

Balancing Services Charges Task Force



Webinar
7 May 2019

**We will begin the
webinar shortly**

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nationalgrid**ESO**

Purpose of today

- **General update** from the Task Force: scope and executive summary
- **Deliverable 1:** draft conclusion regarding the current BSUoS methodology
- **Deliverable 2:** draft conclusion regarding potential options to charge BSUoS differently
- **Deliverable 3:** draft conclusion regarding feasibility of potential options
- **Draft overall conclusion**
- **Q&A**

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General Update

Colm Murphy

Electricity Market Change
Delivery Manager, ESO



Drivers of the Task Force

Balancing Service Charges (BSUoS)?

- Recover ESO costs when undertaking the day-to-day operation of the transmission system

Why now?

- The energy system is changing, there are questions about how BSUoS works

Wider context

- TCR: Ofgem will consider the outputs from the task force alongside TCR consultation feedback prior to their decision/policy statement on the TCR in Summer 2019
- ENAP: The task force also needs to be mindful of the Electricity Network Access Project SCR which plans to publish working papers and other materials in Summer 2019

Objective of the Task Force

- The objective of Task Force is to provide analysis to support decisions on the **future direction of BSUoS**



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](#).



Approach and draft report consultation

- The Task Force followed a **3-deliverables** approach.

	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
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
D3	Task Force document assessing the feasibility of charging any identified potentially cost-reflective elements of balancing services charges on a forward-looking basis to influence user behaviour.	April

- The Task Force is currently running a **consultation on the draft report, until 17th May**. Feedback will be considered in the final report and submitted to Ofgem.

Summary of draft report conclusions (I/II)

Deliverable 1 - does BSUoS today provide a useful forward-looking signal?

- The Task Force found that BSUoS does not currently provide any useful forward-looking signal which influences user behaviour to improve the economic and efficient operation of the market.
- The Task Force also discussed the expected impact of BSUoS on the market: risk premium and a subtle signal that appears overnight. Neither of these result in behaviour that is of benefit to the system or ultimately to consumers.

Deliverable 2 - potential options for charging BSUoS differently to be cost-reflective and provide a forward-looking signal

- The Task Force identified four potential options: locational transmission constraints; locational reactive and voltage constraints; response and reserve bands; and response and reserve utilisation.

Engagement: Stakeholder feedback reinforced the view of the Task Force.

Summary of draft report conclusions (II/II)

Deliverable 3 - feasibility of charging potentially cost reflective elements of BSUoS to provide a forward-looking signal

- The Task Force assessed each of the four potential options and concluded that, whilst there are some theoretical advantages, the implementation of each of these raised major limitations.
 - An effective forward-looking signal should be built from marginal costs rather than, as it is the case for BSUoS, the total costs incurred by the ESO. It is unclear how to achieve this through BSUoS, other than by some form of market splitting.
 - This signal could be ineffective, as other signals are already in place through other arrangements (e.g. TNUoS, Balancing Mechanism and cash-out) so double-counting issues therefore arise.
 - Allocating BSUoS costs to market parties responsible for these costs would be highly complex.
 - The issues that exist currently will remain and might be exacerbated.
- It is not feasible to charge any of the components of BSUoS in a more cost-reflective and forward-looking manner that would effectively influence user behaviour.
- Therefore the costs within BSUoS should all be treated on a cost-recovery basis.

