Stage 03 Workgroup Report	At what stage is this document in the process?

CMP281: 'Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

01	Initial Written Assessment
02	Workgroup Consultation
03	Workgroup Report
04	Code Administrator Consultation
05	Draft CUSC Modification
06	Final CUSC Modification Report

Purpose of Modification: CMP281 seeks to remove liability from storage facilities for Balancing Services Use of System (BSUoS) charges on imports.

This document contains the discussion of the Workgroup which formed in July 2017 to develop and assess the proposal, the responses to the Workgroup Consultation which closed on 12 November 2018 the voting of the Workgroup held on 18 June 2019 and the Workgroup's final conclusions.

Medium Impact:

National Grid Electricity System Operator: Changes will be required to the BSUoS billing systems to tag out the appropriate metered import volumes for the purpose of the BSUoS charging base.

Low Impact:

Suppliers: The reduced recovery of BSUoS charges from generator parties, including storage facilities, will need to be recovered from the balance of parties liable to BSUoS. The Proposer estimates the impact to be small; In 2016/17 and 2017/18 pumped storage facilities paid £12.4m and £12.3m BSUoS on their imports. The increase in charges recovered from other Users would have amounted to £0.02/MWh (0.8%) each of these years.

The Workgroup concludes:

All Workgroup Members concluded that the Original Proposal facilitates the Applicable CUSC Objectives better than the baseline.

Contents

Timetable

The Code Administrator recommends the following timetable:	
Workgroup Report presented to Panel	31 July 2019
Code Administration Consultation Report issued to the Industry	31 July 2019
Draft Final Modification Report presented to Panel	September 2019
Modification Panel decision	September 2019
Final Modification Report issued to Authority (25 WD)	September 2019
Indicative Decision Date	October 2019
Decision implemented in CUSC	1 April 2020

Any questions?

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1 About this document

This document is the Workgroup Report which contains the discussion of the Workgroup which formed in July 2017 to develop and assess the proposal. In addition, it contains the responses to the Workgroup Consultation, which closed on 12 November 2018 and the voting of the Workgroup held on 18 June 2019.

CMP281 was proposed by Scottish Power and was submitted to the CUSC Modifications Panel for its consideration on 26 June 2017. The Panel decided to send the Proposal to a Workgroup to be developed and assessed against the CUSC Applicable Objectives. The modification was adopted by ENGIE in November 2018.

CMP281 aims to remove liability from storage facilities for Balancing Services Use of System (BSUoS) charges on imports. The Workgroup consulted on this Modification and a total of 12 responses were received. These responses can be views in Section 3 of this Report.

Workgroup Conclusions

At the final Workgroup meeting, Workgroup members voted on the Original proposal. All members voted that the Original Proposal better facilitated the applicable CUSC objectives.

Terms of Reference

Specific Area	Location in the report
a). Consider co-location of generation and storage assets	Section 4, Page 19
b) Consider the practical implications of solution e.g. that all metered data is available to National Grid to support the proposed solution	Throughout Section 4
c) Consider the impacts on RCRC and BSC arrangements	Section 4, Page 11
d). Consider the interaction with CMP250	Section 4, Page 16
e) Consider impacts on foot-room, High Frequency Response and fuel equivalency (e.g. battery and conventional generation).	Section 4, Page 26

2 Original Proposal

Section 2 (Original Proposal) are sourced directly from the Proposer and any statements or assertions have not been altered or substantiated/supported or refuted by the Workgroup.

Defect

Under the current Charging Methodology, storage providers pay BSUoS on both their import and export volumes (in addition to the BSUoS costs implicit in their 'fuel cost'). Storage providers are therefore contributing more towards the cost of balancing the system than other users. Storage providers, who compete with generators in the provision of ancillary services, are therefore at a competitive disadvantage, which is likely to distort market outcomes and so disadvantage consumers.

What

CUSC 14.29.4 states that all Parties with the exception of Balancing Mechanism Units (BMUs) and Trading Units associated with Interconnectors are liable for BSUoS charges. This includes energy taken from the grid by storage facilities. All CUSC Parties acting as Generators and Suppliers (for the avoidance of doubt, excluding all BMUs and Trading Units associated with Interconnectors) are liable for Balancing Services Use of System charges based on their energy taken from or supplied to the National Grid system in each half-hour Settlement period.

Why

Requiring storage operators to make a greater contribution (at least 2-fold) towards the recovery of BSUoS charges than their competitors is inequitable - the requirement to pay BSUoS on both of the import and export volumes should be removed from these facilities. Failure to address this issue will perpetuate a distortion to competition between storage operators and other generators. Moreover, given the nature of storage facilities and the system support role that they play, they are very unlikely to impose such balancing costs on the system when compared to other users.

How

A solution would be to change the BSUoS Charging Methodology within section 14 of the CUSC to remove the liability of BSUoS on storage facilities import volumes.

This will be achieved through defining an Exemptible Storage BMU and removing the liability to pay BSUoS on their imports from the transmission or distribution system. Once defined, the exemption would mirror that already in place for BMUs and Trading Units associated with Interconnectors.

The proposed solution initially did not include storage (CVA or SVA) below 100MW but following the working group discussion, the original was changed by the proposer to include all CVA and SVA storage that meet similar criteria to larger CVA storage.

Detail on why change

Transmission-connected storage operators are liable for the BSUoS on both their import and export volumes to and from the transmission network (in addition to the BSUoS

costs implicit in their 'fuel cost'). Embedded storage pays towards BSUoS but can also receive BSUoS as an embedded benefit (this benefit is being addressed separately through Ofgem's Targeted Charging Review Significant Code Review).

This means that storage operators (particularly storage over 100MW) make a significantly greater contribution towards the recovery of BSUoS charges than their competitors. Failure to address this issue will perpetuate a distortion to competition between storage operators and other generators, and could hinder the development of new storage that could meet the increasing demand for flexibility. Moreover, given the nature of storage facilities and the system support role that they play, they are very unlikely to impose such balancing costs on the system when compared to other users.

3 Proposer's solution

Section 3 (Proposer's solution) are sourced directly from the Proposer and any statements or assertions have not been altered or substantiated/supported or refuted by the Workgroup. Section 44 of the Workgroup contains the discussion by the Workgroup on the Proposal and the potential solution.

The proposed solution initially did not include storage (CVA or SVA) below 100 MW but following the working group discussion the original was changed by the proposer to include CVA and SVA storage that meet similar criteria to larger CVA storage.

Following detailed discussion over many months, a single proposal has been put forward to meet the defect that exempts certain types of storage form demand BSUoS. In order for a storage facility to be excluded from BSUoS demand charges, it would need to meet the following criteria:

- It must be operated by a person who holds a generation licence
- Its only function must be that of electricity storage (based on the draft Ofgem licence condition)
- It is registered as part of a CVA BMU, which is explicitly recognised in either a Bilateral Connection Agreement (BCA) or a Bilateral Embedded Generation agreement (BEGA) with National Grid

  or

- Its Imports and Exports are measured by SVA registered Metering Systems, which do not measure Imports or Exports for anything other than Electricity Storage; and the operator provides a declaration (using the template set out in BSC modification P383) to the SVAA, via its Supplier(s), which SVAA must validate. The declaration will provide important information about the facility, including how it meets the CUSC criteria, its location and related SVA MSIDs

.

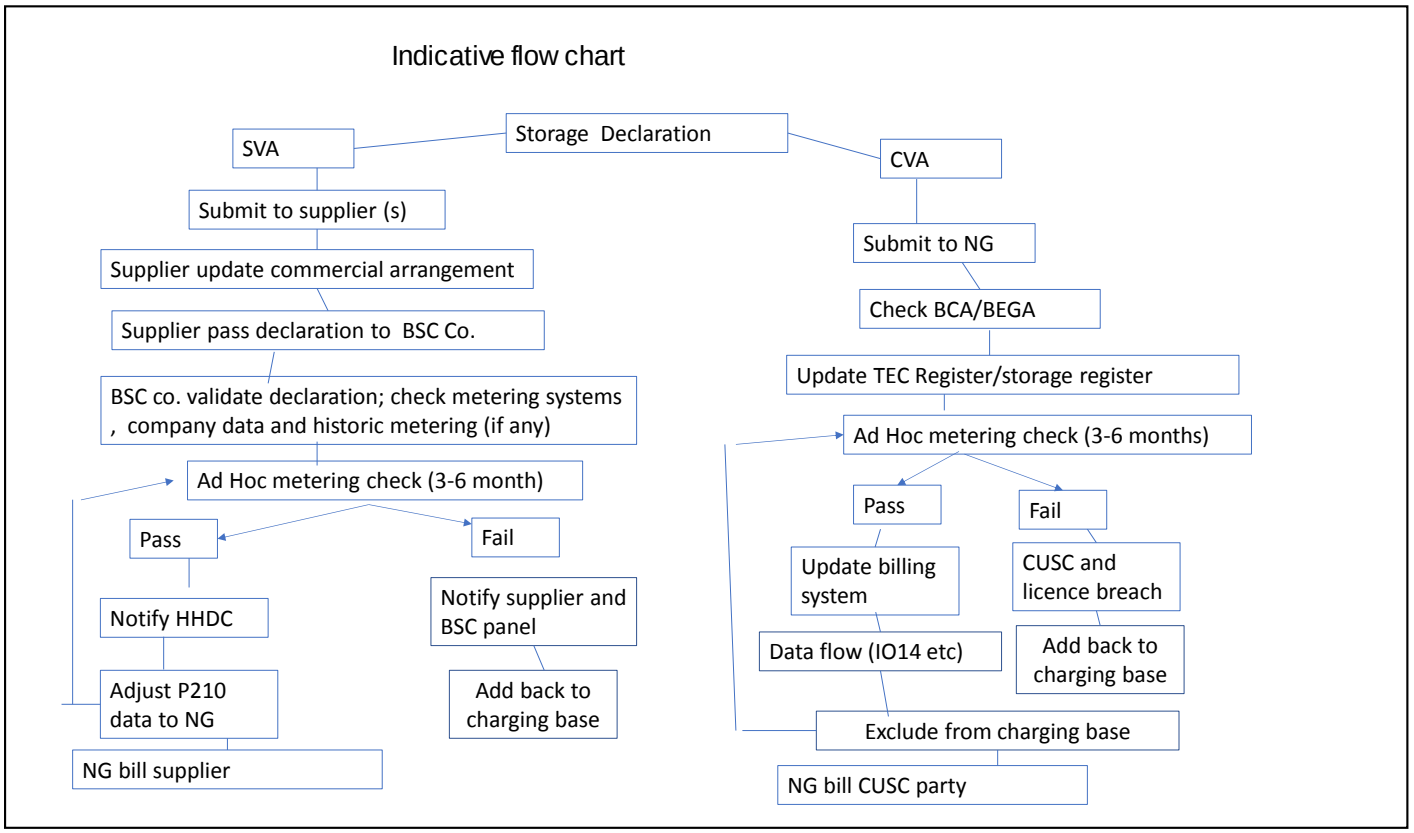
The chart below shows the current base line position for BSUoS and highlights the proposed change.

		T Final Demand	T Generation	T Storage†	D Larger EG**	D Larger Storage**†	D Smaller EG*	D Smaller Storage*†	D Demand
Balancing	Generation		✔	✔	✔	✔	Paid	Paid	
	Demand	✔	✔	✔	✔	✔	✔	✔	✔

CMP281 removes liability ✡

✔ - Pay the charge Paid – can get paid the inverse of the charge when generating
* <100MW EG **>100MW EG
† - may be affected by ongoing storage modifications CMP280 & CMP281
†† - will be replaced by dedicated embedded export tariff following CMP264/5 WACM4 implementation
# - only those connected at HEV level pay distribution demand residuals. All other are exempted

The flow chart below details the proposed methodology for establishing a valid Storage Facility for SVA and CVA connected storage facilities. Details of the SVA validation methodology are set out in further details in BSC modification P383 also set out below of the key definition and declaration that will be required as part of the solution.



Further information can be found within the workgroup discussions section of this report.

Details of any potential cross-code, consumer or environmental impacts and attach or reference any other, related work.

With the inclusion of SVA in the solution, a cross code issue has been dealt with by the proposer raised P383 to facilitate data flows and validation for SVA storage facilities. Although not dependent of the CUSC solution similar changes for storage are being progressed through the DCUSA.

Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

No. There was no Significant Code Review (SCR) underway which impacts BSUoS at the time the modification was raised. Both the SCR on residual charges and embedded benefits and the SCR on forward-looking charges and access were initiated after this modification was raised. In addition, Ofgem has said that it thinks that the relative disadvantage for storage from the current arrangements – whereby storage pays BSUoS as both demand and generation – is sufficiently material that it should be

addressed ahead of any potential future change to BSUoS. Please see section 6 for further details.

Consumer Impacts

Removal of this distortion should result in fairer allocation of the costs of balancing the system and hence in stronger competition, which should in turn allow discovery of more efficient outcomes.

4 Workgroup Discussions

1. Introduction

The Workgroup convened 18 times to discuss the issue, detail the scope of the proposed defect, devise potential solutions and assess the proposal in terms of the CUSC Applicable Objectives

The Proposer presented the defect that they had identified in the CMP281 proposal and highlighted: (1) the fact that storage providers are contributing more towards the cost of balancing the system than other users; (2) the requirement to pay BSUoS on both of the import and export volumes should be removed from these facilities; and (3) failure to address this issue will perpetuate a distortion to competition between storage operators and other providers of ancillary services.

The Workgroup explored a number of aspects in its meetings to understand the implications of the proposed defect and solutions. The discussions and views of the Workgroup are outlined below.

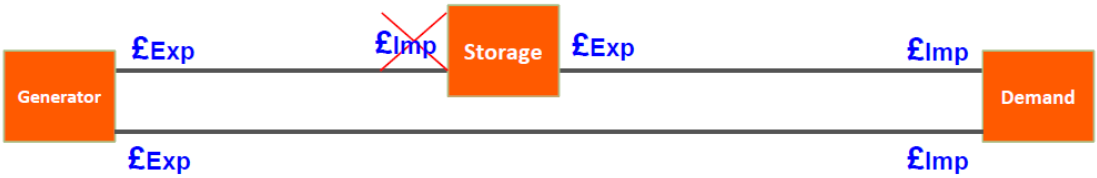
2. The economic rationale for the proposal as presented by the original proposer and the subsequent adopter of the proposal

Under the original proposal, electricity storage facilities import electricity from the Total System in order to be able to store it. The stored energy is exported back to the system in the form of electricity for consumption by an end consumer. The storage facility does not have self-consumption as its primary function.

The current BSUoS charging regime can result in “double counting” of energy to the end consumer:

1. The energy is considered to be end-consumption when imported by the storage facility
2. The energy is considered end-consumption when exported back to the National Grid System and measured as consumption by the end-user.

This adds to the operational cost of the storage facility which makes storage facilities less competitive than other providers of flexibility services to the Electricity System Operator (ESO). This adverse effect on competition may result in additional costs being passed through to the end consumer. As well as removing the double counting, the analysis in Appendix 5 shows a net benefit to the consumer of £15m per annum if this change is introduced



The current charging regime means that storage facilities pay BSUoS on both their import and export volumes (in addition to the BSUoS costs implicit in the 'fuel cost'). Effectively CVA storage is paying three lots of BSUoS charges. Storage is therefore contributing more than other users with whom it competes. Removal of this distortion will place generator and storage users who compete with each other in the provision of ancillary services and in the energy market, on a more level playing-field, better facilitating competition which will ultimately be to the benefit of the consumer via reduced pass through costs.

The current charging of BSUoS penalises storage when it acts in a beneficial way for the system. For example, occasions when there is high wind overnight leads to the ESO having to take actions to constrain off wind. These higher constraint costs cause BSUoS costs to be high. When pumped storage units imports energy overnight (providing helpful demand on the system at times when there is low demand and excess generation) it is liable for these high BSUoS costs.

This is not appropriate and means that the costs incurred by non-beneficial behaviour are not picked up by those who cause these costs to be incurred. Instead they are allocated to those who have no impact or are acting in a beneficial way for the system.

Removal of BSUoS charges from energy imported by storage facilities from the National Grid System would go some way to addressing the issues above and in facilitating competition in the provision of flexibility services between storage facilities and other flexibility providers such as generation.

BSUoS as a cost recovery.

Academic literature (e.g Diamond Mirrlees et al)[1] on production efficiency recognised that the most efficient way to collect fixed revenue (e.g BSUoS) is to apply it only to end consumption.

An example of this is rail and postal services that are not subject to VAT. A simple assumption for VAT collection could be that it will be possible to raise more VAT if it is applied to postage and rail costs. This assumption is wrong as it is optimal to have no distortions in production of goods based on recovering fixed (tax like) costs. Businesses that use postage will simply apply the additional VAT plus their processing expenses (inefficiency cost) and apply this cost to the cost of goods and services which are passed on to the end consumer. In addition, competition between business will be improved if

[1] http://darp.lse.ac.uk/PapersDB/Diamond-Mirrlees_2_(AER_71).pdf

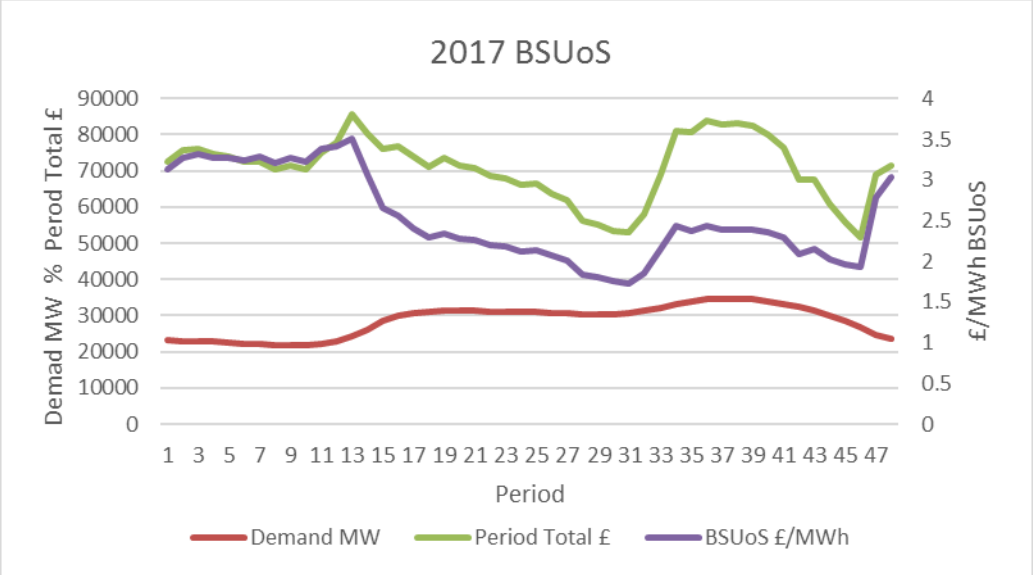
they can compete on the basis of their business designs and production costs that do not include tax-like charges.

A more efficient outcome is to recover the same (higher) amount of VAT directly from consumers. This will result in a lower overall cost, as the additional inefficiency cost does not need to be collected and competition between business will result in a more efficient outcome, based on their business designs rather than the application of a tax-like charge. The application of BSUoS should not therefore distort production decisions and leads to the ultimate conclusion that BSUoS should be applied only to end consumption.

Although BSUoS is a half-hourly charge, most of the individual elements relate to actions that are required across multiple time periods with the magnitude determined principally by the demand shape. At all points in the day generation and demand must match so actions in one time period cannot be divorced for those in other time periods. In reality, although the cost (£m) may be flat across the day, this will drive a high BSUoS price at low demand period. The shape of BSUoS (£/MWh) is simple a cost recovery across a varying number of consumers, exacerbating the current distortion.

BSUoS across the day

The chart below shows for 2017 the average period daily cost of BSUoS, average period demand as well as the demand. £/MWh charge. As can be seen, the period cost (allocated) over night and over the system peak are similar with similar amounts being spent overnight and during peak daytime, but the resulting £/MWh change is far from flat. Driven principally by demand and the need to ensure sufficient head- and foot-room during lower demand periods, the overnight rate is roughly 1.5 times the daytime rate. This is driven by the methodology which recovers a similar period £k amount over lower demand periods.



As highlighted in appendix 5, the allocation methodology leads to higher daytime wholesale prices as storage is subject higher levels of BSUoS on its imports.

The ESO-led BSUoS task force issued its final report on 31 May and concluded that BSUoS should be treated as cost recovery, the summary conclusion is set out below.

> "Deliverable 1 - does BSUoS currently provide a useful forward-looking signal?
>
> When assessing the current BSUoS charge, the Task Force found that it 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 identified five main reasons why this is the case: the current BSUoS charges are hard to forecast, complex, increasingly volatile, that other market signals are more material and so take precedence, and the current BSUoS charge applies to all chargeable users of the transmission system on an equal basis."

This conclusion supported the proposers view that BSUoS is cost recovery and should only be applied to final consumption.

3. The materiality and concern that it would lead to increased costs for other demand users

The reduced recovery of BSUoS charges from storage operators, as a result of implementing CMP281, would need to be recovered from the balance of parties liable to BSUoS.

Based on the 2016/17 charging year, imports from pumped hydro amounted to approximately 4TWh which represents 0.78% of the total volume (520TWh) liable for BSUoS charges. Under the original proposal, the reduction in recovery of BSUoS from the pumping volume would be recovered across the remaining volume resulting in an increase in BSUoS charge of £0.02/MWh (increase from £2.44/MWh to £2.46/MWh).

The value of Residual Cashflow Reallocation Cashflow (RCRC) over the same period was approximately £0.06/MWh. Excluding storage import volumes from the RCRC calculation would have resulted in an increase of £0.00051/MWh to other parties which in the Proposer's view would not appear to be a material adjustment.

In 2016/17, RCRC cash-flows attributable to pumped storage imports constituted around 1.4% of the total RCRC cash-flows. The Proposer considers that this amount is insufficiently material to justify a change to the RCRC calculation within the BSC and it has no impact on cross border trade. However, should other Parties believe otherwise, the appropriate change may be raised under the BSC modification process.

4. The current regulatory and licencing regime

The Workgroup discussed the proposed modification in the context of the current legislative framework for generation activities and the generation licence changes to accommodate storage facilities proposed by Ofgem and BEIS[2].

The Workgroup noted that the provisions of the Electricity Act above allow a person with an Electricity Generation Licence to supply electricity to facilities, including storage facilities, under the terms of this licence, provided such facilities are associated with the generation activities authorised by the licence under the Act. This supply of electricity under a Generation Licence is the current practice at all large power stations, including pumped storage, operated by Generation Licensees.

The Workgroup noted that it would be the responsibility of the relevant party to ensure compliance with its generation licence and the Electricity Act in relation to supply of electricity under a generation licence. In this context if was felt that no additional performance assurance or auditing process was required under the CUSC arrangements (i.e. the CUSC would rely on self-compliance with the legislative framework, noting that breach of licence and/or breach of the Act could have serious consequences).

