of those elements of these costs identified within the Options, the TF views these costs to effectively be insurance costs which cannot be made more cost-reflective so those remaining costs not covered by the Options are not proposed to be progressed into Deliverable 3.

Deliverables Reminder and Quick Poll

- Deliverable 2 asks that the Task Force assess the **potential** for existing elements of balancing services charges to be charged more cost-reflectively and hence provide better forward-looking signals.

- Deliverable 3 asks that the Task Force assess the **feasibility** of charging any of the identified potentially cost-reflective elements of balancing services charges on a more forward-looking basis, and assess the **feasibility** of charging those elements to influence user behaviour i.e. in the interests of consumers.

Quick poll in MENTI:

- **Where should the Task Force focus across the 4 potential options?**
- **Do you agree that the task force has identified the most suitable Potential Options for Deliverable 2 to subsequently further explore and develop in their discussions related to Deliverable 3?**

Q & A

Please ask your questions using www.menti.com

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Thank you

If you have further views please contact ChargingFutures@nationalgrid.com.

All information will be available on the website www.chargingfutures.com