Deliverable 1

Grace Smith

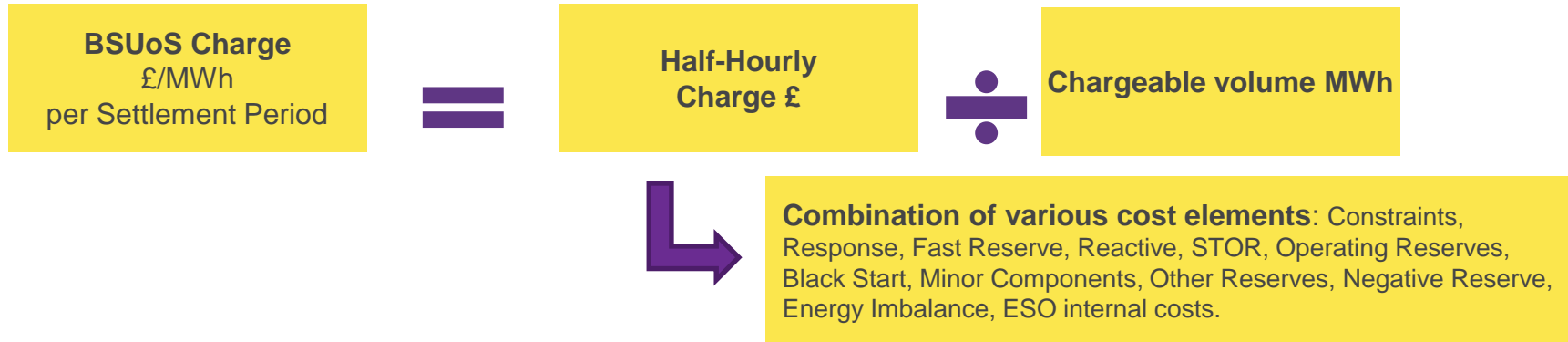
Senior Regulatory Analyst,
Sembcorp

Task Force Deliverables

- **Deliverable 1** is to assess which, if any, elements of balancing services charges currently provide a forward-looking signal that influences the behaviour of system users
- **Deliverable 2** is to 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** is to assess the feasibility of charging any identified potentially cost-reflective elements of balancing services charges on a forward-looking basis to positively influence user behaviour i.e. with the aim to reduce costs to consumers.

Reminder: the current BSUoS charges

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



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

Deliverable 1 draft conclusion (I/II)

The existing elements of BSUoS do not currently provide any useful forward-looking signal which influences user behaviour to improve the economic and efficient operation of the market.

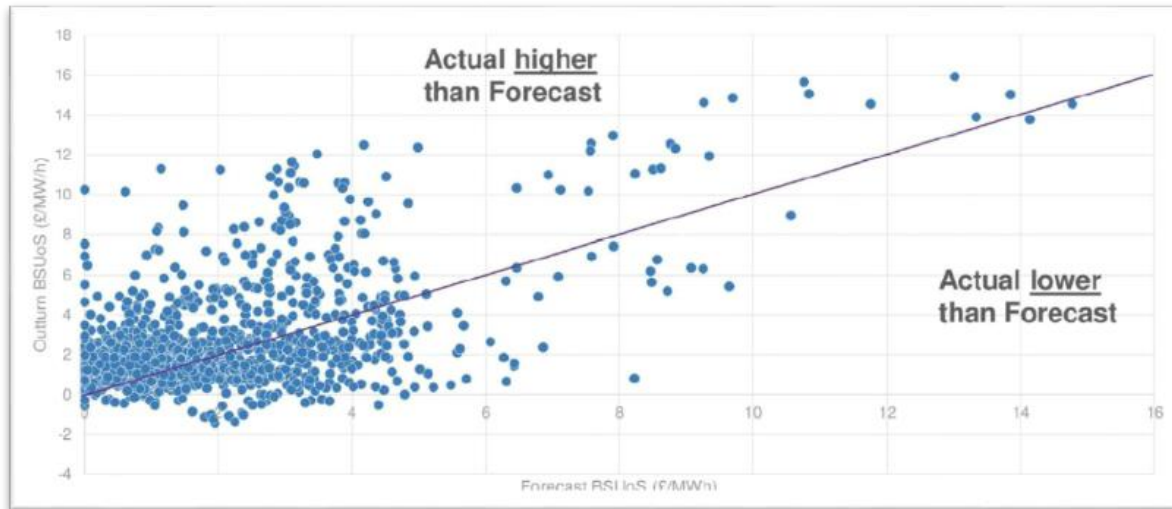
The Task Force identified 5 main reasons:

1. BSUoS charges are hard to forecast
2. BSUoS charges are complex
3. BSUoS charges are increasingly volatile
4. Other market elements take precedence
5. Applies to all chargeable users of the transmission system on an equal basis

Reason 1: BSUoS charges are hard to forecast

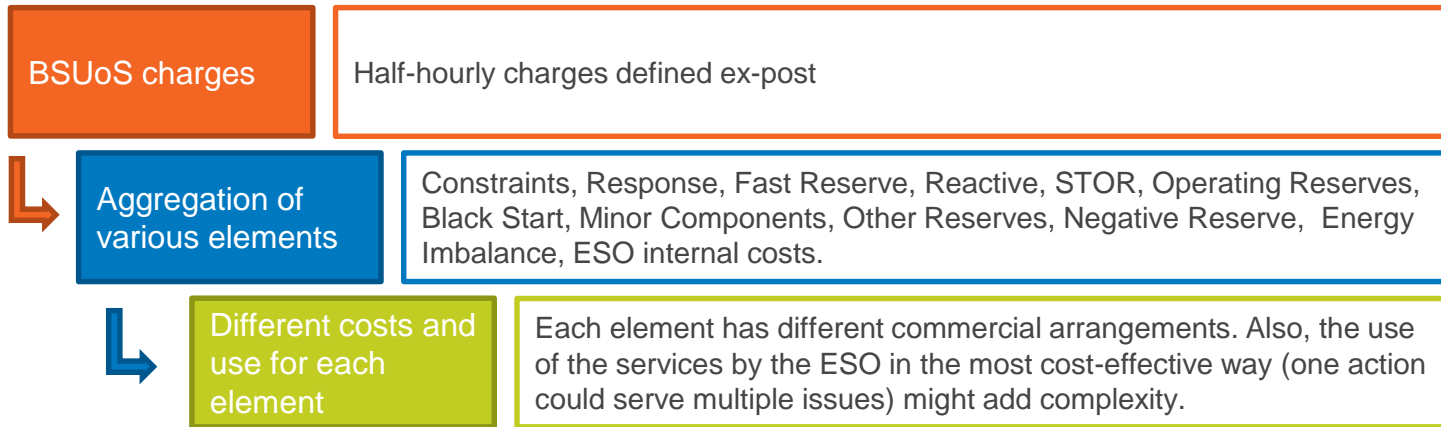
- Market parties currently react to BSUoS charges based on a forecast of the likely charge to be incurred on an ex-post basis.
- In order to have an efficient forward-looking signal based on forecasted charges, the ability to accurately forecast is important.
- As highlighted by the figure, it is proven 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