Public Service Obligation

One Workgroup member noted that in considering CMP281 and the differential treatment of storage in relation to BSUoS they had reviewed the "Government Response to the technical consultation on the model for improving grid access" published in July 2010 (copy attached). This document made it clear that "constraint" costs should be socialised across all generators and suppliers on a per MWh basis as a public service obligation on an enduring basis. The following may be relevant:

> "*We consider that the key features of the Government's intervention amount to a Public Service Obligation (PSO) on transmission licence holders (National Grid and the two Scottish transmission owners) for the purposes of the EU Internal Market in Energy Directive. This is an obligation placed on electricity undertakings by Member States in the public interest, for reasons that can relate to environmental and climate protection or security of supply. As required by the Directive, a PSO must be notified to the European Commission, which we intend to do following implementation. The effect of implementing as a PSO is to create a stable access regime, enshrined in the licence*" (Page 3 of Attachment 1)

> "*The socialisation of constraint costs is to be fixed into the transmission licence and the Government considers that this constitutes a Public Service Obligation (PSO). A PSO is required to be clearly defined, transparent and verifiable. For these conditions to be met, it must be clear how the costs elements are to be treated, operating in a manner that is capable of being verified. Even if it were reasonably practicable to isolate the direct causes of Connect and Manage from other causes of constraint costs (which as we have said we do not consider is the case), this would lead to greater complexity and be more likely to lead to*

[2] "Clarifying the regulatory framework for electricity storage: licensing, Ofgem, 29th September 2017

disputes as to the cause of costs, which would increase uncertainty in the charging mechanism". (Page 12 of Attachment 1)

"*We expect the PSO to be in place as long as it is needed to support our climate change, renewable energy and security of supply targets. We will of course need to ensure that our policy continues to operate in a manner compatible with EU law.*" (Page 26 of Attachment 1)

"*It is necessary to fix the socialisation of constraint costs in order to give investors certainty as to the model for grid access – it is a key feature of the successful achievement of the policy. As a 'general principle', the socialisation of costs will fall to be applied by the regulator when fixing or approving a specific charging methodology. We are not fixing or approving any specific methodology*". (Page 26 of Attachment 1)

Socialisation of Costs

"All constraint costs, including those arising from advanced connection, will be socialised across all generators and suppliers on a per-MWh basis, as they are at present under the Interim Connect and Manage arrangements. Standard condition C26 of the transmission licence sets the principle of socialising constraint costs on an enduring basis". (Page 33 of Attachment 1)

This is reflected in C26 of the ESO licence as follows:

"6. *The licensee shall use all reasonable endeavours to ensure that in its application of the use of system charging methodology in accordance with standard condition C5 (Use of system charging methodology), use of system charges resulting from transmission constraints costs are treated by*

the licensee such that the effect of their recovery is shared on an equal per MWh basis by all parties liable for use of system charges."

CMP281 will need to be reviewed in the context of the direction from the Government, the intent to socialise costs across generation and demand on a per MWh basis, the C26 licence condition and the PSO notified to the European Commission.

The Workgroups view was supported by the fact that this was not a reason to reject CMP201[3] and that the Government or BEIS would be responsible for giving the appropriate notifications.

[3] CMP201: https://www.nationalgrid.com/uk/electricity/codes/connection-use-system-code/modifications/cmp201-removal-bsuos-charges

5. Interactions with other regulatory initiatives

Interaction of CMP281 and Ofgem's SCR/TCR and wider issues to consider

The July 2017 statement from the Government and Ofgem is set out on pages 11 and 12 of the Government and Ofgem Smart Systems and Flexibility Plan [4]. The relevant text says:

> *It is important that network charges do not prevent a level playing field between different providers of flexibility. It is clear from responses to the CFE and from our engagement with stakeholders that the current network charging arrangements can create a relative disadvantage for storage when competing to provide services.*
>
> *Ofgem's Targeted Charging Review (TCR) consultation re-asserted its view that while storage should pay forward-looking network charges for both import and export, there are instances where storage may currently pay more towards the residual cost of the network than other network users. The consultation sets out a number of proposals to address this. The proposals include removing demand residual charges at transmission and distribution level and reducing BSUoS charges for storage. The proposed changes would apply to standalone storage and storage co-located with generation.*
>
> *Ofgem believes that the relative disadvantage for storage under the current network charging arrangements is sufficiently material that it should be addressed ahead of any wider changes that may take place as result of the TCR. Ofgem therefore proposes storage charges should be taken forward directly by industry through the code governance process, rather than forming part of a wider significant code review. Ofgem is currently reviewing responses to the TCR, which closed on 5 May, and will publish a response in the summer*

Following this, Ofgem's Targeted Charging Review – Significant Code review launch statement dated 4 August 2017[5], it states that:

"The scope of the SCR excludes:

Charging arrangements for storage. Our current thinking is that industry is best placed to bring forward modification proposals to make changes within the current charging framework. We note that at the time of this letter, two code modifications have been raised to address BSUoS and TNUoS charging for storage [CMP281 and CMP280]. We reserve the option, if necessary, of bringing storage charges back into the SCR, and issuing a direction to one or more industry parties to raise modifications."

[4] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/631656/smart-energy-systems-summaries-responses.pdf

[5] https://www.ofgem.gov.uk/system/files/docs/2017/08/tcr_scr_launch_letter.pdf

In their November 2017 update [Targeted Charging Review: update on approach to reviewing residual charging arrangements] Ofgem stated that "there are strong arguments to support recovering residual charges from demand, rather than from generators or a combination of demand and generators." Further, Ofgem stated [1.12]" In addition, we have set out our views about potential concerns with storage charges and encouraged industry to take these issues forward. We have also indicated that it may be appropriate to consider reforming BSUoS charges in line with transmission and distribution residual charges, If more fundamental reform of BSUoS is not undertake, for example, through our electricity network access project."

In their 23 July 2018 consultation *Getting more out of our electricity networks by reforming access and forward looking charging arrangements*, Ofgem stated:

[2.27] "Although users can anticipate future BSUoS charges and take action to minimise their exposure to these charges, the costs recovered through BSUoS are not targeted on those users in a forward-looking cost-reflective manner, and instead 'socialised' across all relevant users."

And

[2.31] "We consider that there may be scope to improve forward-looking locational signals sent through BSUoS and TNUoS arrangements **but do not see it as sufficiently high priority to include in an immediate review**.

Since these publications, Ofgem has shared more material giving industry more insight into their direction of thinking regarding BSUoS:

- **BSUoS Summary Note (January 2018):**
  http://www.chargingfutures.com/media/1112/charging-futures_bsuos_summary_jan18.pdf

  This paper details that Ofgem's Electricity Network Access (ENA) project may or may not lead to changes that will affect some of the revenues recovered by BSUoS. This would be through work looking at the residual element of charges and whether elements of BSUoS will change or not. Ofgem also offer a table of 4 options which detail the possible outcomes of this work:

  The possible outcomes for future BSUoS are set out below.

Decision on BSUoS	Electricity Network Access project	Targeted Charging Review
Option 1: Change recovery of constraint management cost charges	May re-design or replace BSUoS charges that recover the costs relating to constraint management	May align *remaining* BSUoS charges with our approach to network residual charges
Option 2: Keep one set of BSUoS charges	May conclude no change to the element of BSUoS that recovers constraint management costs	May align *all* current BSUoS charges with our approach to network residual charges

  This information needs to be considered as part of the solution.

- **Storage charging Summary note (February 2018):**
  http://www.chargingfutures.com/media/1126/cf_-storage-charging-summary-note-feb-2018.pdf

  Ofgem states in this documents that "…It is Ofgem's view that storage should continue to pay forward-looking network charges for both import and export (noting that forward-looking network charges are currently under review in the Electricity Network Access project)."

  Therefore, if elements of BSUoS change and there are clear residual and forward looking elements, it will need to be considered as part of the solution to ensure it is future-proof.

- **Ofgem's Access &Forward-Looking Charges consultation document (July 2018):**
  https://www.ofgem.gov.uk/system/files/docs/2018/07/network_access_consultation_july_2018_-_final.pdf

  Within this document, Ofgem give further insight into their views on BSUoS:

  - BSUoS currently is more of a cost recovery charge, rather than a forward-looking charge, and does not contain a locational element.
  - Cost are recovered through BSUoS in a socialised and homogenous manner at present. BSUoS charges can be anticipated and exposure to them minimised, however charges are not targeted on these users in a forward-looking cost reflective way.
  - Ofgem are considering BSUoS as part of the TCR:SCR and they are also considering it as part of CMP250. The decision on BSC modification P344 reduces the justification for different approaches to BSUoS charging.
  - Ofgem recognise that the Connect and Manage scheme is leading to higher constraint costs for the ESO (the Western Link should help to reduce these costs once operational). Therefore, there is value in recovering costs in a more cost reflective manner. They are aware that Government would need to approve any changes to this.
  - Ofgem also note that there is scope to improve forward looking and locational signals sent through BSUoS but they do not feel that this is a high priority area that needs immediate review. However, Ofgem do see value in further work on BSUoS more generally, to consider if it can provide forward-looking signals for the different elements it recovers and whether it can be made more cost reflective.
  - Ofgem also note that BSUoS embedded benefits are under review as part of the TCR. If BSUoS remains a cost recovery charge then they will consider whether to reform BSUoS in line with reforms to TNUoS and DUoS residual charges as part of the TCR.

  These points were considered by the Workgroup when creating a solution for CMP281.

6. Implementation - requirement to hold a generation licence and compliance with storage definition

Ofgem has consulted on changes to the standard conditions of the generation licence that would clarify how the licensing regime applies to the operators of certain types of storage facility. These changes are intended to make clear that: Electricity Storage is considered a form of generation; that storage operators seeking relief from Final Consumption Levies must hold a generation licence; and that to hold a generation licence the licensee operating an Electricity Storage Facility must not have self-consumption as its primary function. These changes make clear that generation includes various types of storage facility and goes on to set out the various technical parameters that are allow different types of storage to be classed as generation:

Ofgem's draft definition (key criteria) is:

> *An "electricity storage facility" means a facility where Electricity Storage occurs[6]. Electricity storage is the conversion of electrical energy into a form of energy, which can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy. An electricity storage facility shall not have self-consumption as the primary function when operating.*

The group preferred to adopt a definition of storage that has been consulted on, that reflects a definition suggested by a trade association representing storage, and is expected to come into force. Therefore, the CUSC position seeks to achieve consistency with the expected licence arrangements.

The Workgroup considered there were three key reasons for this:

i. The Electricity Act envisages certain core activities, including the generation of electricity, which only a licensee (or a person subject to an exemption) may perform. Therefore, in order for the Imports to a storage facility to be distinct from an ordinary Supply, the Workgroup considered that being operated by a generation licensee provided that assurance.

ii. An advantage of ensuring operators have a generation licence is related to validation and verification. That is, to obtain a generation licence parties will need to apply to the Authority for a licence. This process will provide comfort that the generation licence holder meets the criteria for a generation licence and the act of holding a licence is a public act which can be verified. It will provide assurance to CUSC Parties about the identity and activities of the licence holder. In particular, the Workgroup considered that, given the modification would also

[6] Definition from draft generation licence condition for storage at https://www.ofgem.gov.uk/system/files/docs/2017/10/elecgen_slcs_consolidated_29sept2017.pdf

apply to SVA storage, requiring operators to hold a licence is a necessary precaution.

iii. Relief from Final Consumption Levies (FCLs) is predicated on the generator holding a generation licence – which means that the facility is excluded from the ordinary meaning of Supply that is used to determine volumes that are subject to FCLs. Requiring storage facility operators to hold a generation licence to be relieved from BSUOS Demand Charges would ensure consistency with the approach to FCLs and provide regulatory certainty to storage operators as to what they must do in order to be relieved of certain charges.

The Workgroup also considered arguments that requiring operators to hold a generation licence would places an extra burden on operators and so discriminate against those who do not hold a licence.

The Workgroup considered the argument that the requirement to be operated by a generation licensee is not envisaged by Ofgem when setting out its expectations for reforms to network charges for storage. In addition, it was noted that the policy rationale for FCLs and for network charges are distinct and different. The workgroup also recognised that the proposed requirement could place an administrative and regulatory burden on operators to acquire and retain a generation licence.

However, the Workgroup noted that the likelihood is that the storage operators seeking relief from networks charges are likely to also seek relief from FCLs. Because relief from FCLs requires that the operator holds a generation licence, the Workgroup considered that requiring storage operators to hold a licence for BSUOS purposes would not be a considerable burden, as the operator would already hold a licence to satisfy the FCL requirement.

On balance, the Workgroup considered that the arguments for requiring operators to hold a licence outweighed those against.

The Workgroup also noted that for this modification a generation licence is required but that at some point it may be appropriate to review (potentially relax) this requirement once experience of the processes had been gained.

Compliance with storage definition

For CVA Storage, non-compliance with the CUSC storage definition would be a breach of the CUSC and subject to CUSC remedies.

For SVA storage to provide assurance that Storage Facilities who apply for exemption via their supplier meet the CUSC criteria, sufficient information needs to be provide to the Supplier, (and subsequently to BSCCo in accordance with P383) such that the Supplier and BSCCo can validate (and continue to monitor) any application against the CUSC criteria. This will also provide assurance to other market participants that an operator is not taking advantage of the arrangements and receiving relief from BSUOS charges.

For all SVA Storage Facilities new CUSC and BSC processes will be introduced to ensure that sufficient information is provided in a director-signed declaration that

confirms that a facility meets the CUSC criteria. The BSC processes will include up-front validation and ongoing monitoring to provide assurance to CUSC Parties.

Impacts on co-locational generation/storage assets

Significant time was spent by the working group considering the effect of co-location of end use demand with storage and how to ensure that the users could not operate end consumption behind storage. There were concerns raised by working group member that without a "strong" definition of storage, storage facilities located adjacent to demand or embedded generation and behind the settlement meter for that demand/generation (BTM) may also gain exemptions. The working group believe that with monitoring and using the Ofgem definition of storage in the CUSC, this situation will not occur.

7. BSUoS treatment of BCA and BEGA storage (larger CVA-licenced) compared with SVA smaller CVA storage

The working group considered if the proposal should be extended to SVA storage and suggested SVA storage should be relieved from paying demand BSUoS which would then level the playing field on the demand BSUoS side compared to CVA storage.

One member considered that if CVA was treated differently to SVA for demand BSUoS under CMP281 this may and make it harder to implement without discrimination. In fact, in introduces a further discrimination as SVA would then be more advantageous than CVA - it would not pay BSUoS on its imports and would receive BSUoS as an embedded benefit when generating. The Workgroup explored this view further.

Under the current base, BCA and BEGA storage (larger CVA-licenced) are charged for BSUoS on both imports and exports. In 2017 a typical storage installation of this type will have paid £3.41/MWh for demand BSUoS and £2.33/MWh for generation BSUoS. The combined contribution was £5.74/MWh. Removing the liability for demand BSUoS for these types of storage facilities will reduce this class of generation's BSUoS liability by on average £3.41/MWh

SVA and smaller CVA storage pay demand BSUoS usually via their supplier but typically receive a credit from their supplier for generation BSUoS. If the assumed credit is 90% of the generation BSUoS, SVA and smaller CVA storage currently pays a net contribution of £1.3/MWh. Removing the liability for demand BSUoS for this type storage facility will reduce this class of generation BSUoS liability by on average £1.30/MWh

The removal of demand BSUoS from smaller CVA and SVA generation will place all storage demand on the same basis for BSUoS import costs. Since SVA and small CVA generation will still retain the generation embedded benefit that stands at around £ 2.33/MWh, this class of storage will still be in a better position compared to CVA storage.

The review of embedded benefits may lead to the removal of the current generation BSUoS credit for SVA and smaller CVA storage generation and potentially apply a

charge for generation BSUoS. The review coupled with this modification would place all licenced storage on a level playing field with respect to BSUoS charges.

A working group member noted that there were two DCUSA change proposals looking to remove residual charges from storage/embedded generation – DCP319 and DCP321. These were broadly the DCUSA's version of CMP280 and CMP281. The Workgroup noted that the DCUSA proposals have both had proposer support withdrawn, this coming swiftly after a direction from Ofgem that CMP280, DCP319 and DCP321 should apply to storage only and not all generation. The reason for the withdrawal of support is that the proposer felt that removing residual charging for storage only (not generation more broadly) would create a distortion between storage and all other embedded generation. No Workgroup members for DCP319/321 chose to support these proposals or raise alternatives following Ofgem's letter and the proposer's withdrawal of support. This is a view expressed in the consultation response. New DCUSA modifications have subsequently been raised to address storage.

Given these various issues the proposer decided to include SVA generation in the scope of the modification

8. The proposed procedure for the inclusion of licenced embedded storage.

Expanding the modification from larger CVA storage to include embedded storage (larger CVA and SVA) is not without complexity. The methodology that is proposed to be adopted is described is detailed below for a new storage provider is as follows:

An "SVA Storage Facility" is a Storage Facility that:

i. performs Electricity Storage as its sole function;

ii. is operated by a Storage Facility Operator who also holds a generation licence;

iii. has its imports and exports, measured only by Half Hourly Metering Systems which are registered in the Supplier Meter Registration Service (SMRS) as part of a Supplier BM Unit, and where those Half Hourly Metering Systems only measure activities necessary for performing Electricity Storage;

This information is passed then the supplier and then from the supplier to the BSCCo for verification validation and audit.

Once the metering system has been approved under the BSC, the BSC systems will request that metered data associated with the storage facility is reported to it, which it will aggregate and report this to National Grid. National Grid may then exclude the aggregated storage volumes from the relevant Suppliers chargeable BMU. The interface and data flows between BSC and National Grid will be detailed in the BSC.

The CUSC contains provision that modify the definition of chargeable demand to be the current definition exclude demand from storage meeting systems that are approved under the BSC.

A separate BSC modification has been raised to put in place this methodology, P383.

9. The potential expansion of BSUoS exemption to all generation demand.

A working group member initially proposed that not only storage demand, but all licenced generation demand should be excluded from the a BSUoS charge. The group considered this and whilst it could arguably lead to a more efficient and economic outcome economic and could be implemented relatively easily it was not the prime purpose of the proposal and would lead to different treatment between licenced and unlicensed generation. If the proposal was scaled to SVA this was likely to cause significantly more issues as in general SVA generation operate without a licence. It was also clear that a storage only option was potentially clearer to implement given the potential for generation to co-locate with demand which would necessitate the creation a further definition. On balance, it was decided to only progress a proposal that covered licenced generation that can meet the storage definition and has a BCA or BEGA

Ofgem in its TCR may well consider this issue further but the group did receive a note from the Authority encouraging the group to look at only storage options.

10. System changes

To implement this modification there would need to be changes within the Charging and Billing system (CAB) to accommodate it. There would need to be a mechanism which would flag to the system those BMUs are impacted by the modification. The core calculations of the charging system will need to be modified to treat such BMUs differently, which will then lead to changes in reporting and billing, so that these changes are implemented across the board. Costs are currently estimated to be between £500k and £1m but depends on the division of systems work between NG and BSC. This process would also need to be detailed within the legal text for this modification so that identification of BMUs is robust and consistent.

If Elexon are responsible for maintaining the records of affected units and subsequently flagging to National Grid through existing BSUoS flows, changes to the file importing mechanism would also be required.

11. Transitional Arrangements

The implementation of CMP281 is not expected to have a material impact on other parties and as such, it is proposed that there would be no requirement for any transitional arrangements.

The Proposal, if approved, should be implemented to coincide with the start of a Charging Year (i.e. 1 April) and should be implemented in the first practical Charging Year following a decision by the Authority. If an Authority decision is available in time,

the change could be implemented no earlier than 1 April 2021. The Workgroup noted that there may be an impact on Suppliers from an early implementation date however considered that the April 2021 is being offered as the earliest practical date. One Workgroup member suggested 1 April 2022. The Workgroup agreed that the implementation date is a decision for the Authority.

Given the nature of BSUoS although a 1st April change is desirable given the magnitude it would be possible but not preferable to implement a mid-year change. .

12. Post Workgroup Consultation Discussions

Post Workgroup consultation, the Workgroup convened on multiple further occasions. During this period, the Workgroup continued to develop the modification, taking into account responses to the consultation, full responses can be found in both Section 5 and Annex 3 During this period, there were broader developments within industry which the Workgroup had to take into consideration whilst developing CMP281.

Ownership of Modification

The original proposer of this modification, Scottish Power, relinquished ownership of the modification post-Workgroup Consultation[7]. The modification was adopted by Engie who took the modification forwards. The original proposer remained on the Workgroup in the function of a Workgroup member until April 2019, when he withdrew from the Workgroup due to retirement.

SCR/TCR

On 4 August 2017[8], Ofgem announced that they would be launching a Significant Code Review/Targeted Charging Review, which would have two main objectives, namely to "consider reform of residual charging for transmission and distribution, for both generation and demand, to ensure it meets the interests of consumers, both now and in future"; and "keep the other 'embedded benefits' that may be distorting investment or dispatch decisions under review". As CMP281 and its TNUoS equivalent modification, CMP280, were raised before this date, the modifications both continued to develop despite the potential for some overlap in scope of the SCR/TCR.

When the Authority published their consultation on the TCR/SCR, the Workgroup agreed that the picture in terms of scope was much clearer for CMP281, when compared with CMP280, which had both generation and storage within its defect. The National Grid ESO representative opined that the direction of the SCR/TCR after Ofgem's November publication was broadly in the same direction of travel as the modification. As such, the CMP281 solution need not look into an SVA solution.

Ofgem's representative stated that the Workgroup should progress the modification based on storage as per previous Authority direction. Ofgem's representative stated that the Authority do not intend to interfere with the work of the Workgroup but highlighted

[7] Inset Link

[8] https://www.ofgem.gov.uk/system/files/docs/2017/08/tcr_scr_launch_letter.pdf

the principles raised by Ofgem within the SCR/TCR, and that the work that the Workgroup are doing is broadly in line with Ofgem's direction.

Solutions and Potential Alternative Solutions

The Workgroup held discussions around the nature of the solution, and how best to proceed. It was suggested that the best way to carry forward the proposal would be to look at a CVA (Central Volume Allocation), storage only solution, as per original CMP281 proposal. This proposed method of moving forward was considered to be a better option by some Workgroup members, as it would satisfy the issue set out in the original proposal.

Workgroup members discussed the solution at length. A Workgroup observer stated that on the BSUoS side he believed that an Embedded Benefit solution is intertwined with any solution for charging or generation storage demand more generally, so to raise an SVA alternative to CMP281 may be counter-productive. Other Workgroup members agreed initially, but there was also some disagreement in regards to the thought process to not include a solution which also took in to account an option for SVA.

As the Workgroup discussion developed, it became evident through discussions and also interactions with Ofgem that a solution which covered both CVA and SVA solutions would be preferable, and would also potentially give Industry Stakeholders confidence that the solution would be more encompassing of storage, regardless of volume allocation method. As such, post Workgroup consultation, the proposer and the Workgroup undertook work on amending the original solution to also encompass SVA storage.