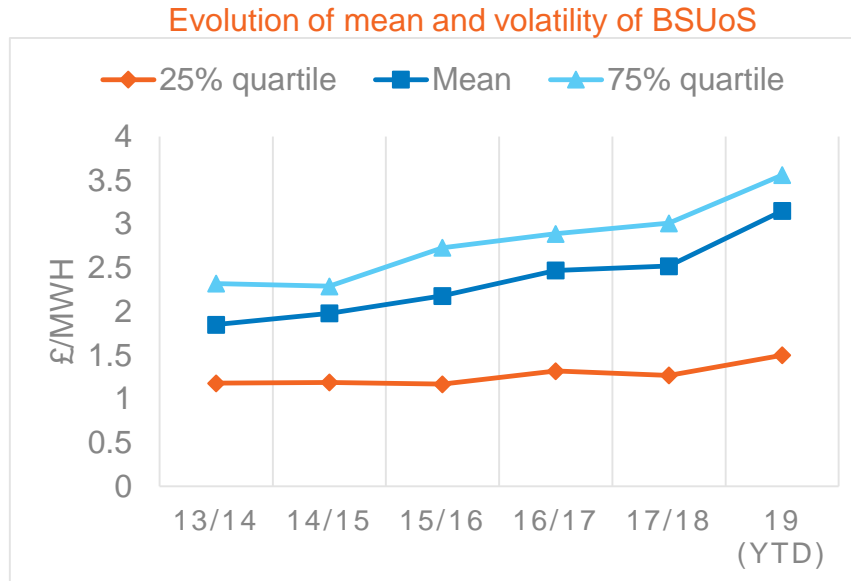
Reason 2: BSUoS charges are complex

- Market parties may not all understand BSUoS 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 BSUoS charges is highlighted in the figure below.



Reason 3: BSUoS charges are increasingly volatile

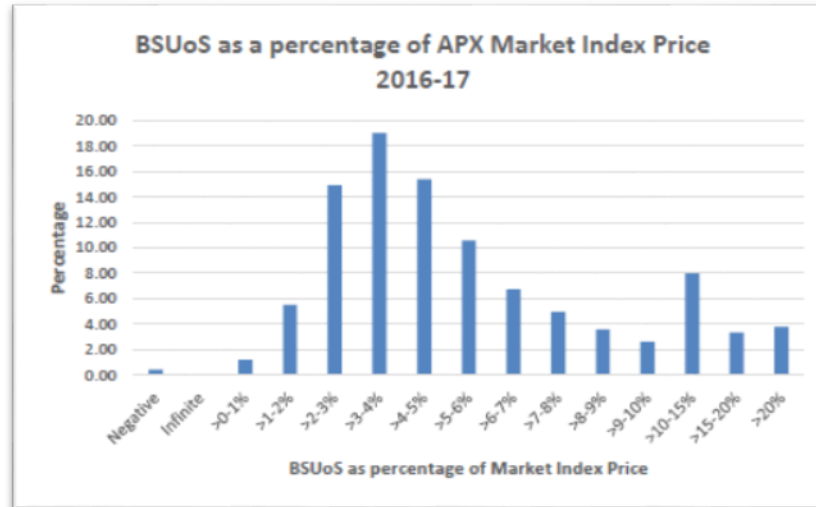
- BSUoS charges are increasingly volatile, as evidenced by the figure below which shows that the mean £/MWh charge per SP is increasing but also that the 75% and 25% quartiles are diverging.
- The Task Force understands that market parties find high volatility adds complexity to provide an accurate forecast.



Reason 4: Other market elements take precedence

- The BSUoS 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
- 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



Reason 5: Apply to all chargeable users of the transmission system on an equal basis

- BSUoS is currently paid by users of the National Electricity Transmission System i.e. generators (including storage) and suppliers, on an equal basis.
- The charge is therefore not creating a useful forward-looking signal. For instance:
 - High BSUoS driven by constraints could dampen activity at both sides of the constraint.
 - Dampening demand can further increase the BSUoS charge due to the denominator effect.

Deliverable 1 draft conclusion (II/II)

The signals some parties can forecast do not result in behaviours that would lower costs to consumers.

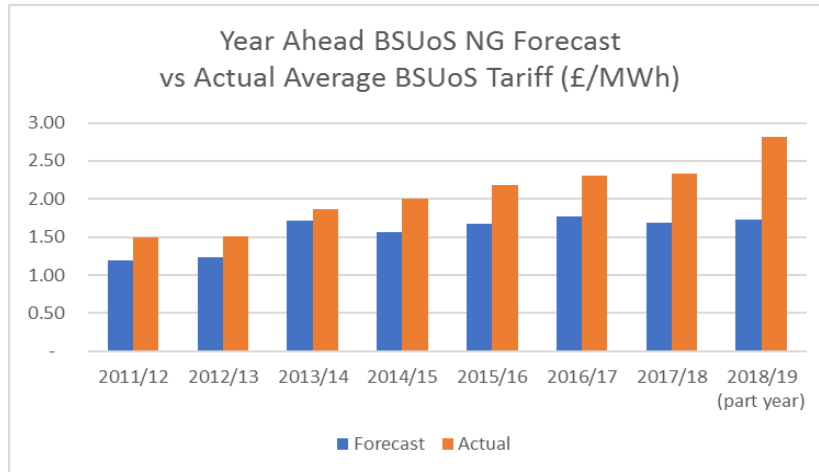
The Task Force identified 2 impacts on the market:

- Risk premia to manage forecasting risks.
- Overnight periods mainly when wind is high and demand is low.

Impact on the market: risk premia

- Parties reported that 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.

Year ahead average BSUoS forecast versus actual

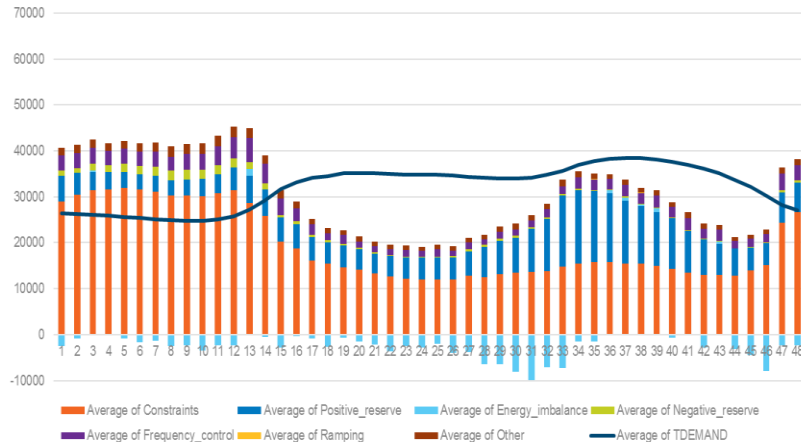


- The Task Force believes that a risk premium is added to prices to manage the related risk.
- This signal is not adequate and might lead to additional costs for consumers.

Impact on the market: overnight periods

- The figure below illustrates that high BSUoS costs mainly occur overnight.
- Some correlation could be identified between constraints costs and other variables (wind and solar), however only to a limited extent.

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



- The Task Force noted that those signals are not adequate to create an efficient response.
- They do not lead to a reduction of costs and instead may perversely increase costs by providing a signal to alter behaviour in a way which is of unhelpful for network requirements.

Draft Conclusion on Deliverable 1

The draft conclusion of the Task Force:

- The existing elements of BSUoS do not currently provide any useful forward-looking signal which influences user behaviour to improve the economic and efficient operation of the market.
- The signals some parties can forecast i.e. from demand and/or wind, do not result in behaviours that would lower costs to consumers, and the volatility and inability to forecast BSUoS is adding risk premia costs to all parties exposed to BSUoS.

➤ Quick poll in MENTI:

- Do you agree with the draft conclusion of the Task Force regarding Deliverable 1 (Yes/Partially/No)?
- Please explain your rationale where possible.

Deliverable 2 – Potential Options and Provisionally Discounted Options

James Kerr

Citizens Advice



Task Force Deliverables

- **Deliverable 1** is to assess which, if any, elements of balancing services charges currently provide a forward-looking signal that influences the behaviour of system users
- **Deliverable 2** is to 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** is to assess the feasibility of charging any identified potentially cost-reflective elements of balancing services charges on a forward-looking basis to positively influence user behaviour i.e. with the aim to reduce costs to consumers.

Draft conclusion for Deliverable 2

Four potential options were identified by the Task Force which the task force considered could potentially be charged more cost-reflectively and provide better forward-looking signals:

- i. locational transmission constraints
- ii. locational reactive and voltage constraints
- iii. response and reserve bands
- iv. response and reserve utilisation

It is important to note that at this stage the Task Force is not assessed the feasibility of such **Potential Options**. The Task Force will further discuss and explore these Potential Options throughout Deliverable 3.