Scope of Defect/Solution

Several Workgroup members agreed that whilst the CMP281 solution was narrow, this reflected the fact that the definition was also narrow. It was opined by the National Grid ESO representative that a CVA only solution for CMP281 would be beneficial, as accompanying issues would be addressed under the TCR. Another Workgroup member stated that bi-lateral connection agreements only encompass BMU units. However, a proposal could be made to look at SVA solutions separately to CMP281, and that it was important the Workgroup considered this because the CUSC works on bi-laterality. There may be ways of addressing this under the CUSC so that parties may access reliefs and benefits if they are involved in such an interface, however several Workgroup members agreed that the bigger issue is looking at how the CUSC interfaces with parties, and separately how the CUSC interfaces with charges.

National Grid ESO stated the other outcome from a CVA solution was that to access such benefits, a party would need a Bilateral Connection Agreement, or a BEGA. Acceding to the current iteration of the CUSC, this would therefore a pre-requisite. A Workgroup observer questioned how this translated into the distribution market, stating the issue was not to necessarily differentiate between CVA and SVA, but to differentiate between different types of activity. The observer further stated that the principle in his opinion is that the proposed solution is coming from the perspective of which parties are charged, but the nuance is around what activities the parties are charged for.

The proposer reminded the Workgroup that time was of the essence and we would be better served as a Workgroup to concentrate on the storage issues as opposed to looking at overarching issues.

The Workgroup continued by discussing the potential alternative. A member suggested that a potential alternative could include generation by making very small tweaks to the original. NGESO stated that extending the solution to all CVA generation was no more complex than to just storage. it would be just as easy for them to include this to BCA and CVA registered parties. The member continued, stating that regardless of the definition of storage this would need to be included in the license..

The Authority questioned whether the NGESO would ever go to a site and investigate whether a storage site was storage only. The Workgroup replied there was recourse in the CUSC and any party contravening the CUSC could in fact be disconnected. National Grid ESO stated they would not be in a position to go to site and assess whether a site was compliant.

Process flows for amended solution

In later Workgroups, the flows to facilitate the solution encompassing both CVA and SVA sites were discussed and the solution was developed to facilitate this and is included in section 4.

13. Balancing Services Task Force

The Balancing Services Task Force was launched in January 2019, and looked to make the Balancing Services Charges more forward looking and cost reflective. Several of the Workgroup members on CMP281 also hold positions on this Task Force. In their open letter on the implications of charging reforms on electricity storage dated 23 January 2019[9], Ofgem directed that the CMP281 Workgroup should take into account the outputs of the Balancing Services Task Force. This was reiterated by the CUSC Panel during their January 2019 meeting[10]. The Workgroup monitored the outputs of the Balancing Services Taskforce, with particular emphasis on any specific implications on electricity storage moving forwards.

CMP281 had within its terms of reference an item to consider headroom and footroom. In examining BSUoS, the task force considered the drivers for frequency response costs. One of the elements of frequency response is the cost incurred when the ESO creates the headroom and footroom needed through Balancing Mechanism actions; these costs are recovered through BSUoS. The taskforce referenced CMP281 in its final report as one of the changes being developed by industry and no specific issues were identified in this area relating to storage.

[9] https://www.ofgem.gov.uk/system/files/docs/2019/01/storage_and_charging_reform_2201f.pdf - Ofgem open letter on the implications of charging reform on Electricity Storage

[10] https://www.nationalgrideso.com/document/139911/download - CUSC Panel January Minutes

The Taskforce final report was issued on 31 May. It concluded that it was not feasible to charge any of the components of BSUoS in a way that could give a forward-looking signal, and that therefore BSUoS should be charged as a cost-recovery as set out in the conclusion below.

Conclusion

Based on their work the Task Force therefore concluded that: 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 that would help the system and/or lower costs to customers. Therefore, the costs included within BSUoS should all be treated on a cost-recovery basis.

The Task Force believes that cost-recovery charges should aim to minimise market distorting signals, to benefit the system and ultimately consumers. However, the current construction of the charge may inadvertently send signals that are detrimental to the system.

14. CMP308

The Workgroup noted that CMP308 has no interaction with CMP281.

15. Legal text changes – updated

Please seen Annex 3 of this report for the finalised legal text

16. Generation license further consideration

The group considered if the need for a generation licence should be a prerequisite for the final proposal. The group noted the pros and cons of using this as an approach.

Pros

- The generation licence allows for own use consumption but would not allow energy to be supplied to others without an exemption. This requirement will be helpful in ensuring that the storage facility demand is only used to support the generation
- The Smart Systems and Flexibility Plan (SSFP), sets out the view position that only generation licence holders will be excluded from the various levies (P22)

  "***Electricity supplied to generation licence holders is excluded from the supply volumes used to calculate the costs of the Renewables Obligation (RO), Contracts for Difference (CFD), Feed in Tariffs (FITs) and Capacity Market auctions. Holders of either a generation licence or the new storage licence to be consulted on by Ofgem (see 1.2) will, as a result, not be liable for such levies.***"

  The approach of requiring a generation licence is compatible with this approach.

Cons

- Various classes of exemptible storage facility would be excluded from the benefit due to their size unless a generation licence was obtained.
- The cost and process and obligations relating to of obtaining a generation licence may be prohibitive for small storage facilities.

Having discussed these issues, it was felt that the Pros outweighed the cons. **There will therefore be a requirement to hold a generation licence**. If at some future time the generation licencing regime was reviewed it may be possible to reconsider this approach with a further modification but to ensure a timely implementation maintaining a generation licence requirement was the preferred approach

Auxiliary demand at storage facilities further considerations

The working group discussed the issue of how to ensure that the demand used by a storage facility was used by the facility for subsequent generation and was not used for any other purpose. It noted that imports fall into two classes:

1. Imports that are directly used to store energy. This typically would be power to the storage pumps or to power the converter that stores energy in a battery. These could be referred to as the principle storage device.
2. Auxiliary equipment that are needed to support principle storage device such that it can operate in a safe and controlled way. Examples of these would be fire suppression systems, cooling fans, lighting, compressors, auxiliary pumps, control and security systems etc. These are systems that a reasonable and prudent operator would provide to support the principle storage devices operation.

The group noted the different types of use and were comfortable that both types were needed to operate a storage facility and would be covered by the proposed definition of "sole" use.

In reality, given the metering arrangements for most new storage sites (batteries) it would be not possible to separate the two demand uses and the magnitude of the energy consumed for auxiliary equipment is small compared to the principle storage devise. Three of the existing pumped storage stations separately meter station load. The percentage of power used to power auxiliary equipment was presented to the working group and is shown below. It is typically less than 1.5% of total demand.

Station load as a % of imports

	Ffestiniog	Cruchan	Foyers
2015	1.43%	1.26%	1.48%
2016	0.97%	1.49%	1.29%
2017	1.08%	1.20%	1.15%
2018	1.36%	1.73%	1.35%

The group was keen to ensure that where other demand that was used on the same site as the storage facility but not used "solely for storage" would need to be separately

metered and not included in the storage facility demand. The group discussed several types of demand that would not be allowed including:

1. On-site demand used by unrelated business or sold via a private wire.
2. Site demand used to support a much larger site than was required for a storage facility. Examples of this could be the site demand used for an industrial complex where a small battery system was located.

To protect against these types of use, the definition contained in the CUSC would need to provide sufficient comfort there these types would be excluded. The link to a generation licence was considered helpful, as well as a monitoring regime that would establish that metering of the storage facility was such as would reasonably be expected for a storage facility.

5 Workgroup Consultation Responses

The CMP281 Workgroup sought the views of CUSC Parties and other interested parties in relation to the issues noted in this document and specifically in response to the questions highlighted in the report and summarised below:

The CMP281 Workgroup Consultation was issued on 22 October 2018 for 15 Working Days, with a close date of 12 November 2018. Two additional questions to the standard Workgroup consultation questions were asked.

Response from	Q1: Do you believe that CMP281 Original proposal or either of the potential options for change better facilitates the Applicable CUSC Objectives?	Q2: Do you support the proposed implementation approach?	Q3: Do you have any other comments?	Q4: Do you wish to raise a Workgroup Consultation Alternative request for the Workgroup to consider?	Q5. Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?	Q6. Do you believe that the original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?
Binoy Dharsi, EDF Energy	Ofgem state in their TCR consultation (published 13th March 2017 paragraph 1.31) *"We think that the way charges affect storage at present create a relative disadvantage for storage operators, in comparison with generators connected at the same voltage level"…." This is because…transmission-connected storage pays BSUoS as both demand and generation. In order to secure a more level playing-field, we think that*	Yes	No	No	We do not believe there will be any issues (beyond business as usual) in relation to tariff stability. The impact is on a very small percentage of the entire BSUoS cost. We do not foresee any significant impact on operations, billing or processes in the implementation of the Original proposal	Yes. We believe the proposal solution will ensure that competition between generators and storage assets at the same voltage level will be on a fairer basis.

	storage should be liable to pay only….one set of BSUoS charges." Given Ofgem's statement in the above cited extract we believe that the Original Proposal delivers an appropriate solution.					
Libby Glazebrook, Engie	**see following box**	Yes although this is not clearly set out in the consultation. We believe that National Grid as ESO will need to identify the best way to implement the solution. This could be achieved by it "flagging" units that are not charged BSUoS as part of its systems. Alternatively, if the ESO believe that this flagging process is best achieved in the BSC than we would expect National Grid ESO to raise an appropriate modification.	CMP 281 was originally raised to remove the BSUoS charge from transmission connected storage imports and thus ensure that this type of storage only pays one set of balancing charges. This could also be achieved through the revised Original proposal (which applies to all licenced generation – limited to those with a BCA (and BELLA/ BEGA over 100 MW). ENGIE would support either of these changes. Ofgem set out proposals in their	Yes. To address the points made in the response to Q3, the following definition of an "An Exemptible Storage BMU" is proposed. We put forward the following solution to the narrow scope simple solution and have raised this as a consultation alternative: ========== ========== ========== ===== A solution is to amend the text in CUSC 14.29.4 along the following lines (subject to legal drafting):	The modification will result in a lowering of overall cost to consumers based on more efficient market operation. In terms of billing arrangements, it is likely to have minimal effect on both National Grid and other parties to the CUSC.	As noted in the response to Q3, ENGIE would support just limiting CMP281 to CVA storage or widening it to all transmission connected generation demand. Removing BSUoS charges from all but "end consumption" will lead to a more efficient energy system with reduced costs for consumers. It is for Ofgem to decide whether or not the scope of the modification should just be limited to

			'Smart System and Flexibility Plan' to reduce BSUoS charges for storage and reiterated these concerns in their November 2017 TCR update. To address Ofgem's specific concern, CMP 281 should have storage only solution as well as the wider solution. We do however note that National Grid estimated costs of between £0.5 and £1m to deliver to storage only solution. No costs have been provided for the wider proposal so it is not possible to compare solutions and have a cost benefit trade off. If the costs of delivering the storage only solution is much higher, then a pragmatic way forward that encompasses Ofgem's specific concern would be to adopt the new original proposal. Ideally, all storage would be subject to the same BSUoS charges to give the greatest	All CUSC Parties acting as Generators and Suppliers (for the avoidance of doubt excluding all BMUs and Trading Units associated with Interconnectors) are liable for Balancing Services Use of System charges based on their energy taken from or supplied to the National Grid system in each half-hour Settlement period, except that energy taken from the system by Exemptible Storage BMUs shall be disregarded. For purpose of Section 14(2) of the CUSC – The Statement of the Balancing Services Use of System Charging Methodology – An Exemptible Storage BMU is a BMU that : is listed in Appendix C of a bilateral connection agreement		storage and for Ofgem to take into account the cost differential of the two options. It is important that both options are put to Ofgem to given them the choice

			consumer benefit. This currently is not the case as embedded storage receives BSUoS when it exports as an embedded benefit and pays BSUoS when it imports (both of these either directly or via the supplier). ENGIE's CUSC modification CMP307 would have addressed the export side of BSUoS as it would have removed the embedded benefit and instead charged embedded storage when exporting. The Authority directed that CMP307 must not be made whilst the TCR SCR is ongoing as the TCR SCR is looking at embedded benefits. The anticipated storage definition within the generation licence could within CMP 281 be used to remove the BSUoS import charge from all licenced storage. However, this would	(BCA) that is associated with an electricity storage facility as set out in the Generation Licence; or is listed in a Bilateral Embedded Generation Agreement (BEGA) or Bilateral Embedded Licence exemptible Large power station Agreement (BELLA) above 100MW in size and are associated with an electricity storage facility as set out in the Generation Licence; or the Authority has directed that the BMU is an Exemptible Storage BMU for the purpose of the CUSC Part (a) of definition is designed to only cover transmission-connected storage as only this type of storage has a BCA and will be active once the definition of storage in included in		

			create the situation where embedded storage was not paying BSUoS on its imports and continued to receive BSUoS as an embedded benefit. There would not therefore be a level playing field in BSUoS charging for all storage. Ideally, both these changes therefore need to be in place before BSUoS import charges for embedded storage are removed. There is therefore no reason for CMP281 to address embedded storage for the time being. It is however likely that the storage class within the generation licence will be put in place before the embedded BSUoS benefits issue is resolved. In the response to Q4, ENGIE has suggested an alternative modification that just limits CMP281 to storage with a BCA	the generation licence. We do not believe that any BEGA or BELLA storage facilities exist but have put definition (b) in for completeness. Part (c) allows transmission-connected storage to be identified prior to a licence definition being in place with the authority issuing a notice to National Grid. The Authority would issue a notice identifying for each transmission connected storage BMU (Appendix C part 3 of the BCA).		

			(and BELLA/BEGA over 100 MW) and a storage generation licence or, in the absence of storage generation licence, a notice to National Grid from Ofgem. Ofgem will need to give thought as to whether it is appropriate to create differences in the payment of BSUoS for transmission and distribution connected storage once the licence is in place			
Libby Glazebrook, Engie	Q Do you believe that CMP281 Original proposal or either of the potential options for change better facilitates the Applicable CUSC Objectives?1: **Background** The current methodology of collecting BSUoS from storage demand is leading to increased customer costs. We believe that the proposal to only charge demand BSUoS to end consumption or ENGIE's alternative which does not charge BSUoS on CVA storage imports will deliver customer benefits and improve the efficiency of the current power market in the despatch and scheduling of generation to meet demand. Appendix 1 (attached) details analysis provided by ENGIE to the working group that sets out the issue and the cost savings associated with changes to the current arrangements if applies to CVA storage. CMP 281 was raised in July 2017 and the report demonstrates the issue has been examined by the group and that the group has a good understanding of the range of possible solutions. We believe that it is now time for the group to move forward in a timely fashion with a solution (or solutions) that can be presented to the Authority. **Economic rationale for only charging end consumption**					

Academic literature (e.g Diamond-Mirrlees et al) on production efficiency recognised that the most efficient way to collect fixed revenue (e.g BSUoS) is to apply it only to end consumption.

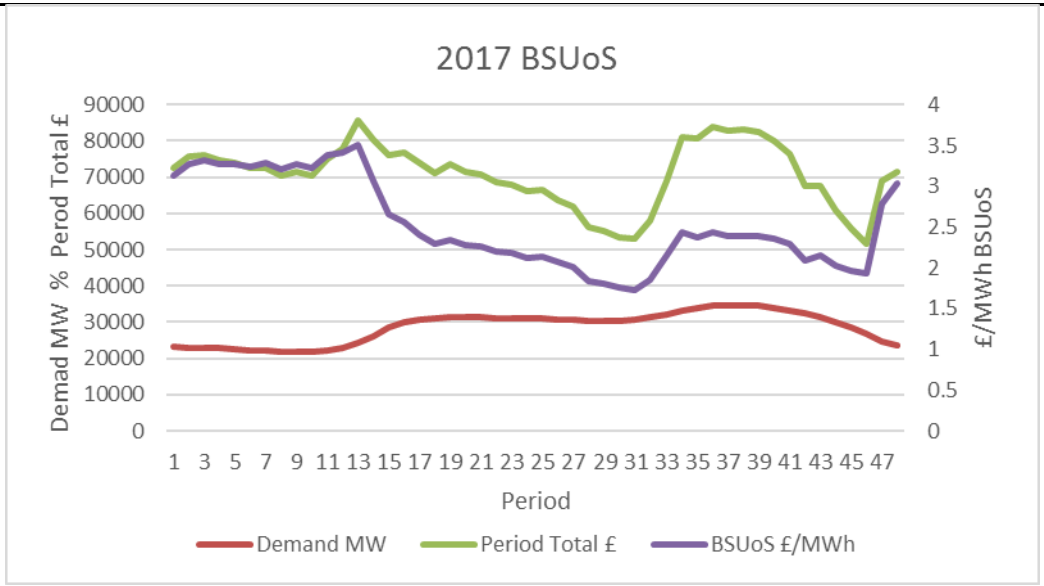
An example of this is rail and postal services that are not subject to VAT. A simple assumption for VAT collection could be that it will be possible to raise more VAT if it is applied to postage and rail costs. This assumption is incorrect - it is optimal to have no distortions in production of goods based on recovering fixed (tax like) costs. Businesses that use postage will simply apply the additional VAT plus their processing expenses (inefficiency cost) and apply this cost to the cost of goods and services which are passed on to the end consumer. In addition, competition between business will be improved if they can compete on the basis of their business designs and production costs that do not include tax-like charges.

A more efficient outcome is to recover the same (higher) amount of VAT directly from consumers. Since the cost of the additional inefficiency does not need to be collected, costs will be lower and competition between business will result in a more efficient outcome, based on their business designs rather than the application of a tax-like charge. The application of BSUoS is similar - it should not distort production decisions and leads to the ultimate conclusion that BSUoS should be applied only to end consumption.

Although BSUoS is a half-hourly charge, most of the individual elements relate to actions that are required across multiple time periods with the magnitude determined principally by the demand shape. At all points in the day generation and demand must match so actions in one time period cannot be divorced for those in other time periods. In reality, although the cost (£m) may be flat across the day, this will drive a high BSUoS price at low demand periods. The shape of BSUoS (£/MWh) is simple a cost recovery across a varying number of consumers, exacerbating the current distortion.

Economic rationale for not applying BSUoS to storage imports

The chart below shows for 2017 the average period daily cost of BSUoS (green line), average period demand (red line) as well as the demand. £/MWh charge (purple line). As can be seen the period costs allocated overnight and over the system peak are similar but the resulting £/MWh change is far from flat. Driven principally by demand and the need to ensure sufficient head- and foot-room during lower demand periods, the overnight rate is roughly 1.5 times the daytime rate. This is driven by the methodology which recovers a similar period amount over lower demand periods.



This effect leads to higher daytime wholesale prices as storage is subject higher levels of BSUoS on its imports. Appendix 1 details analysis by ENGIE that explores this more with a real world example based on the use of storage on the transmission system.

The current arrangements and three possible solutions

The working group report identifies a number of possible solutions to the issue raised by the proposer and sets out the current position. We have simplified these and put them in table form below broken down into three scenarios based on affected groups:

Current position BSUoS liability	A	B	C

	Transmission Storage	Transmission Generation Demand	Embedded Storage and generation
Demand BSUoS	Pays	Pays	Pays
Generation BSUoS	Pays	Pays	Receives

The efficient positions from a customer's perspective are shown below:

Possible Solution BSUoS liability	A	B	C
	Transmission Storage	Transmission Generation demand	Embedded Storage and generation demand
Demand BSUoS	Exempt	Exempt	Exempt
Generation BSUoS	Pays	Pays	Pays

For each scenario we suggest how the working group should address further work, potentially proposing two solutions to the Authority based on scenarios A and B.

A The narrow scope simple solution

The simple solution exempts transmission-connected storage and embedded storage over 100MW from liability for demand BSUoS and hence improves the cost reflectivity of the system. The group has struggled to arrive at a definition of this type of storage as a storage class within the generation licence is not in place yet. This is why the group moved to the wider solution that applies to all transmission connected generation.

There are currently four transmission connected pumped storage facilities and one transmission connected battery storage facility. Whilst it should be easy to identify these, in practice, in the absence a storage class within the generation licence it has proved difficult for the group to come to a solution and, as such, a definition has not been developed.

We put forward the following solution to the narrow scope simple solution and have raised this as a consultation alternative:

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A solution is to amend the text in CUSC 14.29.4 along the following lines (subject to legal drafting):

All CUSC Parties acting as Generators and Suppliers (for the avoidance of doubt excluding all BMUs and Trading Units associated with Interconnectors) are liable for Balancing Services Use of System charges based on their energy taken from or supplied to the National Grid system in each half-hour Settlement period, except that energy taken from the system by Exemptible Storage BMUs shall be disregarded.

For purpose of Section 14(2) of the CUSC – The Statement of the Balancing

Services Use of System Charging Methodology –

An Exemptible Storage BMU is a BMU that :

is listed in Appendix C of a bilateral connection agreement (BCA) that is associated with an electricity storage facility as set out in the Generation Licence;

or

	is listed in a Bilateral Embedded Generation Agreement (BEGA) or Bilateral Embedded Licence exemptable Large power station Agreement (BELLA) above 100MW in size and are associated with an electricity storage facility as set out in the Generation Licence; or the Authority has directed that the BMU is an Exemptible Storage BMU for the purposes of the CUSC. Part (a) of definition is designed to only cover transmission-connected storage as only this type of storage has a BCA and will be active once the definition of storage in included in the generation licence. We do not believe that any BEGA or BELLA storage facilities exist but have put the definition (b) in for completeness. Again, this is only active once a storage licence is in place. Part (c) allows an Exemptible Storage BMU to be identified prior to a licence definition being in place with the Authority issuing a notice to National Grid. The Authority would issue a notice identifying for the storage facility, all the BMU's listed in Appendix C of the storage facility bilateral connection agreement (BCA). The BCA details the BMU's that are included in the power station/trading site. Part C flow chart is contained in Appendix 2 An example of a BCA for a storage facility is shown below. NATIONAL GRID COMPANY plc and FIRST HYDRO COMPANY --- AGREEMENT TO VARY THE BILATERAL CONNECTION AGREEMENT FOR FFESTINIOG ---

Appendix C

Connection Entry Capacity and Transmission Entry Capacity

Company: First Hydro Company

Connection Site: Ffestiniog

Part 1 Connection Entry Capacity

Connection Entry Capacity Expressed as an instantaneous MW figure

Part 2 Transmission Entry Capacity

Transmission Entry Capacity (TEC) expressed in average MW taken over a half-hour settlement period

Part 3 BM Units Comprising Power Station

T_FFES-1 (Associated with FFES_01Z)
T_FFES-2 (Associated with FFES_02Z)
T_FFES-3 (Associated with FFES_03Z)
T_FFES-4 (Associated with FFES_04Z)
T_FFES-ST1 (Station Demand)

Using this methodology, the Authority could issue notices for all transmission- connected storage facilities to National Grid.

B The wider scope solution to include transmission generation demand

Whilst the simple solution improves cost reflectivity of the system by exempting transmission-connected storage demand from BSUoS liability, there would be some additional benefit to the wider system by exempting all transmission connected demand used for generation from BSUoS liability. The effects detailed in Appendix 1 would incrementally less than those from storage demand but would still give additional consumer benefit.

Again we believe that a simple solution should be adopted for this methodology by the group and example text is shown below. This is the same as the new original modification proposal.

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A solution is to amend the text in CUSC 14.29.4 along the following lines (subject to legal drafting):

	All CUSC Parties acting as Generators and Suppliers (for the avoidance of doubt excluding all BMUs and Trading Units associated with Interconnectors) are liable for Balancing Services Use of System charges based on their energy taken from or supplied to the National Grid system in each half-hour Settlement period, except that energy taken from the system by Exemptible Demand BMUs shall be disregarded. For purpose of Section 14(2) of the CUSC – The Statement of the Balancing Services Use of System Charging Methodology – An Exemptible Demand BMU is a BMU that : is listed in Appendix C of a bilateral connection agreement (BCA) that is associated with a Generation Licence; or is listed in a Bilateral Embedded Generation Agreement (BEGA) or Bilateral Embedded Licence exemptible Large power station Agreement (BELLA) above 100MW in size and associated with a Generation Licence; This definition would not be dependent on a storage licence and would apply to all transmission connected demand associated with generation. **C The complete transmission and distribution solution** Whilst we would support the inclusion of embedded storage facilities in a solution, the development of a solution requires significant changes to the current embedded benefits methodology for all embedded generation to ensure that embedded storage is treated the same as transmission storage. Currently embedded storage is roughly neutral to BSUoS as it pays on demand and receives on generation, so it is not as pressing an issue for this type of storage as it is for transmission connected storage. ENGIE raised CMP307 “Expanding the BSUoS charging base to include embedded generation” to start the process of addressing the embedded benefits issue”. Following this. the Authority has indicated that embedded benefits are being reviewed as part of the current TCR SCR and has decided to not allow the progression of CMP 307.

	We believe that there is little point in the group developing a solution for embedded storage (CVA below 100 MW and SVA) without dealing with the wider BSUoS embedded benefits issue which is now being dealt with by Ofgem as part of the TCR SCR.					
Colin Prestwich, Smartest Energy	No. We do not think competition is better served by the proposal because it does not resolve any differences between CVA and SVA. The rationale given for not extending the proposal to SVA as presented on page 13 of the consultation document is specious; a supplier may be charged BSUoS on a net basis, but the demand and generation that make up the supplier's net position are settled by them discretely on the gross impact they have on that net position	No. We are opposed to this. The document states the following: Any implementation date is dependent on gaining a decision from The Authority in the August before the start of a Charging year. Therefore, we would need a decision from the Authority by August 2019 to be able to implement this modification for April 2020. This suggests a mere eight months' notice. Traditionally, pricing modification proposals of this nature have had a longer lead time.	Please see answer to Q6	No	We do not envisage that there will be much of an impact on billing operations.	Page 8 of the consultation document states the following: The proposed solution under the CMP281 modification was discussed in the context of the legislative framework outlined above. The proposal as originally defined required separate identification of storage facilities reflecting the proposed definition of storage under the new form of Generation Licence. In the

						context of the activities permissible under the Electricity Act and the generation licence it became clear the such detailed provisions may not be required as part of the CMP281 solution. Consequently, the CMP281 proposal was refined. It is now based on the removal of “off taking” BSUoS charges from all generation facilities operated under a generation licence. The defect, however, was defined as follows: Under the current Charging

						Methodology, storage providers pay BSUoS on both their import and export volumes (in addition to the BSUoS costs implicit in their 'fuel cost'). Storage providers are therefore contributing more towards the cost of balancing the system than other users. Storage providers, who compete with generators in the provision of ancillary services, are therefore at a competitive disadvantage, which is likely to distort market outcomes and so disadvantage consumers.

						Ironically, therefore, the “refined” proposal reduces charges for generation and storage but does not completely level the playing field between generation and storage as far as charging is concerned, save for the fact that storage would generally have greater levels of import. More generally, the original proposal probably is moving towards Ofgem’s and Govt’s intentions with regards to placing network costs on demand. However, we are inclined to think that the “refined” proposal jumps the gun of

						the TCR. Ofgem recommended in the Targeted Charging Review consultation that changes to charging for storage should be taken forward ahead of any wider changes to residual charging. This proposed solution does not fulfil that requirement.
Paul Jones, Uniper	Yes, subject to clarification of some points we raise in our response to 3 below. It should facilitate objective a) by promoting competition in the wholesale market.	Yes	There seems to be some confusion about the exact solution being proposed in the text. Section 3 on page 6 of the consultation says that section 14.29.4 will be changed to prevent all off-taking Exemptible Storage BMUs from being charged BSUoS. However, section 19 on page 23 implies that all off-taking	No thank you	We do not anticipate a significant implementation issue for ourselves. It is possible that there may be contracts which could be affected, but presumably these will have appropriate regulatory reopener clauses.	It would seem to. A modification which solely looked at removing the charge from storage, but did not introduce equivalent treatment for generation, would have introduced another form of discriminatory treatment.

			BMUs and Trading Units associated with generation operating under a generation licence will be exempt, which seems to be in keeping with other text in the consultation. Our support above is made assuming this latter interpretation. In the text in section 19, reference is made to Demand BMUs. However, this does not seem to be defined anywhere. The text will presumably need to be tidied up generally. For instance, it currently refers to supply “under a Generation licence” which seems to imply that a generation licence directly authorises you to supply when it is the provisions of the			

			Electricity Act which allows this to happen under an exemption. A number of power stations are charged on a Trading Unit basis, so that station demand is netted from any generation at the same station. We assume that the wording in section 19 is aimed at allowing this to continue. Therefore, it is only when the Trading Unit becomes negative, due to station demand being higher than any output during the period, that the charge becomes zero. Accepting that it is always preferable to keep legal text simple, it's not clear from the present drafting that this is indeed the case.			

			The implementation costs for the modification seem quite high. It may be worth exploring whether costs could be reduced by making the changes to systems and processes required for this modification at the same time as any needed under Ofgem's charging review.			
Bill Reed, RWE Supply and Trading	CMP281 will better facilitate CUSC Objective (a). It will remove BSUoS charges from off takes related to electricity generators at facilities (BMUs and Trading Units) where that person is carrying on activities authorised by a Generation Licence. The proposed solution is a non-discriminatory approach towards implementation with	We support the proposed implementation approach for the CMP281 solution. We note that the proposal as originally defined would have required new administrative proposals with respect to the definition of storage in the CUSC which would have been cumbersome	We have no other comments.		The CMP281 solution will have no impact on our billing or contracts and we do not believe that there would be any material implications for tariff stability.	The proposed CMP281 solution ensures that all generation including existing pumped storage generation would be relieved from the obligation to pay off taking BSUoS. This is compatible with the approach taken by BEIS/Ofgem in the designation of storage under the Generation Licence as envisaged in the

	respect to all Generation Licensees. The solution facilitates the BEIS/Ofgem Smart Systems and Flexibility Plan by enabling storage to benefit from the proposed arrangements once the relevant Generation Licence changes are implemented	to implement and difficult to enforce.				Smart Systems and Flexibility Plan.
Paul Youngman, Drax	Yes, we believe that the Original Proposal (removing BSUoS liability on imports from all facilitates supplied under a generation licence) better facilitates the Applicable CUSC Objectives. Applicable CUSC Charging Objective (a) – Positive In addition to the BSUoS costs implicit in their 'fuel cost',	We support implementing CMP281 on the 1st April 2019 to coincide with the start of the Charging Year. If implementation cannot be achieved for the 1st April 2019, CMP281 should be implemented as soon as possible thereafter.	No	No	We believe the main impacts have been captured in the proposal and consultation.	In our view the current proposal has a positive impact on competition and levels the playing field between different types of generation. We believe this is in line with Ofgem intent and the objective of the Smart Systems and Flexibility Plan.

	currently storage providers pay BSUoS on both their import and export volumes. Storage providers are therefore contributing disproportionally towards the cost of balancing the system compared to other generation technologies. This is distorting competition. The removal of BSUoS liability on imports from all generation facilities supplied under a generation licence is a simple and effective solution that will address the defect and better facilitate effective competition in the generation of electricity. Ultimately reducing costs for the end consumer.					

	When the proposal was first raised the solution applied only to imports to storage facilities, this was then amended so the original proposal now includes all facilities supplied under a generation licence. Our preference is for this approach which: □ Levels the playing field by correcting the defect related to storage whilst not introducing any other distortions between different technology types □ Should be relatively easy to implement at least cost to the consumer					
James Anderson, Scottish Power	We believe that the CMP281 Original proposal will better	The Proposal should be implemented in line with the beginning	No	No	As outlined in the Working Group Report, CMP281 will have a	Yes. As outlined in the Working Group Report Section 4.1, CMP281 delivers the change

	facilitate the Applicable CUSC Objectives (ACOs). Storage facility operators are currently liable for BSUoS on both their import and export volumes (in addition to the BSUoS cost implicit in their energy purchase cost). This means that storage operators pay a higher proportion of BSUoS costs than their competitors in the provision of ancillary services. Removing demand BSUoS charges from storage will therefore better facilitate competition (ACO (a)). The Proposal is neutral against the other ACOs	of the first Charging Year following approval – preferably 1 April 2020.			negligible impact on other BSUoS payers. Removing the £12m of BSUoS paid by storage facilities in prior charging years would have increased the average BSUoS charge to others by around £0.02/MWh (0.8%) which is well within the level of forecasting accuracy. As currently drafted, Generation Licence holders will require to satisfy themselves that supply taken at their generation premises are solely associated with the generation activities and certify this to National Grid's BSUoS billing team. As a one-off exercise which relieves the Generation Licence holder of liability for demand BSUoS this should not prove too onerous.	proposed in the Government and Ofgem's Smart Systems and Flexibility Plan (July 2017) and is in line with the direction of travel of Ofgem's work on the TCR/SCR dealing with recovery of residual charges from demand. The analysis within the Workgroup Report indicates that there is currently no effective signal provided by demand BSUoS charges. Removal of demand BSUoS would therefore not be

						detrimental to operation of the transmission system or to consumers. Should a more cost reflective method of recovering BSUoS costs which provides a effective signal be developed under the TCR/SCR then this can be defined and implemented following implementation of CMP281.
Yoanna Vitanova, Renewable UK	No, we do not believe that CMP281 original proposal or any of the identified alternatives would better facilitate the Applicable CUSC Objectives. We are concerned that if implemented the modification would not	No, we do not support the proposed implementation approach as this will unduly favour only one set of generation (large pump hydro).	It is important that network charges do not prevent a level playing field between different providers of flexibility. We are concerned that any future review on BSUoS looking into its	No		Please refer to Q1

	improve competition between supply and generation of electricity, but it would create a benefit for only one type of generation (large pump hydro). The consultation document relies on National Grid Future Energy Scenarios (FES) data suggesting that between 7GW and 10GW of storage would be connected to the grid by 2030, however this accounts for both transmission and distribution connected storage. In fact, the latest FES document predicts transmission connected storage capacity to be comprised up of 4TWh pumped hydro facilities and less than 1TWh battery storage by 2030 in its Community Renewables scenario. This does not present a significant growth from today. Indeed, the consultation itself relies on		cost reflectivity would affect all parties within the energy system, including storage providers. Changes to storage charging should be part of a wider review of BSUoS charge rather than being taken through the piecemeal code governance process. This will allow for a whole system treatment of storage across both transmission and distribution and ensure those facilities have been treated fairly alongside other forms of generation.			

	analysis showing that the pumping volume was approximately 4TWh in 2026/17, representing 0.78% of the total volume (520TWh) liable for BSUoS charges. We are particularly concerned that such misinterpretation would not lead to accurate estimation within the impact assessment of the change proposal and needs to be revised before any further analysis is carried out. Removing BSUoS charging from imports for transmission connected storage is particularly discriminatory against embedded storage facilities with the latter still subject to residual elements of EDCM and CDCM distribution charges. We would like to note that DCP319 and DCP321 change proposals looking to remove residual charges					

	from storage/embedded generation have been withdrawn from DCUSA recently with no alternative being raised. In this context implementing the solution under CMP281 would create a significant distortion in the way storage is treated across transmission and distribution and in itself benefit transmission connected storage facilities only. While we are supportive of the proposals which aim to encourage a level playing field between different providers of flexibility we believe that distributed storage should be treated no differently. Currently there is no alternative proposal which would ensure equal treatment of storage across both transmission and distribution. CMP281 would also have cross-code impacts which have not been considered so far.					

	Thus, it is also important to consider the proposal in the context of these DCUSA modifications as well as other CUSC change proposals looking at reforming the current structure of BSUoS e.g. CMP308. We are mindful that a wider review of BSUoS charging methodology is likely to be raised later on this year separately from the Targeted Charging Review Significant Code Review and Ofgem work under Access and Forward-looking charges. As BSUoS charges are not split into residual and forward-looking elements in the same way as TNUoS and DUoS, such wider review would look at whether certain elements of this charge can be isolated and removed to ensure cost reflectivity. Appropriate charging for					

	storage should be part of a wider review on BSUoS to ensure a wholistic overview of the issues across generation and demand.					
Andrew Colley, SSE plc.	Yes. SSE agrees that the current BSUoS charging regime requires storage providers to contribute more towards the cost of balancing the system than other users, leaving them at a competitive disadvantage when compared to other flexibility providers. Perpetuation of this distortion could hinder the development of new storage projects to help provide flexibility	Yes	SSE support the criteria proposed by the workgroup to determine the scope of Parties that should receive relief against the import charge, i.e. supplies associated with licensed generation activities (including storage). We believe that this greatly simplifies the solution and that it is consistent with the current direction of travel to equitably recover revenue		The main impact for CUSC Parties will be a redistribution of costs as liabilities are removed from licensed storage and generation providers. SSE do not consider the estimated impact of this redistribution (as detailed in Chapter 14 at approx. 2p per MWh) to be significant. It will reduce the operating costs of storage facilities in particular, allowing them to compete on a more level playing field with other flexibility providers to the ultimate benefit of consumers. SSE currently operate a Transmission connected storage facility so would expect to change cost modelling and back-	Yes

	options for the Total System. Electricity storage facilities import electricity from the Transmission System in order to store it for reinjection at an appropriate time to be used by end consumers. The storage facility does not have self-consumption as its primary purpose. The current charging regime therefore can result in double counting of energy to the end consumer - when imported by the storage facility (and considered to be self-consumption); and when exported and recorded as consumption by end		from end-use consumption and ensure a level playing field for flexibility providers. However, we would not want to delay progress of the modification as a result of it being subsumed within the current charging SCR (by virtue of the wider coverage of licensed generators that would benefit). If the workgroup considers this a realistic risk, then SSE would support an alternative that reflects the Original Proposal (i.e. limited to CVA storage facilities) to address the current		office systems to reflect the revised charging arrangement if approved. We estimate that our systems and process costs would be relatively small however, with the majority of the impact falling upon National Grid ESO's and ELEXON's processes and systems.	

	consumers. This adds to the costs of operation of storage, resulting in a competitive distortion which may also result in additional costs being passed through to end consumers. SSE believes that the proposal will remove a distortion in competition between different types of energy producers, ensuring that certain users do not pay disproportionate costs, resulting in a fairer allocation of costs and thereby better facilitating applicable objective a)		disadvantage for storage operators, as opposed to the Amended Original.			
Urmi Mistry, NGESO	We believe the proposed original (applicable to storage only) and the amended solution	If this modification is approved, we would support the approach detailed on page 15 of	We have a few comments for the workgroup to consider:	Not at this point in time. However, it should be noted that DCUSA modification	Impact on NGESO: • We have detailed the high-level system changes required for NGESO in the System	In our view, the original proposal will not level the playing field in the

	(applicable to all generation) creates some unintended consequences and so does not better facilitate the applicable CUSC objectives: • Objective (a) – This modification will have a negative impact on this objective. Regarding the original proposal of storage only, it is discriminatory in nature. Storage will be exposed to less use of system costs than other forms of generation creating a market distortion potentially limiting competition. Where the modification solution is applicable to all generation, this has a marginally less negative impact on this objective. This solution may also conflict with the outcomes of Ofgem's Significant Code Review (SCR) into residual charging and as such it is difficult to assess whether it	the consultation document ('Implementation Information') and in section 7. This would only be practical if there was an Authority decision in the July/August before the start of a Charging Year. If a decision is received later than July/August 2019 then implementation should be no earlier than April 2021, owing to the significant system changes required to facilitate this CMP.	1. Further considerations for the Workgroup: We feel that the fundamental issue is with the BSUoS charging methodology, its principles and how it is calculated; therefore, this needs to be considered and is vitally important to this modification. The defect and issues analysed by the workgroup highlight the fact that the current BSUoS methodology is not appropriate for the electricity system of today. This is highlighted within the 'wider defect' section, on page 11 of the consultation document, which mentions the counter intuitive nature of BSUoS where	DCP319 and DCP321 are being narrowed in scope following a letter from Ofgem. Both look to address the same issues as CMP280 and CMP281 but on the distribution network. This should be noted as this modification may receive the same direction from Ofgem, following the increase in scope to all generation. Also, that if CMP281 were approved it will create a further distortion between the transmission and distribution charging arrangements if these DCUSA modifications are not also approved.	changes section of consultation document (page 15 of the report). • How we identify these units is not clear from the consultation document and needs to be fully considered. It may be that Elexon would be more easily able to identify these sites and therefore a consequential BSC modification would be necessary to ensure data is provided to the ESO at lowest cost overall to the end consumer.	way that Government and Ofgem intended in recent publications. It would be prudent to wait for more information to be published by Ofgem on the TCR SCR before this modification goes any further. • In July 2017 Ofgem & BEIS published 'Upgrading our Energy System – Smart Systems and Flexibility Plan'. In this document, they stated 'These views are that storage facilities should not pay the 'demand residual' element of network charges at transmission and distribution level, and that storage providers should

	is appropriate to take this proposal forward at this time. • Objective (b) – As it currently stands this modification will have a negative impact on this objective because it would cause a breach of Transmission Licence Condition C26. This condition states that 'The licensee shall use all reasonable endeavours to ensure that in its application of the use of system charging methodology in accordance with standard condition C5 (Use of system charging methodology), use of system charges resulting from transmission constraints costs are treated by the licensee such that the effect of their recovery is shared on an equal per MWh basis by all parties liable for use of system charges' (as stated		behaviour by parties which is beneficial for the network, is penalised. This is another fundamental question which needs further consideration as this modification will only redistribute the cost incurred in any one settlement period to a smaller number of parties and so exacerbate the wider defect. In October NGESO ran a series of Workshops to start a wider piece of work to consider BSUoS in more detail and begin a larger reform of the BSUoS charge. We feel this is a better route to address the questions surrounding treatment of storage in a more holistic and non-discriminatory manner. There is also			only pay one set of balancing system charges.' Therefore, this modification would be fulfilling this intention as indicated by Ofgem & BEIS. • However, the modification does not consider the update in Ofgem's position and the possibility of a forward-looking element (if found). Following Ofgem's Storage Charging Summary note (Feb 2018) publication (as noted in the consultation document), storage should pay forward-looking charges on both import and export. This modification, at present, will not

	on page 22 of the consultation document). This modification would cause BSUoS liable parties (generators and suppliers) to pay unequal amounts as only a portion of BSUoS costs are removed from liable parties. Therefore, if this modification were approved this would cause a breach of licence for the transmission owner. To avoid this occurring the licence condition would need to be updated. • Objective (c) – neutral • Objective (d) – neutral • Objective (e) – There will be a negative impact on this objective. If the proposal is implemented as suggested/discussed by the workgroup so far, it will introduce complexity in administration and implementation of the CUSC. The proposed process suggested on		a significant amount of industry work underway that will materially affect the direction of this modification and BSUoS, such as the TCR SCR, Access & Forward Looking Charges reform and the Storage Licence Consultation (which is still awaiting decision from November 2017). All of these things will impact the BSUoS methodology fundamentally and so any solutions proposed as part of this modification may become redundant in the future or create larger distortions as results from these larger pieces of work become clear. The CUSC modification process dictates that the			facilitate this. If a forward-looking element is found within BSUoS, under this modification storage (and possibly all generation) will pay no form of BSUoS on their imports at all. As the solution is not clear for this modification, it could result in multiple changes being needed in the future (change upon change etc…) which will reduce certainty in the market and impact competition. • The proposal also does not consider Ofgem's work on the TCR SCR or Access & Forward Looking charges fully. They are

	page 8 of the report, is that National Grid are notified of which BMUs are owned by a Licence holder and then the exemption is applied by National Grid to these units. This process at a high level would require significant changes to IT systems resulting in substantial implementation costs. This process would involve a new system to; o maintain a register of relevant generators/BMUs, o quality assure the data in the register, o synchronise the register with Elexon's Central Registration Agency, o interface and provide data to existing systems from the register, e.g. daily submissions of data to the Charging and Billing (CAB) system and so a new input source and consequential		baseline is used to assess proposals against, however this modification overlaps with other work-streams which aim to make a fundamental change to current arrangements. So, to ensure the solution is future-proof and fit for purpose, these areas of work need to be considered within the solution. Additionally, NGESO are not allowed, under our Licence, to unduly discriminate between any persons, class or classes of persons (Licence Condition C7 'Prohibition on discriminating between users'). There has been no clear direction from Ofgem that Storage should be treated uniquely from any other form of			looking at residual charges and suggest wider areas of BSUoS need to be looked at. This work will have a knock-on impact to this change proposal. Aligning with this work will ensure that arrangements put in place for generation will be equivalent with arrangements for storage parties. • This modification doesn't address BSUoS embedded benefits issue. Ofgem have noted that other embedded benefits will be kept under review and so waiting for further direction from Ofgem on how this will be addressed

	changes to internal systems. New processes will also need to be established to support the new system such as dispute, data error assurance and data correction. This would replicate a process already carried out by Elexon during the BMU registration process. Therefore, the workgroup should consider this when looking at implementation as this would be the more efficient option and have the lowest overall cost to the consumer.		generation, this is also not reflected or evidenced in the report strongly enough. Therefore, by applying BSUoS to a certain group of industry parties mainly based on differing business costs (fuel cost in proposal form) cannot be used as a strong enough reason to discriminate. There is currently a storage licence consultation which is with Ofgem for decision. This consultation looks to introduce regulatory arrangements for storage into the Generation Licence. This closed in November 2017 and is still awaiting a decision. This further adds to the argument that Storage is no			will be beneficial for this modification when looking to create a solution.

			different from any other form of generation. If the proposal goes ahead with the updated solution covering all generation, there will be discrimination between transmission connected and embedded generation and between generation and demand/supply parties. Therefore, this should be considered further. The current direction of travel of CMP281 uses the Licence as a basis to identify those parties who are liable for BSUoS and those who aren't. The Licence refers to a legal entity rather than a specific generating station or BMU. Therefore, this will be complex to implement			

			for the BSUoS methodology as currently BSUoS is calculated on a Trading Unit/BMU basis. There has been no clear way for NGESO to be able to use this information to clearly identify these units without significant costs incurred and inefficient processes introduced. This process of identifying the exemptible parties needs further consideration. Another aspect that is mentioned on page 21 of the report is the Public Service Obligation (PSO), which states that costs are spread equally across parties and links to the Transmission Licence Condition C26			

			(applicable CUSC objective (b)). The PSO is something that needs to be considered further by the workgroup and steps should put in place to address it. If this is not done before this modification is implemented, then NGESO will be in breach of its Licence 1. Another area to consider is that Ofgem published their decision on CMP250 on the 25th October 2018. Ofgem rejected this modification but made suggestions on further work regarding BSUoS, such as future assessment of the components of BSUoS and evaluating their impact, whether they are cost recovery/cost reflectivity and			

			consideration of impacts wider than the CUSC e.g. licence impacts. Therefore, it would be prudent to ensure these areas are considered and clear within the report to give Ofgem as much information as possible as to whether this modification will have an impact on the components of BSUoS. Modification GC0096 is referenced in the consultation document on page 17 which looks to introduce technical requirement for Storage. This Grid Code modification has moved on since this section was written and poses some questions which need consideration: o The proposed definition of 'Electricity			

			Storage Facility' excludes Pumped Storage. This is a concern as it creates a new category on the same level as Power Station and so this will need to be reflected in the CUSC. To keep definition consistent across codes, this exclusion of Pumped Storage would mean that any solution created under CMP281 and assuming the definitions aligned with the Grid Code, the Pumped Storage stations defined in the Grid Code will still be liable for use of system charges. Therefore, the addition of 'Electricity Storage Facility and Pumped Storage' should solve this issue within the CUSC.			