Potential Options

Locational Transmission Constraints

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.

Locational Reactive and Voltage Constraints

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.

Response and Reserve Bands

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.

Response and Reserve Utilisation

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.
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.
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.
Elements of Response and Reserve	With the exception of those elements of these costs identified within the Potential Options, the TF views these costs to effectively be insurance costs which cannot be made more cost-reflective.

Draft Conclusion of Deliverable 2

The draft conclusion of the Task Force :

Four potential options were identified by the Task Force which the task force considered could potentially be charged more cost-reflectively and provide better forward-looking signals: (i) locational transmission constraints (ii) locational reactive and voltage constraints (iii) response and reserve bands and (iv) response and reserve utilisation.

- **Quick poll in MENTI:**
- Do you agree with the draft conclusion of the Task Force regarding Deliverable 2 (Yes/Partially/No)?
- Please explain your rationale where possible.

Deliverable 3 – Feasibility of Potential Options

Laurence Barrett, E.On
Graham Pannell, RES



Task Force Deliverables

- **Deliverable 1** is to assess which, if any, elements of balancing services charges currently provide a forward-looking signal that influences the behaviour of system users
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- **Deliverable 3** is to assess the feasibility of charging any identified potentially cost-reflective elements of balancing services charges on a forward-looking basis to positively influence user behaviour i.e. with the aim to reduce costs to consumers.
 - Key elements to consider in the assessment
 - Assessment of the four potential options

Key elements to consider in the assessment

- Marginal versus total costs
- Double-counting issue
- Existing limitations will remain and might be exacerbated

Marginal versus total costs

Cost-reflectivity - marginal costs

- Market parties should face the cost that they impose on the system.
- This has also been highlighted by Ofgem in their 2017 TCR consultation: *“Economic theory indicates that users will make the most efficient decisions about where, when and how to use the network when they are facing the incremental or marginal cost of their behaviour”*

BSUoS - total costs

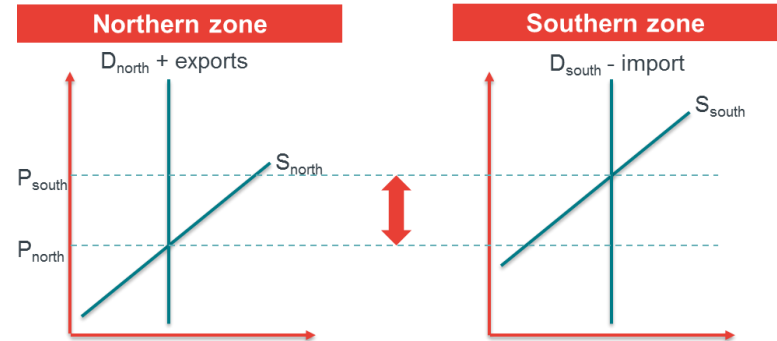
- Current BSUoS charging methodology is not based on marginal costs but on the total costs faced by the ESO to operate the transmission system.

- A charging methodology that is not based on marginal cost will **not send efficient signals** to the market, due to the risk of underestimation or overestimation.

Marginal versus total costs - illustration

➤ Illustration for 'locational transmission constraints':

- A zonal price is best defined in a situation where the market is split. A locational charge, to be effective, should therefore mimic the marginal cost defined through market splitting.
- There is no clear evidence that the cost of the balancing actions taken by the ESO would be reflected by a charge based on the zonal price.
- Unclear how feasible this approach will be, other than by developing a complicated modeling system.