			We encourage the proposer and any proposers of alternatives to ensure this is captured within their solution. 2. General Comments The figures presented in the report looking at material impact of this modification, consumer impact and impact on RCRC (residual cashflow reallocation cashflow) do not consider the future network and the predicted increase from 3GW of storage on the system to between 7GW and 10GW by 2030. Therefore, the numbers presented in the report do not provide any future estimation of the impact of this modification (Annex 2, impact on consumers			

			and materiality sections) therefore it is hard to understand the impacts of this modification, true cost to industry parties and to the end consumer fully. This modification, at present, doesn't have a clear solution or clear understanding of how this will be implemented, therefore this needs to be fully considered by the workgroup and noted so it is clear to Ofgem and industry. We are of the view that a much broader reform of the BSUoS methodology is needed, it will have longer term benefits and be more valuable for all industry parties and consumers. It will also create a charging arrangement that is fit			

			for purpose, clear and transparent.			
Nicola Percival, Innogy	No. innogy does not see that the implementation of CMP281 would better facilitate any of the CUSC objectives. If implemented this modification would positively discriminate to benefit only licenced storage connected to the transmission network, of which only pumped storage is currently identifiable as 'storage' in the generation licence. There were two DCUSA change proposals looking to remove residual charges from storage/embedded generation – DCP319 and DCP321. These were broadly the DCUSA's version of CMP280 and CMP281. We note that the DCUSA proposals have both had proposer support withdrawn, this coming swiftly after a direction from	We do not support the modification, and so we do not support the implementation approach either.	It is important that network charges do not prevent a level playing field between different providers of flexibility. Any future review on BSUoS looking into its cost reflectivity / who should pay BSUoS would affect all parties within the energy system, regardless of where on the network they connect. Changes to charging for storage should be part of this wider review of BSUoS charging rather than being taken through the piecemeal code governance process, particularly where piecemeal changes would create further distortion. This will allow for a whole	No		No. CMP281 would create new distortion rather than levelling the playing field. The workgroup discussions have been eye-opening in discovering the complexity and interlinkedness of these modifications with broader policy (eg the Smart Systems Plan, BSUoS PSO) and, in innogy's view, have shown that a standalone CUSC Mod is an inappropriate way to explore further how the playing field can truly be levelled. These issues are better suited to a more

	Ofgem that CMP280, DCP319 and DCP321 should apply to storage only and not all generation. The reason for the withdrawal of support is that the proposer felt that removing residual charging for storage only (not generation more broadly) would create a distortion between storage and all other embedded generation. No workgroup members for DCP319/321 chose to support these proposals or raise alternatives following Ofgem's letter and the proposer's withdrawal of support. Innogy feels that the proposer of CMP281 (and CMP280) should follow suit given that this modification will create a similar distortion1. Ofgem have made it clear that they "reserve the option, if necessary, of bringing storage charges back into the TCR SCR…"2. Innogy		system treatment of storage across both transmission and distribution and ensure those facilities have been treated fairly alongside other forms of generation. In addition, we note that in all four of the FES scenarios from 2018 pumped storage is assumed not to contribute many more TWh than today: "Very little opportunity for new pumped storage sites that haven't already been developed"3 and transmission-connected storage of any kind is not expected to increase much by 2030. On page 14 of the workgroup consultation the Proposer refers to FES data that between			formal review, which is not a priority over the current TCR and upcoming SCR. Please refer to our answers to Questions 1 and 3 for full detail.

	encourages Ofgem to do so. Innogy are supportive of proposals which would level the playing field for all types of network users across both transmission and distribution networks. However CMP281 does not do this. The identified defect is indicative of a much deeper set of issues related to broader policy (eg the Smart Systems Plan, BSUoS PSO), which is much wider than just the CUSC and DCUSA. It is important that the workgroup, and especially Ofgem, considers CMP281 in the context of the withdrawn DCUSA modifications as well as other CUSC change proposals looking at reforming the current structure of BSUoS e.g. CMP308 and the TCR SCR and upcoming SCR.		7GW and 10GW of storage would be connected to the grid by 2030. The statement is correct but this accounts for all types of storage, connected at both transmission and distribution. The estimation of the impacts of CMP281, should it be implemented, appears to have been calculated based on historic data, but the inference that this could become more significant over time is flawed and misleading. Innogy are also concerned about the wording used in the Smart Systems and Flexibility Plan: Progress Update. In Annex A, action 1.1, under			

			‘What we will do next’ it states: “Industry will finalise charging code modifications to address the storage issues identified in the Plan, and it is expected that these will be submitted promptly to Ofgem for approval.” This suggests that Ofgem is predisposed to approve the modifications CMP280 and CMP281 before the workgroup and consultation phases are finalised.			

6 Workgroup Vote

The Workgroup believe that the Terms of Reference have been fulfilled and have been fully considered.

The Workgroup met on 18 June 2019 and voted on whether the Original would better facilitate the Applicable CUSC Objectives than the baseline and what option was best overall.

The Workgroup voted against the Applicable CUSC Charging Objectives for the Original Proposal. The Workgroup voted and concluded that the Original Proposal is better than Baseline.

Vote 1 – *does the original facilitate the objectives better than the Baseline?*

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better Facilitates ACO €	Overall (Y/N)
	Paul Youngman – Drax					
Original	***Y***	***Y***	***Neutral***	***N/A***	***Y***	***Y***
Voting Statement	We agree that the reformulated original solution is still better for competition and efficiency of the arrangements when compared with the baseline arrangements.					
	Andy Colley - SSE					
Original	***Y***	***Neutral***	***Neutral***	***Neutral***	***Neutral***	***Y***
Voting Statement	The current BSUoS charging regime exposes Storage providers to greater risks and costs of balancing the system than other users and technology types, leaving them at a competitive disadvantage. Perpetuation of this distortion could limit the development of Storage projects and thus flexibility options to balance the system in an economic and efficient way. The solution will remove this distortion in competition between different types of energy producers, resulting in a more efficient allocation of costs and thereby better facilitating ACO a).					
	Harriet Harmon – National Grid ESO					

Original	***Y***	***Neutral***	***Neutral***	***Neutral***	***Neutral***	***Y***
Voting Statement	Provided that: a) BSC P383 delivers a solution for the exchange of information between relevant market participants; and b) The separate CUSC Modification Proposal, raised by the Proposer of this CMP281, seeking to introduce new defined terms into S11 CUSC is approved; and c) The ESO's licence is changed such that C26 no longer refers to 'parties' liable for BSUoS in relation to constraint cost recoveries, this CMP should deliver a benefit to competition through resolution of the issue that storage pays BSUoS directly on import and export (as applicable). However: I am mindful of CMP308 which, if approved alongside this CMP281 and CMP280 would mean Storage providers would pay only the TNUoS demand locational, and the generator locational. Other generators would pay the full TNUoS demand tariff, generator locational, and BSUoS on exports - over time it may be necessary to reconsider the propriety of charging arrangements for different classes of licensed generators. As a standalone CMP, 281 is marginally better on ACO (a) than baseline (to the limited extent of storage) but cumulatively there is a risk that the overall arrangements for storage do not better facilitate competition. Separately, this CMP is incompatible with C26 of our (ESO's) licence which requires that the costs of constraints are shared equally between all parties liable for BSUoS. If C26 is not amended prior to any Authority approval of this CMP281, the CUSC and Licence will be in direct conflict. This CMP is currently therefore worse against ACO (b) than baseline, but given the extent to which Ofgem and BEIS have engaged in this mod process, it is anticipated that the conflict between CUSC and licence would be resolved prior to any implementation of changes.					
	Simon Vicary – EDF Energy					
Original	***Y***	***Neutral***	***Neutral***	***Neutral***	***Neutral***	***Y***
Voting Statement	Ofgem state in their TCR consultation (published 13th March 2017 paragraph 1.31) "We think that the way charges affect storage at present create a relative disadvantage for storage operators, in comparison with generators connected at the same voltage level"…." This is because…transmission-connected storage pays BSUoS as both demand and generation. In					

	order to secure a more level playing-field, we think that storage should be liable to pay only….one set of BSUoS charges." Given Ofgem's statement in the above cited extract we believe that the Original Proposal delivers an appropriate solution.					
	Simon Lord – Engie (Proposer)					
Original	***Y***	***Y***	***Y***	***Neutral***	***Y***	***Y***
Voting Statement	As a principle cost recovery charges should only be recovered from end consumption so as not distort competition, established economic theory supports this position. In the energy market BSUoS is considered a cost recovery charge, a resent in-depth look at this via the BSUoS task force has confirmed this position. Removing BSUoS from storage demand (intermediate demand) will lead to improved consumer benefits. Currently BSUoS is considered to be sending an inappropriate signal to overnight demand (and storage) driven by the technical design of the cost recovery mechanism. We therefore agree that the Original modification facilitate the CUSC objectives against the baseline and will ultimately lead to benefits to consumers driven by lower energy prices					
	Robert Longden – Cornwall Energy					
Original	***Y***	***Neutral***	***Neutral***	***Neutral***	***Neutral***	***Y***
Voting Statement	The proposal is consistent with Ofgem's statement regarding the treatment of storage facilities and BSUoS charges					
	Bill Reed – RWE					
Original	***Y***	***Y***	***Y***	***Neutral***	***Y***	***Y***
Voting Statement	CMP281 will facilitate the deployment of storage facilities and enhance competition in the electricity market. However, it introduces a distortion in treatment under the CUSC with regard to the charging arrangements and Generation Licensees. Those with a storage facility will receive a benefit that is unavailable to other generation licensees. Given the current structure of charges the impact is likely to not be material. However, if the charging arrangements were to change significantly under the various Ofgem reviews of network charges then this issue may need to be revisited					

<u>Vote 2</u> – ***Which option is the best?***

Workgroup Member	BEST Option?
Paul Youngman – Drax	**Original**
Andy Colley - SSE	**Original**
Harriet Harmon – National Grid ESO	**Original**
Simon Vicary – EDF Energy	**Original**
Simon Lord – Engie (Proposer)	**Original**
Robert Longden – Cornwall Energy	**Original**
Bill Reed – RWE	**Original**

7 CMP281: Relevant Objectives

Impact of the modification on the Applicable CUSC Objectives (Charging):	
Relevant Objective	Identified impact
(a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;	Positive. Removing a distortion in competition will better facilitate competition.
(b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection);	Positive/None As BSUoS charges are not intended to be cost reflective, this proposal will have little impact on cost reflectivity other than removing a distortion whereby some users pay a disproportionate amount of the costs.
(c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably	None

practicable, properly takes account of the developments in transmission licensees' transmission businesses;	
(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1 *; and	None
(e) Promoting efficiency in the implementation and administration of the CUSC arrangements.	None
*Objective (d) refers specifically to European Regulation 2009/714/EC. Reference to the Agency is to the Agency for the Cooperation of Energy Regulators (ACER).	

8 Implementation

The Proposal, if approved, should be implemented to coincide with the start of a Charging Year (i.e. 1 April) and should be implemented in the first practical Charging Year following a decision by the Authority. If an Authority decision is available in time, the change could be implemented no earlier than 1 April 2021. The Workgroup noted that there may be an impact on Suppliers from an early implementation date however considered that the April 2021 is being offered as the earliest practical date. One Workgroup member suggested 1 April 2022. The Workgroup agreed that the implementation date is a decision for the Authority.

9 Legal Text

The Finalised Legal text is in Annex 2 of this report.

10 Annex 1: CMP281 Terms of Reference

nationalgrid

Workgroup Terms of Reference and Membership

TERMS OF REFERENCE FOR CMP281 WORKGROUP

CMP281 aims to remove liability from storage facilities for Balancing Services Use of System (BSUoS) charges on imports.

Responsibilities

1. The Workgroup is responsible for assisting the CUSC Modifications Panel in the evaluation of CUSC Modification Proposal **CMP281 'Removal of BSUoS Charges From Energy Taken From the National Grid System by Storage Facilities'** raised by **Scottish Power** at the Modifications Panel meeting on 30 June 2017.

2. The proposal must be evaluated to consider whether it better facilitates achievement of the Applicable CUSC Objectives. These can be summarised as follows:

Charging Applicable Objectives

(a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity;

(b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard license condition C26 requirements of a connect and manage connection);

(c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses;

(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity Transmission plc. License under Standard Condition C10, paragraph 1; and

(e) Promoting efficiency in the implementation and administration of the system charging methodology.

3. It should be noted that additional provisions apply where it is proposed to modify the CUSC Modification provisions, and generally reference should be made to the Transmission Licence for the full definition of the term.

Scope of work

4. The Workgroup must consider the issues raised by the Modification Proposal and consider if the proposal identified better facilitates achievement of the Applicable CUSC Objectives.

5. In addition to the overriding requirement of paragraph 4, the Workgroup shall consider and report on the following specific issues:

   a) Consider co-location of generation and storage assets
   b) Consider the practical implications of solution e.g. that all metered data is available to National Grid to support the proposed solution
   c) Consider the impacts on RCRC and BSC arrangements
   d) Consider the interaction with CMP250
   e) Consider impacts on foot-room, High Frequency Response and fuel equivalency (e.g. battery and conventional generation).

6. The Workgroup is responsible for the formulation and evaluation of any Workgroup Alternative CUSC Modifications (WACMs) arising from Group discussions which would, as compared with the Modification Proposal or the current version of the CUSC, better facilitate achieving the Applicable CUSC Objectives in relation to the issue or defect identified.

7. The Workgroup should become conversant with the definition of Workgroup Alternative CUSC Modification which appears in Section 11 (Interpretation and Definitions) of the CUSC. The definition entitles the Group and/or an individual member of the Workgroup to put forward a WACM if the member(s) genuinely believes the WACM would better facilitate the achievement of the Applicable CUSC Objectives, as compared with the Modification Proposal or the current version of the CUSC. The extent of the support for the Modification Proposal or any WACM arising from the Workgroup's discussions should be clearly described in the final Workgroup Report to the CUSC Modifications Panel.

8. Workgroup members should be mindful of efficiency and propose the fewest number of WACMs possible.

9. All proposed WACMs should include the Proposer(s)'s details within the final Workgroup report, for the avoidance of doubt this includes WACMs which are proposed by the entire Workgroup or subset of members.

10. There is an obligation on the Workgroup to undertake a period of Consultation in accordance with CUSC 8.20. The Workgroup Consultation period shall be for a period of **15 working days** as determined by the Modifications Panel.

11. Following the Consultation period the Workgroup is required to consider all responses including any WG Consultation Alternative Requests. In undertaking an assessment of any WG Consultation Alternative Request, the Workgroup should consider whether it better facilitates the Applicable CUSC Objectives than the current version of the CUSC.

    As appropriate, the Workgroup will be required to undertake any further analysis and update the original Modification Proposal and/or WACMs. All responses including any WG Consultation Alternative Requests shall be included within the final report including a summary of the Workgroup's

deliberations and conclusions. The report should make it clear where and why the Workgroup chairman has exercised his right under the CUSC to progress a WG Consultation Alternative Request or a WACM against the majority views of Workgroup members. It should also be explicitly stated where, under these circumstances, the Workgroup chairman is employed by the same organisation who submitted the WG Consultation Alternative Request.

12. The Workgroup is to submit its final report to the Modifications Panel Secretary on **7 December 2017** for circulation to Panel Members. The final report conclusions will be presented to the CUSC Modifications Panel meeting on **15 December 2017**.

Membership

13. It is recommended that the Workgroup has the following members:

Role	Name	Representing
Chairman	Caroline Wright	Code Administrator
National Grid Representative	Urmi Mistry	National Grid
Industry Representatives	Rupert Steele James Anderson Bill Reed Robert Longden Libby Glazebrook Paul Mott Andrew Colley Paul Youngman Fruzina Kemenes	Scottish Power (Proposer) Scottish Power RWE Cornwall Energy Engie EDF Energy SSE Drax Innogy
Authority Representatives	Judith Ross	OFGEM
Technical secretary	Heena Chauhan	Code Administrator
Observers	Nicholas Rubin	ELEXON

NB: A Workgroup must comprise at least 5 members (who may be Panel Members). The roles identified with an asterisk in the table above contribute toward the required quorum, determined in accordance with paragraph 14 below.

14. The chairman of the Workgroup and the Modifications Panel Chairman must agree a number that will be quorum for each Workgroup meeting. The agreed figure for CMP281 is that at least 5 Workgroup members must participate in a meeting for quorum to be met.

15. A vote is to take place by all eligible Workgroup members on the Modification Proposal and each WACM. The vote shall be decided by simple majority of those present at the meeting at which the vote takes place (whether in person or by teleconference). The Workgroup chairman shall not have a vote, casting or otherwise]. There may be up to three rounds of voting, as follows:

- Vote 1: whether each proposal better facilitates the Applicable CUSC Objectives;
- Vote 2: where one or more WACMs exist, whether each WACM better facilitates the Applicable CUSC Objectives than the original Modification Proposal*;*
- Vote 3: which option is considered to BEST facilitate achievement of the Applicable CUSC Objectives. For the avoidance of doubt, this vote should include the existing CUSC baseline as an option.

The results from the vote and the reasons for such voting shall be recorded in the Workgroup report in as much detail as practicable.

16. It is expected that Workgroup members would only abstain from voting under limited circumstances, for example where a member feels that a proposal has been insufficiently developed. Where a member has such concerns, they should raise these with the Workgroup chairman at the earliest possible opportunity and certainly before the Workgroup vote takes place. Where abstention occurs, the reason should be recorded in the Workgroup report.

17. Workgroup members or their appointed alternate are required to attend a minimum of 50% of the Workgroup meetings to be eligible to participate in the Workgroup vote.

18. The Technical Secretary shall keep an Attendance Record for the Workgroup meetings and circulate the Attendance Record with the Action Notes after each meeting. This will be attached to the final Workgroup report.

19. The Workgroup membership can be amended from time to time by the CUSC Modifications Panel.

Appendix 1 - Timetable

Workgroup Stage

22 June 2017	CUSC Modification Proposal submitted
30 June 2017	Modification Presented to the Panel
30 June 2017	Request for Workgroup Members (10 working days)
w/c 31 July 2017	Meeting 1 via WebEx to ensure Workgroup members have a fully understanding of the context of the modification
w/c 18 September 2017	Circulate draft Workgroup Report
September to March 2018	Workgroup Meetings – Develop Proposal
April 2018	Workgroup Consultation issued to the Industry (15WD)
May 2018 to July 2018	Workgroup Meeting - Workgroup review consultation responses, agree options, finalise legal text and WG vote
August 2018	Workgroup Report issued to CUSC Panel
August 2018	CUSC Panel meeting to discuss Workgroup Report

Code Administrator Stage

September 2018	Code Administration Consultation Report issued to the Industry (15 WD)
October 2018	Draft FMR published for industry comment (3 Working days)
November 2018	Draft Final Modification Report presented to Panel
November 2018	CUSC Panel Recommendation vote
December 2018	Final Modification Report issued the Authority
January/February 2019 *	Indicative Decision for the Authority
1 April 2019 or 1 April 2020	Decision implemented in CUSC

* Note to allow for system changes to be made a decision by Summer 2018 is required.

11 Annex 2: Legal Text

14.30 Calculation of the Daily Balancing Services Use of System charge

Calculation of the Daily Balancing Services Use of System charge

14.30.1 The BSUoS charge payable by customer c, on Settlement Day d, will be calculated in accordance with the following formula:

$$BSUoSTOT_{cd} = \sum_{i \in c} \sum_{j \in d} BSUoSTOT_{ij}$$

Where:

i	-	refers to the individual BM Unit
j	-	refers to an individual Settlement Period
$\sum_{i \in c} \sum_{j \in d}$	-	refers to the sum over all BM units 'i', for which customer 'c' is the Lead Party* summed over all Settlement Periods 'j' on a Settlement Day 'd'

14.30.2 A customer's charge is based on their proportion of BM Unit Metered Volume for each Settlement Period relative to the total BM Unit Metered Volume for each Settlement Period, adjusted for transmission losses by the application of the relevant Transmission Losses Multiplier.

For all liable importing and exporting BM Units in delivering Trading Units in a Settlement Period:

$$BSUoSTOT_{ij} = \frac{BSUoSTOT_j * QMBSUoS_{ij} * TLM_{ij}}{\left\{\left|\sum^{+}(QMBSUoS_{ij} * TLM_{ij})\right| + \left|\sum^{-}(QMBSUoS_{ij} * TLM_{ij})\right|\right\}}$$

For all liable importing and exporting BM Units in offtaking Trading Units in a Settlement Period:

$$BSUoSTOT_{ij} = \frac{-1 * BSUoSTOT_j * QMBSUoS_{ij} * TLM_{ij}}{\left\{\left|\sum^{+}(QMBSUoS_{ij} * TLM_{ij})\right| + \left|\sum^{-}(QMBSUoS_{ij} * TLM_{ij})\right|\right\}}$$

Where:

$BSUoSTOT_j$	Total BSUoS Charge applicable for Settlement Period j
$QMBSUoS_{ij}$	BM Unit Metered Volume (QM_{ij})** for BSUoS Liable BM Units, minus imports to SVA Storgae Facilties or CVA Storage Facilities, as relevant, registered to that BM Unit
TLM_{ij}	Transmission Loss Multiplier **

$\sum^{+}$ - refers to the sum over all BM Units that are in delivering Trading Units in Settlement Period 'j'

$\sum^{-}$ - refers to the sum over all BM Units that are in offtaking Trading Units in Settlement Period 'j'

* or CUSC party associated with the BM Units (listed in Appendix C of the BEGA) who is exempt from also being a BSC Party
** Detailed definition in Balancing and Settlement Code Annex X2 – Technical Glossary

'delivering' and 'offtaking' in relation to Trading Units have the meaning set out in the Balancing and Settlement Code (excluding all Interconnector BMUs and Trading Units)

14.30.3 For the avoidance of doubt, BM Units that are registered in Trading Units will be charged on a net Trading Unit basis i.e. if a BM Unit is exporting to the system and is within a Trading Unit that is offtaking from the system then the BM Unit in essence would be paid the BSUoS charge. Conversely, if a BM Unit is importing from the system in a delivering Trading Unit then the BM Unit in essence would pay the BSUoS charge.

Interconnector BM Units

14.30.4 BM Unit and Trading Units associated with Interconnectors, including those associated with the Interconnector Error Administrator, are not liable for BSUoS charges. BM Units, including Secondary BM Units, which are associated with Virtual Lead Parties are not liable for BSUoS charges.

Storage Facilities

14.30.5 The BM Units associated with CVA Storage Facilities will not be charged BSUoS against imported volumes where the imports of that BM Unit are solely for the purposes of operating that CVA Storage Facility.

14.30.6 Where the BM Unit is a Supplier BM Unit and one or more SVA Storage Facilities are registered to that Supplier BM Unit, the Supplier shall be liable for BSUoS in accordance with 14.30.3, net of any imports to such SVA Storage Facilities where those imports are solely for the purposes of operating that Storage Facility

14.30.7 In all cases, where a facility ceases to be a CVA Storage Facillity, the exemption in para 14.30.5 shall no longer apply. The User , shall inform The Company as soon as is reasonably practicable and in any event no fewer than 5 Working Days from the date on which the facility ceased to be a CVA Storage Facility

Total BSUoS Charge (Internal + External) for each Settlement Period ($BSUoSTOT_{jd}$)

~~14.30.5~~14.30.8 The Total BSUoS charges for each Settlement Period ($BSUoSTOT_{jd}$) for a particular day are calculated by summing the external BSUoS charge ($BSUoSEXT_{jd}$) and internal BSUoS charge ($BSUoSINT_{jd}$) for each Settlement Period.

$$BSUoSTOT_{jd} = BSUoSEXT_{jd} + BSUoSINT_{jd}$$

External BSUoS Charge for each Settlement Period ($BSUoSEXT_{jd}$)

~~14.30.6~~14.30.9 The External BSUoS Charges for each Settlement Period ($BSUoSEXT_{jd}$) are calculated by taking each Settlement Period System Operator BM Cash Flow ($CSOBM_j$) and Balancing Service Variable Contract Cost ($BSCCV_j$) and allocating the daily elements on a MWh basis across each Settlement Period in a day.

$$BSUoSEXT_{jd} = CSOBM_{jd} + BSCCV_{jd}$$
$$+ [\ (IncPayExt_{d} + BSCCA_{d} + ET_{d} - OM_{d} + BSC_{d} + SOTOC_{d})$$
$$* \{\ \left|\sum\nolimits^{+}(QMBSUoS_{ijd} * TLM_{ijd}) + \left|\sum\nolimits^{-}(QMBSUoS_{ijd} * TLM_{ijd})\right|\ \} /$$
$$\sum\nolimits_{j \in d} \{\ \left|\sum\nolimits^{+}(QMBSUoS_{ij} * TLM_{ij})\ \right| + \left|\sum\nolimits^{-}(QMBSUoS_{ij} * TLM_{ij})\right|\ \}\ ]$$

Calculation of the daily External Incentive Payment ($IncPayExt_d$)

~~14.30.7~~14.30.10 $IncPayExt_t$ is the external incentive payment for the Current **Financial Year**. This amount of this will be determined in line with Transmission Licence Special Condition 4M.

~~14.30.8~~14.30.11 For **Financial Year** 2018/19 $IncPayExt_d$ is calculated by dividing $IncPayExt_t$ for **Financial Year** 2018/19 by the amount of days remaining within the current incentive scheme year. $IncPayExt_d$ will be evenly spread and then apportioned by volume as per the current process (14.30.2).

Internal BSUoS Charge for each Settlement Period ($BSUoSINT_{jd}$)

~~14.30.9~~14.30.12 The Internal BSUoS Charges ($BSUoSINT_{jd}$) for each Settlement Period j for a particular day are calculated by taking the incentivised and non-incentivised SO Internal Costs for each Settlement Day allocated on a MWh basis across each Settlement Period in a day.

$$BSUoSINT_{jd} = [(SOPU_d + SOMOD_d + SOEMR_d + SOEMRCO_d + SOTRU_d) * RPIF_t]$$
$$* \{ \left| \sum^{+} (QMBSUoS_{ijd} * TLM_{ijd}) \right| + \left| \sum^{-} (QMBSUoS_{ijd} * TLM_{ijd}) \right| \}$$
$$/ \sum_{j \in d} \{ \left| \sum^{+} (QMBSUoS_{ij} * TLM_{ij}) \right| + \left| \sum^{-} (QMBSUoS_{ij} * TLM_{ij}) \right| \}$$

Inclusion of Profiling Factors

~~14.30.10~~14.30.13 Profiling factors have been included to give an effective mechanism for calculating a representative level of the incentive payments to/from The Company according to the time of year. All PFT_k are assumed to be one for the duration of the current external incentive scheme

14.31 Settlement of BSUoS

Settlement and Reconciliation of BSUoS charges

14.31.1 There are two stages of the reconciliation of BSUoS charges described below:

- Initial Settlement (SF)
- Final Reconciliation (RF)

Initial Settlement of BSUoS

14.31.2 The Company will calculate initial settlement (SF) BSUoS charges in accordance with the methodology set out in section 14.30 above, using the latest available data, including data from the Initial Settlement Run and the Initial Volume Allocation Run.

Reconciliation of BSUoS Charges

14.31.3 Final Reconciliation will result in the calculation of a reconciled charge for each settlement day in the scheme year. The Company will calculate Final Reconciliation (RF) BSUoS charges (with the inclusion of interest as defined in the CUSC) in accordance with the methodology set out in section 14.30 above, using the latest available data, including data from the Final Reconciliation Settlement Run and the Final Reconciliation Volume Allocation Run.

Unavailability of Data

14.31.4 If any of the elements required to calculate the BSUoS charges in respect of any Settlement Day have not been notified to The Company in time for it to do the calculations then The Company will use data for the corresponding Settlement Day in the previous week. If no such values for the previous week are available to The Company then The Company will substitute such variables as it shall, at its reasonable discretion, think fit and calculate Balancing Services Use of System charges on the basis of these values. When the actual data becomes available a reconciliation run will be undertaken.

Disputes

14.31.5 If The Company or any customer identifies any error which would affect the total Balancing Services Use of System charge on a Settlement Day then The Company will recalculate the charges following resolution of the error. Revised invoices and/or credit notes will be issued for the change in charges, plus interest as set out in the CUSC. The charge recalculation and issuing of revised invoices and/or credit notes will not take place for any day where the total change in the Balancing Services charge is less than £2000.

Relationship between the Statement of the Use of System Charging Methodology and the Transmission Licence

14.31.6 BSUoS charges are made on a daily basis and as such of this Statement sets out the details of the calculation of such charges on a daily basis. Customers may, when verifying charges for Balancing Services Use of System refer to the Transmission Licence which sets out the maximum allowed revenue that The Company may recover in respect of the Balancing Services Activity.

14.31.7 The Company has, where possible and appropriate, attempted to ensure that acronyms allocated to variables within the Balancing Services charging software, and associated reporting, match with the acronyms given to those variables used within this statement.

14.31.8 Balancing Services Use of System Acronym Definitions

For the avoidance of doubt "as defined in the BSC" relates to the Balancing and Settlement Code as published from time to time.

EXPRESSION	ACRONYM	Unit	Definition
BETTA Preparation Costs	BI	£	As defined in the Transmission Licence
Balancing Mechanism Unit	BM Unit or BMU		As defined in the BSC
Black Start Costs	BSC	£	As defined in the Transmission Licence (means he allowed revenue from and associated with Black Start services in accordance with paragraph 4G.5 of Special Condition 4G (Black Start Allowed Revenue Cost Incentive))
Balancing service contract costs – non-Settlement Period specific	$BSCCA_d$	£	Non Settlement Period specific Balancing Contract Costs for settlement day d less any costs incurred within these values relating to Supplementary Balancing Reserve and Demand Side Balancing Reserve
Balancing Service Contract Cost	$BSCC_j$	£	Balancing Service Contract Cost from purchasing Ancillary services applicable to a Settlement Period j less any costs incurred within these values relating to Supplementary Balancing Reserve and Demand Side Balancing Reserve
Balancing service contract costs – Settlement Period specific	$BSCCV_{jd}$	£	Settlement Period j specific Balancing Contract Costs for settlement day d
External Balancing Services Use of System charge	$BSUoSEXT_{jd}$	£	External System Operator (SO) Balancing Services Use of System charge applicable to Settlement Period j for settlement day d
Internal Balancing Services Use of System charge	$BSUoSINT_{jd}$	£	Internal System Operator (SO) Balancing Services Use of System charge applicable to Settlement Period j for settlement day d
Total Balancing Services Use of System charge	$BSUoSTOT_{cd}$	£	The sum determined for each customer, c, in accordance with this Statement and payable by that customer in respect of each Settlement Day d, in accordance with the terms of the Supplemental Agreement
Total Balancing Services Use of System charge	$BSUoSTOT_j$	£	Total Balancing Services Use of System Charge applicable for Settlement Period j
System Operator BM Cash Flow	$CSOBM_j$	£	As defined in the Balancing and Settlement Code in force immediately prior to 1 April 2001 less any costs incurred within these values relating to

EXPRESSION	ACRONYM	Unit	Definition
			Supplementary Balancing Reserve and Demand Side Balancing Reserve
Daily balancing services adjustment	ET_d	£	Is the contribution on Settlement Day, d, to the value of ET_t where ET_t is determined pursuant to part B of Special Condition 4C of the Transmission Licence
Forecast incentivised Balancing Cost	FBC_d	£	Forecast incentivised Balancing Cost for duration of the Incentive Scheme as at settlement day d
Allowed Income Adjustment relating to the SO-TO Code	IAT	£	As defined in the Transmission Licence
External incentive payment	$IncPayExt_t$	£	As defined in the Transmission Licence.
Daily External incentive payment	$IncPayExt_d$	£	External Incentive payment for Settlement Day d
Cost associated with the Provision of Balancing Services to others	OM_d	£	Is the contribution on Settlement Day, d, to the value of OM_t where OM_t is determined pursuant to part 2 of Condition AA5A of the Transmission Licence
Outage change allowance amount	ON	£	As defined in the Transmission Licence
BM Unit Metered Volume	QM_{ij}	MWh	As defined in the BSC
BSUoS Liable BM Unit Metered Volume	$QMBSUoS_{ij}$	MWh	QM_{ij} for all BM Units liable for BSUoS
Retail Price Index Adjustment Factor	RPIF		As defined in the Transmission Licence
Balancing services deemed costs	RT_d	£	Is the contribution on Settlement Day, d, to the value of RT_t where RT_t is determined pursuant to part 2 of Condition AA5A of the Transmission Licence
SOEMR Preparation Costs	SOEMR	£	As defined in the Transmission Licence
SOEMR Preparation Costs Adjustment	SOEMRCO	£	As defined in the Transmission Licence
Incremental change from SO Opening Base Revenue Allowance	SOMOD		As defined in the Transmission Licence

EXPRESSION	ACRONYM	Unit	Definition
SO Opening Base Revenue Allowance	SOPU		As defined in the Transmission Licence
SO-TO funding allowance	SOTOC	£	As defined in the Transmission Licence (means the SO-TO Mechanism cost allowance calculated in accordance with 4C.29 Special Condition 4J (SO-TO Mechanism))
Revenue Adjustment with respect to actual and assumed RPI values	SOTRU		As defined in the Transmission Licence
Tax Allowance	T	£	As defined in the Transmission Licence
Transmission Loss Multiplier	TLM_{ij}		As defined in the BSC
Total System Energy Imbalance Volume	$TQEI_j$	MWh	As defined in the Balancing and Settlement Code in force immediately prior to 1 April 2001
Final Reconciliation Settlement Run			As defined in the BSC
Final Reconciliation Volume Allocation Run			As defined in the BSC
Initial Settlement Run			As defined in the BSC
Initial Volume Allocation Run			As defined in the BSC
Lead Party			As defined in the BSC

12 Annex 3: CMP 281 Attendance Register

The CMP 281 Attendance register can be found here.

13 Annex 4: Paper presented to the working group by Engie

CMP281: Removal of BSUoS Charges from Energy taken from the Grid System by Storage Facilities

Summary

Storage operators currently pay BSUoS on both their import and export volume from and to the grid. CMP281 proposes to remove the liability from storage to pay BSUoS charges on imported volume. Engie has conducted an analysis of both the costs and benefits of such a measure for other market participants (particularly focused on consumers).

It is estimated that removing BSUoS from transmission connected pumped hydro imports pumping will increase overall BSUoS by on average 2p/MWh and by 5p/MWh if the increase is just applied to those paying BSUoS overnight.

Offsetting this increase, there will be a benefit in terms of lower peak traded prices as the pumped storage 'fuel' costs will be lower allowing it to generate in periods when it would have been 'out of the money' due to paying BSUoS on imports. This is estimated to save consumers around £36m giving a net benefit of around £15m. On top of this the cost of managing constraints arising from excess overnight generation can be expected to fall.

Estimated Cost Impact

If implemented, the storage sites that would become exempt from import BSUoS charges are the existing pumped storage (PS) sites (Foyers, Cruachan, Dinorwig and Ffestiniog) and existing and planned battery storage projects.

Engie has examined historic BSUoS charges to understand the impact of CMP281. In 2015 the volume of imports to PS sites totalled 3,701GWh out of a total generation and demand volume of 526,408GWh (includes only generation and demand subject to BSUOS charges). PS sites contributed £10.64m to the total BSUOS charge of £1,135m. The cost of BSUoS was £2.16/MWh (£1,135m divided by 526,408GWh) and would have been £2.17/MWh if PS had been exempt from paying BSUOS on imports (£1,135m divided by 522,707GWh). The impact on average BSUOS charges across the year would have been £0.016/MWh in 2015. Similar impacts would have occurred in 2016 and 2017 YTD (see table 1).

Table 1: BSUoS Costs/Volumes since 2015

Year	PS Imports BSUoS (£k)	PS Imports (GWh)	Total BSUOS (£k)	Total Volume (GWh)	Actual BSUoS Cost (£/MWh)	CMP281 BSUoS Cost (£/MWh)
2015	10,643	3,701	1,135,132	526,408	2.16	2.17
2016	12,247	4,002	1,219,830	522,303	2.34	2.35
2017 (H1)	6,127	2,020	601,007	254,545	2.36	2.38

The overall cost to other market participants from removing BSUoS charges on imports would have been an annualised £10.6m to £12.2m since 2015. Looking just at the impact on overnight BSUoS, the impact on other market participants between 23:00 and 07:00 would be around 5p/MWh on average.

However, additional PS demand would have occurred overnight with CMP281 in place (estimate 246.4GWh of additional pumping) which would reduce the impact on other market participants. In addition, by increasing demand in regions with excess generation (particularly during high wind/low demand periods where currently PS is uneconomic due to high BSUoS charges), the additional consumption would have contributed to alleviating constraint costs. Therefore, overall the cost of implementing CMP281 would be less than the £10.6m to £12.2m range outlined above.

Estimated Benefits

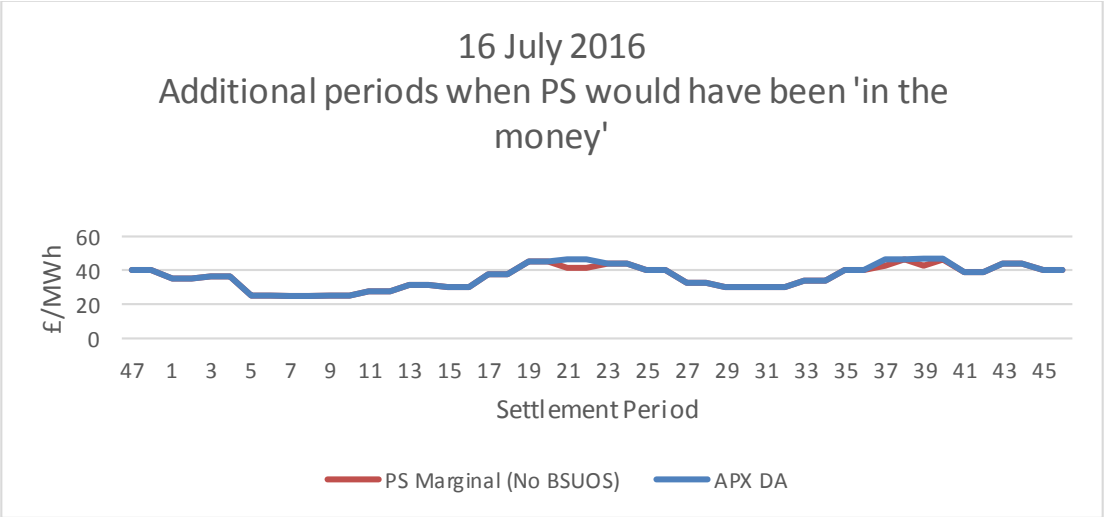
Engie has investigated the potential benefit to consumers from removing the BSUOS charge from volume imported by storage sites. The basic premise is that import BSUoS increases the price at which storage sites are able to generate during demand peaks. The result is PS generates for fewer hours each year and when it is generating at the margin sets a higher wholesale price.

The trader's BSUOS expectation would not be a flat value across a year but would be based on wind/demand forecasts and how these drive BSUOS costs. There is uncertainty about what the overall pumping cost will be but traders will make a judgement and trade to their expectation of the BSUoS cost of replacing the stored energy (potentially with a risk premium added to cover forecast error). Removing BSUOS costs mean traders will factor zero BSUOS into offer prices, which will reduce them compared to their previous expectation and lead to the lower extended peak prices.

To determine the benefit, ENGIE looked at a 12 month period from 14th July 2016. Engie calculated the cost of pumping using a simplified formula to create by adding BSUoS to the next day's APX DA auction price. Dividing by 0.75 (to represent a 75% efficient PS site) gives an estimate of the strike price at which PS sites could generate in the following demand peak.

Removing BSUoS charges from pumping costs changes the formula above to just the APX DA auction price divided by 0.75. This means the reduction in generation costs from removing BSUoS is amplified and has a greater impact on costs during peak demand periods.

To determine the impact of removing BSUoS charges from import volume, Engie compared the highest priced 8 hours clearing in the APX DA auction for extended peaks (Ext PK) to the cost of generation of PS. It is assumed for simplicity that pumping occurs overnight. The aim is to find the settlement periods where PS is marginal and where the reduction in pumping costs will reduce the wholesale price. Ranking the overnight periods and matching the lowest prices to the highest extended peak prices shows the half hours where PS is deeply in the money (no price impact) or out of the money even without paying BSUoS costs on imports (no price impact). Marginal periods are defined as ones that cleared between the cost of generation with BSUoS and the cost without BSUoS. These are the periods where CMP 281 would have an impact.



Removing BSUoS and assuming that PS generates at cost would allow PS to break even in settlement periods 19 to 23 and 37 to 40 in the example above (price data taken from 16th July 2016) where previously it would have been out of the money.

For the 12 months from 14th July 2016, the average Ext PK price (including weekends, settlement periods 15 to 46) was £50.05/MWh. Following the methodology above for PS means the average price falls to £49.92/MWh. Out-turn demand for the period examined is 198.4GWh meaning a total saving to consumers of £25.8m. The net benefit of this change is therefore around £15m.

An alternative way of looking at the benefit would be to look at the average BSUoS costs for the same period (£2.69/MWh) and apply the above methodology to again determine the periods when pumped storage would move to being in the money. The result is the benefit drops from £0.14/MWh to £0.09/MWh or £17.9m giving a net benefit of around £9m. Given that BSUoS

costs are higher overnight to manage the excess of wind on the system, using an average value is not appropriate. Whilst it can rightly be argued that traders will not have perfect foresight of BSUoS, as noted above they would make a judgement using in house analysis tools. Their judgement would produce a more relevant value than a flat assumption.

OTHER BENEFITS

One clear benefit of this reform is that it will encourage investment in new storage assets (particularly transmission connected battery storage projects) by improving the economics of such projects. As it stands there is a strong correlation between periods of high wind and low demand (when storage sites could offer a valuable service helping to manage renewable intermittency) and high BSUoS costs (often more than £10/MWh). Removing BSUoS costs from pumping improves the arbitrage potential in these periods and removes a major uncertainty.

Other benefits to the proposal include lower break even costs for providing ancillary services (particularly response services), which would translate into lower procurement costs and potential cost reductions in the Balancing Mechanism and Capacity Market.

If the modification was widened such that all transmission connected generation did not pay BSUoS when its net HH transmission connected metering was negative, the average increase in BSUoS to the remainder of the market would be around 4p/MWh over the same period. An assessment has not been made of the impact on overnight BSUoS as transmission connected generation may also be consuming during the daytime.

14 Annex 5 Workgroup Consultation Responses

CUSC Workgroup Consultation Response Proforma

CMP281 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **12 November 2018** to cusc.team@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Joseph Henry at joseph.henry@nationalgrid.com

These responses will be considered by the Workgroup at their next meeting at which members will also consider any Workgroup Consultation Alternative Requests. Where appropriate, the Workgroup will record your response and its consideration of it within the final Workgroup Report which is submitted to the CUSC Modifications Panel.

Respondent:	*James Anderson* *james.anderson@scottishpower.com 0141 614 3006*
Company Name:	*ScottishPower Energy Management limited*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*; (d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the

	Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	We believe that the CMP281 Original proposal will better facilitate the Applicable CUSC Objectives (ACOs). Storage facility operators are currently liable for BSUoS on both their import and export volumes (in addition to the BSUoS cost implicit in their energy purchase cost). This means that storage operators pay a higher proportion of BSUoS costs than their competitors in the provision of ancillary services. Removing demand BSUoS charges from storage will therefore better facilitate competition (ACO (a)). The Proposal is neutral against the other ACOs
2	**Do you support the proposed implementation approach?**	The Proposal should be implemented in line with the beginning of the first Charging Year following approval – preferably 1 April 2020.
3	**Do you have any other comments?**	No.
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	*If yes, please complete a WG Consultation Alternative Request form, available on National Grid's website[1], and return to the CUSC inbox at cusc.team@nationalgrid.com* No.

Specific questions for CMP281

[1] http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/forms_guidance/

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	As outlined in the Working Group Report, CMP281 will have a negligible impact on other BSUoS payers. Removing the £12m of BSUoS paid by storage facilities in prior charging years would have increased the average BSUoS charge to others by around £0.02/MWh (0.8%) which is well within the level of forecasting accuracy. As currently drafted, Generation Licence holders will require to satisfy themselves that supply taken at their generation premises are solely associated with the generation activities and certify this to National Grid's BSUoS billing team. As a one-off exercise which relieves the Generation Licence holder of liability for demand BSUoS this should not prove too onerous.
6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	Yes. As outlined in the Working Group Report Section 4.1, CMP281 delivers the change proposed in the Government and Ofgem's Smart Systems and Flexibility Plan (July 2017) and is in line with the direction of travel of Ofgem's work on the TCR/SCR dealing with recovery of residual charges from demand. The analysis within the Workgroup Report indicates that there is currently no effective signal provided by demand BSUoS charges. Removal of demand BSUoS would therefore not be detrimental to operation of the transmission system or to consumers. Should a more cost reflective method of recovering BSUoS costs which provides a effective signal be developed under the TCR/SCR then this can be defined and implemented following implementation of CMP281.