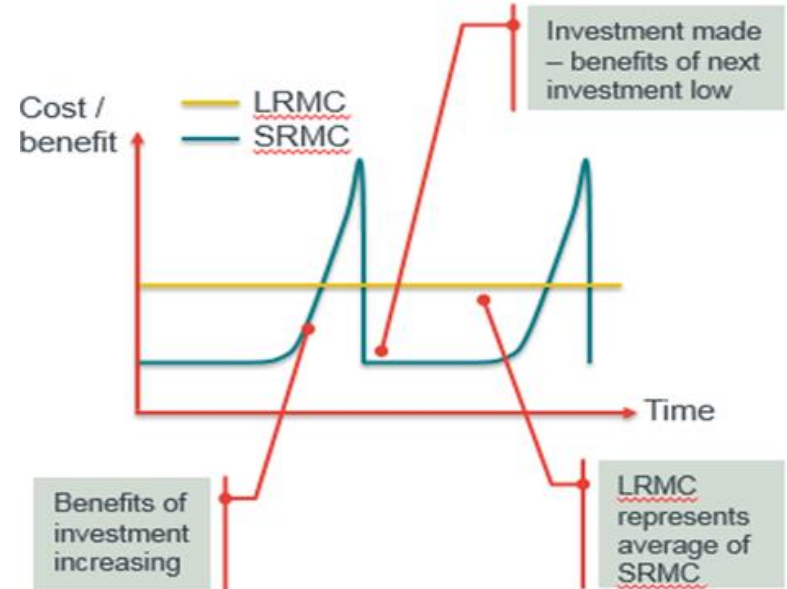


- ## ➤ Any new charging methodology that is based on the allocation of the total cost rather than based on marginal costs is unlikely to lead to an efficiently developed system and benefits for consumers. This is valid for each element of BSUoS.

Double-counting issue

- Short Run Marginal Costs (SRMC) and Long Run Marginal Costs (LRMC) are different ways to send a similar signal over time.
- It is however **counter-productive to have both** SRMC and LRMC at the same time. There is a risk of the charge being underestimated or overestimated and this could lead to market distorting signals.

Short-term and long-term signals
(Frontier Economics)



Double-counting issue - illustration

- Illustration for ‘locational transmission constraints’:
 - GB market currently exhibits locational signals through Long Run Marginal Costs (LRMC) based on TNUoS charges.
 - There is no logic to implement an additional signal e.g. such as BSUoS mimicking market splitting prices. Having both signals is counter-productive and could lead to a less optimal outcome.
- A similar reasoning can be done for other the elements of BSUoS.

Existing limitations will remain and might be exacerbated

- Isolating elements of the BSUoS charge and allocating them to more targeted groups is **not expected to improve predictability nor reduce volatility**
- **Additional complexity and lack of clarity** will also arise due to: difficulties identifying the specific cause related to the ESO actions, how to allocate the costs of the ESO to each specific cause, how to identify the parties causing the need for ESO actions, etc.

Draft Conclusion of Deliverable 3

Whilst there are some theoretical advantages for the potential options, the draft conclusion of the Task Force is that the implementation of any of these options would not feasibly provide a cost-reflective and forward-looking signal that drives efficient market behaviour.

Four evaluation criteria

1. Could arrangements provide a signal to parties in a cost-reflective manner?
2. Could arrangements provide an effective signal to parties in a forward-looking manner?
3. Are the changes practical and proportionate?
4. Any other relevant consideration?

Potential Option 1: locational transmission constraints

Whilst there are some theoretical advantages to this potential option:

- The charge could potentially be more targeted to market parties causing or exacerbating the costs. A targeted price signal to market parties behind a constraint could in theory reduce the volume and cost of constraints action.

The implementation of this option would not provide a cost-reflective and forward-looking signal that drives efficient market behaviour. Main limitations that arises:

- Constraints costs are not based on the marginal costs but on the total costs. An effective signal should be based on market splitting.
- Even if some signal could be created, it will not be optimal as it will be double-counting with TNUoS.
- The implementation would raise several limitations. For instance, how to identify the cause of the constraints due to high complexity of the system, or attribute the costs to the cause.
- The existing five limitations discussed in Deliverable 1 will remain and might be exacerbated.