CUSC Workgroup Consultation Response Proforma

CMP281 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **12 November 2018** to cusc.team@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Joseph Henry at joseph.henry@nationalgrid.com

These responses will be considered by the Workgroup at their next meeting at which members will also consider any Workgroup Consultation Alternative Requests. Where appropriate, the Workgroup will record your response and its consideration of it within the final Workgroup Report which is submitted to the CUSC Modifications Panel.

Respondent:	*Paul Youngman* *Paul.Youngman@drax.com* *01757 612757*
Company Name:	*Drax Power Ltd*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*;

	(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	Yes, we believe that the Original Proposal (removing BSUoS liability on imports from all facilitates supplied under a generation licence) better facilitates the Applicable CUSC Objectives. **Applicable CUSC Charging Objective (a) – Positive** In addition to the BSUoS costs implicit in their 'fuel cost', currently storage providers pay BSUoS on both their import and export volumes. Storage providers are therefore contributing disproportionally towards the cost of balancing the system compared to other generation technologies. This is distorting competition. The removal of BSUoS liability on imports from all generation facilities supplied under a generation licence is a simple and effective solution that will address the defect and better facilitate effective competition in the generation of electricity. Ultimately reducing costs for the end consumer. When the proposal was first raised the solution applied only to imports to storage facilities, this was then amended so the original proposal now includes all facilities supplied under a generation licence. Our preference is for this approach which: • Levels the playing field by correcting the defect related to storage whilst not introducing any other distortions between different technology types • Should be relatively easy to implement at least cost to the consumer
2	**Do you support the proposed implementation approach?**	We support implementing CMP281 on the 1st April 2019 to coincide with the start of the Charging Year. If implementation cannot be achieved for the 1st April 2019, CMP281 should be implemented as soon as possible thereafter.

Q	Question	Response
3	**Do you have any other comments?**	No.
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	No.

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	We believe the main impacts have been captured in the proposal and consultation.
6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	In our view the current proposal has a positive impact on competition and levels the playing field between different types of generation. We believe this is in line with Ofgem intent and the objective of the Smart Systems and Flexibility Plan.

CUSC Workgroup Consultation Response Proforma

CMP281 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **12 November 2018** to cusc.team@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Joseph Henry at joseph.henry@nationalgrid.com

These responses will be considered by the Workgroup at their next meeting at which members will also consider any Workgroup Consultation Alternative Requests. Where appropriate, the Workgroup will record your response and its consideration of it within the final Workgroup Report which is submitted to the CUSC Modifications Panel.

Respondent:	*Nicola Percival* *nicola.percival@innogy.com* *07557 758 382*
Company Name:	*Innogy Renewables UK Ltd*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*;

	(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	No. innogy does not see that the implementation of CMP281 would better facilitate any of the CUSC objectives. If implemented this modification would positively discriminate to benefit only licenced storage connected to the transmission network, of which only pumped storage is currently identifiable as 'storage' in the generation licence. There were two DCUSA change proposals looking to remove residual charges from storage/embedded generation – DCP319 and DCP321. These were broadly the DCUSA's version of CMP280 and CMP281. We note that the DCUSA proposals have both had proposer support withdrawn, this coming swiftly after a direction from Ofgem that CMP280, DCP319 and DCP321 should apply to storage only and not all generation. The reason for the withdrawal of support is that the proposer felt that removing residual charging for storage only (not generation more broadly) would create a distortion between storage and all other embedded generation. No workgroup members for DCP319/321 chose to support these proposals or raise alternatives following Ofgem's letter and the proposer's withdrawal of support. Innogy feels that the proposer of CMP281 (and CMP280) should follow suit given that this modification will create a similar distortion[1]. Ofgem have made it clear that they "*reserve the option, if necessary, of bringing storage charges back into the TCR SCR…*"[2]. Innogy encourages Ofgem to do so. Innogy are supportive of proposals which would level the playing field for all types of network users across both transmission and distribution networks. However CMP281 does not do this. The identified defect is indicative of a much deeper set of issues related to broader policy (eg the Smart Systems Plan, BSUoS PSO), which is much wider than just the CUSC and DCUSA. It is important that the workgroup, and especially Ofgem, considers CMP281 in the context of the withdrawn DCUSA modifications as well as other CUSC change proposals looking at reforming the current structure of BSUoS e.g. CMP308 and the TCR SCR and upcoming SCR.
2	**Do you support the proposed implementation approach?**	We do not support the modification, and so we do not support the implementation approach either.

[1] Which is referred to by the proposer on page 13, and elsewhere, in the workgroup consultation. The report is contradictory in places, which has likely created confusion for some respondents.

[2] Ofgem Targeted Charging Review Significant Code Review launch letter, 4th August 2017

Q	Question	Response
3	**Do you have any other comments?**	It is important that network charges do not prevent a level playing field between different providers of flexibility. Any future review on BSUoS looking into its cost reflectivity / who should pay BSUoS would affect all parties within the energy system, regardless of where on the network they connect. Changes to charging for storage should be part of this wider review of BSUoS charging rather than being taken through the piecemeal code governance process, particularly where piecemeal changes would create further distortion. This will allow for a whole system treatment of storage across both transmission and distribution and ensure those facilities have been treated fairly alongside other forms of generation. In addition, we note that in all four of the FES scenarios from 2018 pumped storage is assumed not to contribute many more TWh than today: "*Very little opportunity for new pumped storage sites that haven't already been developed*"[3] and transmission-connected storage of any kind is not expected to increase much by 2030. On page 14 of the workgroup consultation the Proposer refers to FES data that between 7GW and 10GW of storage would be connected to the grid by 2030. The statement is correct but this accounts for all types of storage, connected at both transmission and distribution. The estimation of the impacts of CMP281, should it be implemented, appears to have been calculated based on historic data, but the inference that this could become more significant over time is flawed and misleading. Innogy are also concerned about the wording used in the Smart Systems and Flexibility Plan: Progress Update. In Annex A, action 1.1, under 'What we will do next' it states: *"Industry will finalise charging code modifications to address the storage issues identified in the Plan, and it is expected that these will be submitted promptly to Ofgem for approval."* This suggests that Ofgem is predisposed to approve the modifications CMP280 and CMP281 before the workgroup and consultation phases are finalised.

[3] Data Workbook http://fes.nationalgrid.com/fes-document/

Q	Question	Response
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	No.

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	
6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	No. CMP281 would create new distortion rather than levelling the playing field. The workgroup discussions have been eye-opening in discovering the complexity and interlinkedness of these modifications with broader policy (eg the Smart Systems Plan, BSUoS PSO) and, in innogy's view, have shown that a standalone CUSC Mod is an inappropriate way to explore further how the playing field can truly be levelled. These issues are better suited to a more formal review, which is **not** a priority over the current TCR and upcoming SCR. Please refer to our answers to Questions 1 and 3 for full detail.

CUSC Workgroup Consultation Response Proforma

CMP81 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **12 November 2018** to cusc.team@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Joseph Henry at joseph.henry@nationalgrid.com

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Respondent:	*Colin Prestwich*
Company Name:	*SmartestEnergy*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	No. We do not think competition is better served by the proposal because it does not resolve any differences between CVA and SVA. We can see that this modification does to some extent level the playing field between transmission connected storage and generation on the basis that storage will import comparatively more than conventional generation and to that extent we are not so opposed to it. However, we note that the proposal does not really address the stated defect and is encroaching on the remit of Ofgem's TCR.

Standard Workgroup consultation questions

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	No. We do not think competition is better served by the proposal because it does not resolve any differences between CVA and SVA. The rationale given for not extending the proposal to SVA as presented on page 13 of the consultation document is specious; a supplier may be charged BSUoS on a net basis, but the demand and generation that make up the supplier's net position are settled by them discretely on the gross impact they have on that net position.
2	**Do you support the proposed implementation approach?**	No. We are opposed to this. The document states the following: *Any implementation date is dependent on gaining a decision from The Authority in the August before the start of a Charging year. Therefore, we would need a decision from the Authority by August 2019 to be able to implement this modification for April 2020.* This suggests a mere eight months' notice. Traditionally, pricing modification proposals of this nature have had a longer lead time.
3	**Do you have any other comments?**	Please see answer to Q6
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	No

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	We do not envisage that there will be much of an impact on billing operations.

6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	Page 8 of the consultation document states the following: *The proposed solution under the CMP281 modification was discussed in the context of the legislative framework outlined above. The proposal as originally defined required separate identification of storage facilities reflecting the proposed definition of storage under the new form of Generation Licence. In the context of the activities permissible under the Electricity Act and the generation licence it became clear the such detailed provisions may not be required as part of the CMP281 solution. Consequently the CMP281 proposal was refined. It is now based on the removal of "off taking" BSUoS charges from all generation facilities operated under a generation licence*. The defect, however, was defined as follows: *Under the current Charging Methodology, storage providers pay BSUoS on both their import and export volumes (in addition to the BSUoS costs implicit in their 'fuel cost'). Storage providers are therefore contributing more towards the cost of balancing the system than other users. Storage providers, who compete with generators in the provision of ancillary services, are therefore at a competitive disadvantage, which is likely to distort market outcomes and so disadvantage consumers.* Ironically, therefore, the "refined" proposal reduces charges for generation and storage but does not completely level the playing field between generation and storage as far as charging is concerned, save for the fact that storage would generally have greater levels of import. More generally, the original proposal probably is moving towards Ofgem's and Govt's intentions with regards to placing network costs on demand. However, we are inclined to think that the "refined" proposal jumps the gun of the TCR. Ofgem recommended in the Targeted Charging Review consultation that changes to charging for storage should be taken forward ahead of any wider changes to residual charging. This proposed solution does not fulfil that requirement.

CUSC Workgroup Consultation Response Proforma

CMP281 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

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Respondent:	*Binoy Dharsi (binoy.dharsi@edfenergy.com)*
Company Name:	*EDF Energy*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*; (d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity

	Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	Ofgem state in their TCR consultation (published 13th March 2017 paragraph 1.31) *"We think that the way charges affect storage at present create a relative disadvantage for storage operators, in comparison with generators connected at the same voltage level"…." This is because…transmission-connected storage pays BSUoS as both demand and generation. In order to secure a more level playing-field, we think that storage should be liable to pay only….one set of BSUoS charges."* Given Ofgem's statement in the above cited extract we believe that the Original Proposal delivers an appropriate solution.
2	**Do you support the proposed implementation approach?**	Yes.
3	**Do you have any other comments?**	No.
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	No.

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	We do not believe there will be any issues (beyond business as usual) in relation to tariff stability. The impact is on a very small percentage of the entire BSUoS cost. We do not foresee any significant impact on operations, billing or processes in the implementation of the Original proposal.

6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	Yes. We believe the proposal solution will ensure that competition between generators and storage assets at the same voltage level will be on a fairer basis.

CUSC Workgroup Consultation Response Proforma

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Respondent:	*Yonna Vitanova* *+44 (0)20 7901 3000. Yonna.Vitanova@RenewableUK.com*
Company Name:	*RenewableUK* *https://www.renewableuk.com/*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*;

	(d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response

1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	No, we do not believe that CMP281 original proposal or any of the identified alternatives would better facilitate the Applicable CUSC Objectives. We are concerned that if implemented the modification would not improve competition between supply and generation of electricity, but it would create a benefit for only one type of generation (large pump hydro). The consultation document relies on National Grid Future Energy Scenarios (FES) data suggesting that between 7GW and 10GW of storage would be connected to the grid by 2030, however this accounts for both transmission and distribution connected storage. In fact, the latest FES document predicts transmission connected storage capacity to be comprised up of 4TWh pumped hydro facilities and less than 1TWh battery storage by 2030 in its Community Renewables scenario. This does not present a significant growth from today. Indeed, the consultation itself relies on analysis showing that the pumping volume was approximately 4TWh in 2026/17, representing 0.78% of the total volume (520TWh) liable for BSUoS charges. We are particularly concerned that such misinterpretation would not lead to accurate estimation within the impact assessment of the change proposal and needs to be revised before any further analysis is carried out. Removing BSUoS charging from imports for transmission connected storage is particularly discriminatory against embedded storage facilities with the latter still subject to residual elements of EDCM and CDCM distribution charges. We would like to note that DCP319 and DCP321 change proposals looking to remove residual charges from storage/embedded generation have been withdrawn from DCUSA recently with no alternative being raised. In this context implementing the solution under CMP281 would create a significant distortion in the way storage is treated across transmission and distribution and in itself benefit transmission connected storage facilities only. While we are supportive of the proposals which aim to encourage a level playing field between different providers of flexibility we believe that distributed storage should be treated no differently. Currently there is no alternative proposal which would ensure equal treatment of storage across both transmission and distribution. CMP281 would also have cross-code impacts which have not been considered so far. Thus, it is also important to consider the proposal in the context of these DCUSA modifications as well as other CUSC change proposals looking at reforming the current structure of BSUoS e.g. CMP308. We are mindful that a wider review of BSUoS charging methodology is likely to be raised later on this year separately

Q	Question	Response
		from the Targeted Charging Review Significant Code Review and Ofgem work under Access and Forward-looking charges. As BSUoS charges are not split into residual and forward-looking elements in the same way as TNUoS and DUoS, such wider review would look at whether certain elements of this charge can be isolated and removed to ensure cost reflectivity. Appropriate charging for storage should be part of a wider review on BSUoS to ensure a wholistic overview of the issues across generation and demand.
2	**Do you support the proposed implementation approach?**	No, we do not support the proposed implementation approach as this will unduly favour only one set of generation (large pump hydro).
3	**Do you have any other comments?**	It is important that network charges do not prevent a level playing field between different providers of flexibility. We are concerned that any future review on BSUoS looking into its cost reflectivity would affect all parties within the energy system, including storage providers. Changes to storage charging should be part of a wider review of BSUoS charge rather than being taken through the piecemeal code governance process. This will allow for a whole system treatment of storage across both transmission and distribution and ensure those facilities have been treated fairly alongside other forms of generation.
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	No

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	

6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	Please refer to our answer to Q1.

CUSC Workgroup Consultation Response Proforma

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Respondent:	*Andrew Colley andrew.colley@sse.com*
Company Name:	*SSE plc*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*; (d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity

	Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	Yes. SSE agrees that the current BSUoS charging regime requires storage providers to contribute more towards the cost of balancing the system than other users, leaving them at a competitive disadvantage when compared to other flexibility providers. Perpetuation of this distortion could hinder the development of new storage projects to help provide flexibility options for the Total System. Electricity storage facilities import electricity from the Transmission System in order to store it for reinjection at an appropriate time to be used by end consumers. The storage facility does not have self-consumption as its primary purpose. The current charging regime therefore can result in double counting of energy to the end consumer - when imported by the storage facility (and considered to be self-consumption); and when exported and recorded as consumption by end consumers. This adds to the costs of operation of storage, resulting in a competitive distortion which may also result in additional costs being passed through to end consumers. SSE believes that the proposal will remove a distortion in competition between different types of energy producers, ensuring that certain users do not pay disproportionate costs, resulting in a fairer allocation of costs and thereby better facilitating applicable objective a)
2	**Do you support the proposed implementation approach?**	Yes

Q	Question	Response
3	**Do you have any other comments?**	SSE support the criteria proposed by the workgroup to determine the scope of Parties that should receive relief against the import charge, i.e. supplies associated with licensed generation activities (including storage). We believe that this greatly simplifies the solution and that it is consistent with the current direction of travel to equitably recover revenue from end-use consumption and ensure a level playing field for flexibility providers. However, we would not want to delay progress of the modification as a result of it being subsumed within the current charging SCR (by virtue of the wider coverage of licensed generators that would benefit). If the workgroup considers this a realistic risk, then SSE would support an alternative that reflects the Original Proposal (i.e. limited to CVA storage facilities) to address the current disadvantage for storage operators, as opposed to the Amended Original.
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	*If yes, please complete a WG Consultation Alternative Request form, available on National Grid's website[1], and return to the CUSC inbox at cusc.team@nationalgrid.com*

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	The main impact for CUSC Parties will be a redistribution of costs as liabilities are removed from licensed storage and generation providers. SSE do not consider the estimated impact of this redistribution (as detailed in Chapter 14 at approx. 2p per MWh) to be significant. It will reduce the operating costs of storage facilities in particular, allowing them to compete on a more level playing field with other flexibility providers to the ultimate benefit of consumers. SSE currently operate a Transmission connected storage facility so would expect to change cost modelling and back-office systems to reflect the revised charging arrangement if approved. We estimate that our systems and process costs would be relatively small however, with the majority of the impact falling upon National Grid ESO's and ELEXON's processes and systems.

[1] http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/forms_guidance/

6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	Yes.

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Respondent:	Urmi Mistry Urmi.mistry@nationalgrid.com 07814792971
Company Name:	National Grid Electricity System Operator (NGESO)
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*;

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Standard Workgroup consultation questions

Q	Question	Response

1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	We believe the proposed original (applicable to storage only) and the amended solution (applicable to all generation) creates some unintended consequences and so does not better facilitate the applicable CUSC objectives: • Objective (a) – This modification will have a negative impact on this objective. Regarding the original proposal of storage only, it is discriminatory in nature. Storage will be exposed to less use of system costs than other forms of generation creating a market distortion potentially limiting competition. Where the modification solution is applicable to all generation, this has a marginally less negative impact on this objective. This solution may also conflict with the outcomes of Ofgem's Significant Code Review (SCR) into residual charging and as such it is difficult to assess whether it is appropriate to take this proposal forward at this time. • Objective (b) – As it currently stands this modification will have a negative impact on this objective because it would cause a breach of Transmission Licence Condition C26. This condition states that 'The licensee shall use all reasonable endeavours to ensure that in its application of the use of system charging methodology in accordance with standard condition C5 (Use of system charging methodology), use of system charges resulting from transmission constraints costs are treated by the licensee such that the effect of their recovery is shared on an equal per MWh basis by all parties liable for use of system charges' (as stated on page 22 of the consultation document). This modification would cause BSUoS liable parties (generators and suppliers) to pay unequal amounts as only a portion of BSUoS costs are removed from liable parties. Therefore, if this modification were approved this would cause a breach of licence for the transmission owner. To avoid this occurring the licence condition would need to be updated. • Objective (c) – neutral • Objective (d) – neutral • Objective (e) – There will be a negative impact on this objective. If the proposal is implemented as suggested/discussed by the workgroup so far, it will introduce complexity in administration and implementation of the CUSC. The proposed process suggested on page 8 of the report, is that National Grid are notified of which BMUs are owned by a Licence holder and then the exemption is applied by National Grid to these units. This process at a high level would

Q	Question	Response
		require significant changes to IT systems resulting in substantial implementation costs. This process would involve a new system to; o maintain a register of relevant generators/BMUs, o quality assure the data in the register, o synchronise the register with Elexon's Central Registration Agency, o interface and provide data to existing systems from the register, e.g. daily submissions of data to the Charging and Billing (CAB) system and so a new input source and consequential changes to internal systems. New processes will also need to be established to support the new system such as dispute, data error assurance and data correction. This would replicate a process already carried out by Elexon during the BMU registration process. Therefore, the workgroup should consider this when looking at implementation as this would be the more efficient option and have the lowest overall cost to the consumer.
2	**Do you support the proposed implementation approach?**	If this modification is approved, we would support the approach detailed on page 15 of the consultation document ('Implementation Information') and in section 7. This would only be practical if there was an Authority decision in the July/August before the start of a Charging Year. If a decision is received later than July/August 2019 then implementation should be no earlier than April 2021, owing to the significant system changes required to facilitate this CMP.

3	**Do you have any other comments?**	We have a few comments for the workgroup to consider: 1. Further considerations for the Workgroup: We feel that the fundamental issue is with the BSUoS charging methodology, its principles and how it is calculated; therefore, this needs to be considered and is vitally important to this modification. The defect and issues analysed by the workgroup highlight the fact that the current BSUoS methodology is not appropriate for the electricity system of today. This is highlighted within the 'wider defect' section, on page 11 of the consultation document, which mentions the counter intuitive nature of BSUoS where behaviour by parties which is beneficial for the network, is penalised. This is another fundamental question which needs further consideration as this modification will only redistribute the cost incurred in any one settlement period to a smaller number of parties and so exacerbate the wider defect. In October NGESO ran a series of Workshops to start a wider piece of work to consider BSUoS in more detail and begin a larger reform of the BSUoS charge. We feel this is a better route to address the questions surrounding treatment of storage in a more holistic and non-discriminatory manner. There is also a significant amount of industry work underway that will materially affect the direction of this modification and BSUoS, such as the TCR SCR, Access & Forward Looking Charges reform and the Storage Licence Consultation (which is still awaiting decision from November 2017). All of these things will impact the BSUoS methodology fundamentally and so any solutions proposed as part of this modification may become redundant in the future or create larger distortions as results from these larger pieces of work become clear. The CUSC modification process dictates that the baseline is used to assess proposals against, however this modification overlaps with other work-streams which aim to make a fundamental change to current arrangements. So, to ensure the solution is future-proof and fit for purpose, these areas of work need to be considered within the solution. Additionally, NGESO are not allowed, under our Licence, to unduly discriminate between any persons, class or classes of persons (Licence Condition C7 'Prohibition on discriminating between users'). There has been no clear direction from Ofgem that Storage should be treated uniquely from any other form of generation, this is also not reflected or evidenced in the report strongly enough. Therefore, by applying BSUoS to a certain group of industry parties mainly based on differing

		business costs (fuel cost in proposal form) cannot be used as a strong enough reason to discriminate. There is currently a storage licence consultation which is with Ofgem for decision. This consultation looks to introduce regulatory arrangements for storage into the Generation Licence. This closed in November 2017 and is still awaiting a decision. This further adds to the argument that Storage is no different from any other form of generation. If the proposal goes ahead with the updated solution covering all generation, there will be discrimination between transmission connected and embedded generation and between generation and demand/supply parties. Therefore, this should be considered further. The current direction of travel of CMP281 uses the Licence as a basis to identify those parties who are liable for BSUoS and those who aren't. The Licence refers to a legal entity rather than a specific generating station or BMU. Therefore, this will be complex to implement for the BSUoS methodology as currently BSUoS is calculated on a Trading Unit/BMU basis. There has been no clear way for NGESO to be able to use this information to clearly identify these units without significant costs incurred and inefficient processes introduced. This process of identifying the exemptible parties needs further consideration. Another aspect that is mentioned on page 21 of the report is the Public Service Obligation (PSO), which states that costs are spread equally across parties and links to the Transmission Licence Condition C26 (applicable CUSC objective (b)). The PSO is something that needs to be considered further by the workgroup and steps should put in place to address it. If this is not done before this modification is implemented, then NGESO will be in breach of its Licence Another area to consider is that Ofgem published their decision on CMP250 on the 25th October 2018. Ofgem rejected this modification but made suggestions on further work regarding BSUoS, such as future assessment of the components of BSUoS and evaluating their impact, whether they are cost recovery/cost reflectivity and consideration of impacts wider than the CUSC e.g. licence impacts. Therefore, it would be prudent to ensure these areas are considered and clear within the report to give Ofgem as much information as possible as to whether this modification will have an impact on the components of BSUoS.