Potential Option 2: locational reactive and voltage constraints

Whilst there are some theoretical advantages to this potential option:

- The charge could potentially be more targeted to market parties causing or exacerbating the costs. An effective forward-looking signal could in theory reduce the amount of reactive services procured.

The implementation of this option would not provide a cost-reflective and forward-looking signal that drives efficient market behaviour. Main limitations that arises:

- Implementation: the identification the cause of the reactive costs as this is due to a combination of various factors and that voltage is distance-related; voltage constraints would be difficult to identify as they are mobile and quite small relative to total costs.
- The signal might not provide as cost-reflective a signal as it is could be as current costs are based on administrative prices rather than market prices.
- The existing five limitations discussed in Deliverable 1 will remain and might be exacerbated.

Potential Option 3: response and reserve bands

Whilst there are some theoretical advantages to this potential option:

- The charge could potentially be allocated to market parties causing or exacerbating the need for response and reserve.

The implementation of this option would not provide a cost-reflective and forward-looking signal that drives efficient market behaviour. Main limitations that arises:

- The need for response and reserve is not based on the incremental/marginal need but on the assessment of the overall network structure and generation mix.
- Even if some forward-looking signal could be created, the impact on existing market arrangements would have to be carefully considered, as contradictory signals might be created.
- The signal will drive little useful operational behaviour as services are procured in advance.
- Implementation issue: how to adequately allocate costs when they arise from a complex assessment of different scenarios and from a variety of system risks.
- The existing five limitations discussed in Deliverable 1 will remain and might be exacerbated.

Potential Option 4: response and reserve utilisation

The Task Force did not identify advantages to this option.

The implementation of this option would not provide a cost-reflective and forward-looking signal that drives efficient market behaviour. Main limitations that arise:

- The costs are not based on the impact of an event in isolation (e.g. tripping) but on the situation of the total system at a specific time, there is a fundamental problem that arises to define an optimal cost-reflective signal.
- Even if some forward-looking signal could be created, it will drive little useful operational behaviour from market parties as the utilisation of response and reserve often arises from unexpected events.
- There is already a signal through existing market arrangements (mainly through the imbalance price) so it might therefore be ineffective.
- The existing five limitations discussed in Deliverable 1 will remain and might be exacerbated.

Draft Conclusion of Deliverable 3

The draft conclusion of the Task Force :

Whilst in theory there are some advantages relating to the potential options identified, the draft conclusion of the Task Force is that none of the potential options could feasibly provide a cost-reflective and forward-looking signal that drives efficient market behaviour to the benefit of consumers. Indeed, several limitations have been identified from the assessment of each of the potential options where no solution could be identified by the Task Force.

- **Quick poll in MENTI:**
- Do you agree with the draft conclusion of the Task Force regarding Deliverable 3 (Yes/Partially/No)?
- Please explain your rationale where possible.

Draft Overall Conclusion

Colm Murphy

Electricity Market Change
Delivery Manager, ESO



Draft Overall Conclusion

It is not feasible to charge any of the components of BSUoS in a more cost-reflective and forward-looking manner that would effectively influence user behaviour.

Therefore the costs within BSUoS should all be treated on a cost-recovery basis.

Quick poll in MENTI:

Do you agree with the overall draft conclusion of the Task Force (Yes/Partially/No)?
Please explain your rationale where possible.

Q&A

Please ask your questions
using www.menti.com



Next steps

- Draft Report and Consultation Response Pro-Forma are both available on the Charging Futures website.
- The consultation closes 17th May 2019 at 17:00 and we would welcome views.
- A final report will be sent to Ofgem on 31st May 2019.
- Ofgem will review the outputs and conclusions of the task force and advise on expected next steps in due course.

Thank you

The Task Force is currently running a consultation on the draft report **until 17th May 2019 at 17:00.**

All information is available on the website www.chargingfutures.com