Q	Question	Response
		Modification GC0096 is referenced in the consultation document on page 17 which looks to introduce technical requirement for Storage. This Grid Code modification has moved on since this section was written and poses some questions which need consideration: o The proposed definition of 'Electricity Storage Facility' excludes Pumped Storage. This is a concern as it creates a new category on the same level as Power Station and so this will need to be reflected in the CUSC. To keep definition consistent across codes, this exclusion of Pumped Storage would mean that any solution created under CMP281 and assuming the definitions aligned with the Grid Code, the Pumped Storage stations defined in the Grid Code will still be liable for use of system charges. Therefore, the addition of 'Electricity Storage Facility and Pumped Storage' should solve this issue within the CUSC. We encourage the proposer and any proposers of alternatives to ensure this is captured within their solution. 2. General Comments The figures presented in the report looking at material impact of this modification, consumer impact and impact on RCRC (residual cashflow reallocation cashflow) do not consider the future network and the predicted increase from 3GW of storage on the system to between 7GW and 10GW by 2030. Therefore, the numbers presented in the report do not provide any future estimation of the impact of this modification (Annex 2, impact on consumers and materiality sections) therefore it is hard to understand the impacts of this modification, true cost to industry parties and to the end consumer fully. This modification, at present, doesn't have a clear solution or clear understanding of how this will be implemented, therefore this needs to be fully considered by the workgroup and noted so it is clear to Ofgem and industry. We are of the view that a much broader reform of the BSUoS methodology is needed, it will have longer term benefits and be more valuable for all industry parties and consumers. It will also create a charging arrangement that is fit for purpose, clear and transparent.

Q	Question	Response
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	Not at this point in time. However, it should be noted that DCUSA modification DCP319 and DCP321 are being narrowed in scope following a letter from Ofgem. Both look to address the same issues as CMP280 and CMP281 but on the distribution network. This should be noted as this modification may receive the same direction from Ofgem, following the increase in scope to all generation. Also, that if CMP281 were approved it will create a further distortion between the transmission and distribution charging arrangements if these DCUSA modifications are not also approved.

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	Impact on NGESO: • We have detailed the high-level system changes required for NGESO in the System changes section of consultation document (page 15 of the report). • How we identify these units is not clear from the consultation document and needs to be fully considered. It may be that Elexon would be more easily able to identify these sites and therefore a consequential BSC modification would be necessary to ensure data is provided to the ESO at lowest cost overall to the end consumer.

6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	In our view, the original proposal will not level the playing field in the way that Government and Ofgem intended in recent publications. It would be prudent to wait for more information to be published by Ofgem on the TCR SCR before this modification goes any further. • In July 2017 Ofgem & BEIS published 'Upgrading our Energy System – Smart Systems and Flexibility Plan'. In this document, they stated 'These views are that storage facilities should not pay the 'demand residual' element of network charges at transmission and distribution level, and that storage providers should only pay one set of balancing system charges.' Therefore, this modification would be fulfilling this intention as indicated by Ofgem & BEIS. • However, the modification does not consider the update in Ofgem's position and the possibility of a forward-looking element (if found). Following Ofgem's Storage Charging Summary note (Feb 2018) publication (as noted in the consultation document), storage should pay forward-looking charges on both import and export. This modification, at present, will not facilitate this. If a forward-looking element is found within BSUoS, under this modification storage (and possibly all generation) will pay no form of BSUoS on their imports at all. As the solution is not clear for this modification, it could result in multiple changes being needed in the future (change upon change etc…) which will reduce certainty in the market and impact competition. • The proposal also does not consider Ofgem's work on the TCR SCR or Access & Forward Looking charges fully. They are looking at residual charges and suggest wider areas of BSUoS need to be looked at. This work will have a knock-on impact to this change proposal. Aligning with this work will ensure that arrangements put in place for generation will be equivalent with arrangements for storage parties. • This modification doesn't address BSUoS embedded benefits issue. Ofgem have noted that other embedded benefits will be kept under review and so waiting for further direction from Ofgem on how this will be addressed will be beneficial for this modification when looking to create a solution.

PaulCUSC Workgroup Consultation Response Proforma

CMP281 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **12 November 2018** to cusc.team@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Joseph Henry at joseph.henry@nationalgrid.com

These responses will be considered by the Workgroup at their next meeting at which members will also consider any Workgroup Consultation Alternative Requests. Where appropriate, the Workgroup will record your response and its consideration of it within the final Workgroup Report which is submitted to the CUSC Modifications Panel.

Respondent:	*Paul Jones* paul.jones@uniper.energy
Company Name:	*Uniper UK Limited*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*; (d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the

	Agency. These are defined within the National Grid Electricity Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	Yes, subject to clarification of some points we raise in our response to 3 below. It should facilitate objective a) by promoting competition in the wholesale market.
2	**Do you support the proposed implementation approach?**	Yes.

Q	Question	Response
3	**Do you have any other comments?**	There seems to be some confusion about the exact solution being proposed in the text. Section 3 on page 6 of the consultation says that section 14.29.4 will be changed to prevent all off-taking Exemptible Storage BMUs from being charged BSUoS. However, section 19 on page 23 implies that all off-taking BMUs and Trading Units associated with generation operating under a generation licence will be exempt, which seems to be in keeping with other text in the consultation. Our support above is made assuming this latter interpretation. In the text in section 19, reference is made to Demand BMUs. However, this does not seem to be defined anywhere. The text will presumably need to be tidied up generally. For instance, it currently refers to supply "under a Generation licence" which seems to imply that a generation licence directly authorises you to supply when it is the provisions of the Electricity Act which allows this to happen under an exemption. A number of power stations are charged on a Trading Unit basis, so that station demand is netted from any generation at the same station. We assume that the wording in section 19 is aimed at allowing this to continue. Therefore, it is only when the Trading Unit becomes negative, due to station demand being higher than any output during the period, that the charge becomes zero. Accepting that it is always preferable to keep legal text simple, it's not clear from the present drafting that this is indeed the case. The implementation costs for the modification seem quite high. It may be worth exploring whether costs could be reduced by making the changes to systems and processes required for this modification at the same time as any needed under Ofgem's charging review.
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	*No thank you.*

Specific questions for CMP281

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	We do not anticipate a significant implementation issue for ourselves. It is possible that there may be contracts which could be affected, but presumably these will have appropriate regulatory reopener clauses.
6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	It would seem to. A modification which solely looked at removing the charge from storage, but did not introduce equivalent treatment for generation, would have introduced another form of discriminatory treatment.

CUSC Workgroup Consultation Response Proforma

CMP81 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **12 November 2018** to cusc.team@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Joseph Henry at joseph.henry@nationalgrid.com

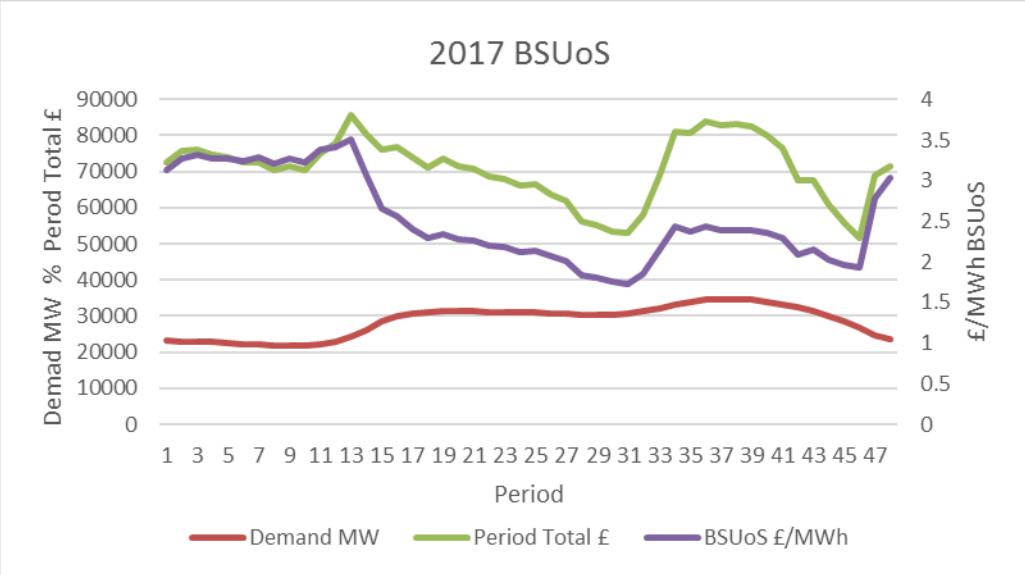
These responses will be considered by the Workgroup at their next meeting at which members will also consider any Workgroup Consultation Alternative Requests. Where appropriate, the Workgroup will record your response and its consideration of it within the final Workgroup Report which is submitted to the CUSC Modifications Panel.

Respondent:	*Libby Glazebrook* *Libby.glazebrook@engie.com*
Company Name:	*ENGIE*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** **…….** .

Standard Workgroup consultation

1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	**Background** The current methodology of collecting BSUoS from storage demand is leading to increased customer costs. We believe that the proposal to only charge demand BSUoS to end consumption or ENGIE's alternative which does not charge BSUoS on CVA storage imports will deliver customer benefits and improve the efficiency of the current power market in the despatch and scheduling of generation to meet demand. Appendix 1 (attached) details analysis provided by ENGIE to the working group that sets out the issue and the cost savings associated with changes to the current arrangements if applies to CVA storage. CMP 281 was raised in July 2017 and the report demonstrates the issue has been examined by the group and that the group has a good understanding of the range of possible solutions. We believe that it is now time for the group to move forward in a timely fashion with a solution (or solutions) that can be presented to the Authority. **Economic rationale for only charging end consumption** Academic literature (e.g Diamond-Mirrlees et al) on production efficiency recognised that the most efficient way to collect fixed revenue (e.g BSUoS) is to apply it only to end consumption. An example of this is rail and postal services that are not subject to VAT. A simple assumption for VAT collection could be that it will be possible to raise more VAT if it is applied to postage and rail costs. This assumption is incorrect - it is optimal to have no distortions in production of goods based on recovering fixed (tax like) costs. Businesses that use postage will simply apply the additional VAT plus their processing expenses (inefficiency cost) and apply this cost to the cost of goods and services which are passed on to the end consumer. In addition, competition between business will be improved if they can compete on the basis of their business designs and production costs that do not include tax-like charges. A more efficient outcome is to recover the same (higher) amount of VAT directly from consumers. Since the cost of the additional inefficiency does not need to be collected, costs will be lower and competition between business will result in a more efficient outcome, based on their business designs rather than the application of a tax-like charge. The application of BSUoS is similar - it should not distort production decisions and leads to the ultimate conclusion that BSUoS should be applied only to end consumption. Although BSUoS is a half-hourly charge, most of the individual elements relate to actions that are required across multiple time periods with the magnitude determined principally by the demand shape. At all points in the day generation and demand must match so actions in one time period cannot be divorced for those in other time periods. In reality, although the cost (£m) may be flat across the day, this will drive a high BSUoS price at low demand periods. The shape of BSUoS (£/MWh) is simple a cost recovery across a varying number of consumers, exacerbating the current distortion. ***Economic rational for not applying BSUoS to storage imports*** The chart below shows for 2017 the average period daily cost of BSUoS (green line), average period demand (red line) as well as the demand. £/MWh charge (purple line). As can be seen the period costs allocated overnight and over the system peak are similar but the resulting £/MWh change is far from

flat. Driven principally by demand and the need to ensure sufficient head- and foot-room during lower demand periods, the overnight rate is roughly 1.5 times the daytime rate. This is driven by the methodology which recovers a similar period amount over lower demand periods.



This effect leads to higher daytime wholesale prices as storage is subject higher levels of BSUoS on its imports. Appendix 1 details analysis by ENGIE that explores this more with a real world example based on the use of storage on the transmission system.

The current arrangements and three possible solutions

The working group report identifies a number of possible solutions to the issue raised by the proposer and sets out the current position. We have simplified these and put them in table form below broken down into three scenarios based on affected groups:

Current position BSUoS liability	A	B	C
	Transmission Storage	Transmission Generation Demand	Embedded Storage and generation
Demand BSUoS	Pays	Pays	Pays
Generation BSUoS	Pays	Pays	Receives

The efficient positions from a customer's perspective are shown below:

Possible Solution BSUoS liability	A	B	C
	Transmission Storage	Transmission Generation demand	Embedded Storage and generation demand
Demand BSUoS	Exempt	Exempt	Exempt
Generation BSUoS	Pays	Pays	Pays

For each scenario we suggest how the working group should address further work, potentially proposing two solutions to the Authority based on scenarios A and B.

A The narrow scope simple solution

The simple solution exempts transmission-connected storage and embedded storage over 100MW from liability for demand BSUoS and hence improves the cost reflectivity of the system. The group has struggled to arrive at a definition of this type of storage as a storage class within the generation licence is not in place yet. This is why the group moved to the wider solution that applies to all transmission connected generation.

There are currently four transmission connected pumped storage facilities and one transmission connected battery storage facility. Whilst it should be easy to identify these, in practice, in the absence a storage class within the generation licence it has proved difficult for the group to come to a solution and, as such, a definition has not been developed.

We put forward the following solution to the narrow scope simple solution and have raised this as a consultation alternative:
==========
A solution is to amend the text in CUSC 14.29.4 along the following lines (subject to legal drafting):

All CUSC Parties acting as Generators and Suppliers (for the avoidance of doubt excluding all BMUs and Trading Units associated with Interconnectors) are liable for Balancing Services Use of System charges based on their energy taken from or supplied to the National Grid system in each half-hour Settlement period, except that energy taken from the system by Exemptible Storage BMUs shall be disregarded.

For purpose of Section 14(2) of the CUSC – The Statement of the Balancing Services Use of System Charging Methodology –

An Exemptible Storage BMU is a BMU that :

is listed in Appendix C of a bilateral connection agreement (BCA) that is associated with an electricity storage facility as set out in the Generation Licence;

or

is listed in a Bilateral Embedded Generation Agreement (BEGA) or Bilateral Embedded Licence exemptable Large power station Agreement (BELLA) above 100MW in size and are associated with an electricity storage facility as set out in the Generation Licence;

or

the Authority has directed that the BMU is an Exemptible Storage BMU for the purposes of the CUSC.

Part (a) of definition is designed to only cover transmission-connected storage as only this type of storage has a BCA and will be active once the definition of storage in included in the generation licence. We do not believe that any BEGA or BELLA storage facilities exist but have put the definition (b) in for completeness. Again this is only active once a storage licence is in place.

Part (c) allows an Exemptible Storage BMU to be identified prior to a licence definition being in place with the Authority issuing a notice to National Grid. The Authority would issue a notice identifying for the storage facility, all the BMU's listed in Appendix C of the storage facility bilateral connection agreement (BCA). The BCA details the BMU's that are included in the power station/trading site.

Part C flow chart is contained in Appendix 2

An example of a BCA for a storage facility is shown below.

NATIONAL GRID COMPANY plc

and

FIRST HYDRO COMPANY

AGREEMENT TO VARY THE
BILATERAL CONNECTION AGREEMENT
FOR FFESTINIOG

Appendix C

Connection Entry Capacity and Transmission Entry Capacity

Company: First Hydro Company

Connection Site: Ffestiniog

Part 1 Connection Entry Capacity

Connection Entry Capacity Expressed as an instantaneous MW figure

Part 2 Transmission Entry Capacity

Transmission Entry Capacity (TEC) expressed in average MW taken over a half-hour settlement period

Part 3 BM Units Comprising Power Station

T_FFES-1	(Associated with FFES_01Z)
T_FFES-2	(Associated with FFES_02Z)
T_FFES-3	(Associated with FFES_03Z)
T_FFES-4	(Associated with FFES_04Z)
T_FFES-ST1	(Station Demand)

Using this methodology, the Authority could issue notices for all transmission-connected storage facilities to National Grid.

B The wider scope solution to include transmission generation demand

Whilst the simple solution improves cost reflectivity of the system by exempting transmission-connected storage demand from BSUoS liability, there would be some additional benefit to the wider system by exempting all transmission connected demand used for generation from BSUoS liability. The effects detailed in Appendix 1 would incrementally less than those from storage demand but would still give additional consumer benefit.

Again we believe that a simple solution should be adopted for this methodology by the group and example text is shown below. This is the same as the new original modification proposal.

==========
A solution is to amend the text in CUSC 14.29.4 along the following lines (subject to legal drafting):

All CUSC Parties acting as Generators and Suppliers (for the avoidance of doubt excluding all BMUs and Trading Units associated with Interconnectors) are liable for Balancing Services Use of System charges based on their energy taken from or supplied to the National Grid system in each half-hour Settlement period,except that energy taken from the system by Exemptible Demand BMUs shall be disregarded.

For purpose of Section 14(2) of the CUSC – The Statement of the Balancing Services Use of System Charging Methodology –

An Exemptible Demand BMU is a BMU that :

is listed in Appendix C of a bilateral connection agreement (BCA) that is associated with a Generation Licence;
or

is listed in a Bilateral Embedded Generation Agreement (BEGA) or Bilateral Embedded Licence exemptible Large power station Agreement (BELLA) above 100MW in size and associated with a Generation Licence;

This definition would not be dependent on a storage licence and would apply to all transmission connected demand associated with generation.

C The complete transmission and distribution solution

Whilst we would support the inclusion of embedded storage facilities in a solution, the development of a solution requires significant changes to the current embedded benefits methodology for all embedded generation to ensure that embedded storage is treated the same as transmission storage.

Currently embedded storage is roughly neutral to BSUoS as it pays on demand and receives on generation, so it is not as pressing an issue for this type of storage as it is for transmission connected storage.

ENGIE raised CMP307 “Expanding the BSUoS charging base to include embedded generation” to start the process of addressing the embedded

Standard Workgroup consultation		
		benefits issue". Following this. the Authority has indicated that embedded benefits are being reviewed as part of the current TCR SCR and has decided to not allow the progression of CMP 307. We believe that there is little point in the group developing a solution for embedded storage (CVA below 100 MW and SVA) without dealing with the wider BSUoS embedded benefits issue which is now being dealt with by Ofgem as part of the TCR SCR.
2	**Do you support the proposed implementation approach?**	Yes although this is not clearly set out in the consultation. We believe that National Grid as ESO will need to identify the best way to implement the solution. This could be achieved by it "flagging" units that are not charged BSUoS as part of its systems. Alternatively, if the ESO believe that this flagging process is best achieved in the BSC than we would expect National Grid ESO to raise an appropriate modification.

Standard Workgroup consultation		
3	**Do you have any other comments?**	CMP 281 was originally raised to remove the BSUoS charge from transmission connected storage imports and thus ensure that this type of storage only pays one set of balancing charges. This could also be achieved through the revised Original proposal (which applies to all licenced generation – limited to those with a BCA (and BELLA/ BEGA over 100 MW). ENGIE would support either of these changes. Ofgem set out proposals in their 'Smart System and Flexibility Plan' to reduce BSUoS charges for storage and reiterated these concerns in their November 2017 TCR update. To address Ofgem's specific concern, CMP 281 should have storage only solution as well as the wider solution. We do however note that National Grid estimated costs of between £0.5 and £1m to deliver to storage only solution. No costs have been provided for the wider proposal so it is not possible to compare solutions and have a cost benefit trade off. If the costs of delivering the storage only solution is much higher, then a pragmatic way forward that encompasses Ofgem's specific concern would be to adopt the new original proposal. Ideally, all storage would be subject to the same BSUoS charges to give the greatest consumer benefit. This currently is not the case as embedded storage receives BSUoS when it exports as an embedded benefit and pays BSUoS when it imports (both of these either directly or via the supplier). ENGIE's CUSC modification CMP307 would have addressed the export side of BSUoS as it would have removed the embedded benefit and instead charged embedded storage when exporting. The Authority directed that CMP307 must not be made whilst the TCR SCR is ongoing as the TCR SCR is looking at embedded benefits. The anticipated storage definition within the generation licence could within CMP 281 be used to remove the BSUoS import charge from all licenced storage. However, this would create the situation where embedded storage was not paying BSUoS on its imports and continued to receive BSUoS as an embedded benefit. There would not therefore be a level playing field in BSUoS charging for all storage. Ideally, both these changes therefore need to be in place before BSUoS import charges for embedded storage are removed. There is therefore no reason for CMP281 to address embedded storage for the time being. It is however likely that the storage class within the generation licence will be put in place before the embedded BSUoS benefits issue is resolved. In the response to Q4, ENGIE has suggested an alternative modification that just limits CMP281 to storage with a BCA (and BELLA/BEGA over 100 MW) and a storage generation licence or, in the absence of storage generation licence, a notice to National Grid from Ofgem. Ofgem will need to give thought as to whether it is appropriate to create differences in the payment of BSUoS for transmission and distribution connected storage once the licence is in place

Standard Workgroup consultation		
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider**?	**If yes, please complete a WG Consultation Alternative Request form, available on National Grid's website1, and return to the CUSC inbox at cusc.team@nationalgrid.com** Yes. To address the points made in the response to Q3, the following definition of an "An Exemptible Storage BMU" is proposed. We put forward the following solution to the narrow scope simple solution and have raised this as a consultation alternative: ========== A solution is to amend the text in CUSC 14.29.4 along the following lines (subject to legal drafting): All CUSC Parties acting as Generators and Suppliers (for the avoidance of doubt excluding all BMUs and Trading Units associated with Interconnectors) are liable for Balancing Services Use of System charges based on their energy taken from or supplied to the National Grid system in each half-hour Settlement period, except that energy taken from the system by Exemptible Storage BMUs shall be disregarded. For purpose of Section 14(2) of the CUSC – The Statement of the Balancing Services Use of System Charging Methodology – An Exemptible Storage BMU is a BMU that : is listed in Appendix C of a bilateral connection agreement (BCA) that is associated with an electricity storage facility as set out in the Generation Licence; or is listed in a Bilateral Embedded Generation Agreement (BEGA) or Bilateral Embedded Licence exemptible Large power station Agreement (BELLA) above 100MW in size and are associated with an electricity storage facility as set out in the Generation Licence; or the Authority has directed that the BMU is an Exemptible Storage BMU for the purpose of the CUSC Part (a) of definition is designed to only cover transmission-connected storage as only this type of storage has a BCA and will be active once the definition of storage in included in the generation licence. We do not believe that any BEGA or BELLA storage facilities exist but have put definition (b) in for completeness. Part (c) allows transmission-connected storage to be identified prior to a licence definition being in place with the authority issuing a notice to National Grid. The Authority would issue a notice identifying for each transmission connected storage BMU (Appendix C part 3 of the BCA).

Specific questions for CMP281

[1] http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/forms_guidance/

5	Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?	The modification will result in a lowering of overall cost to consumers based on more efficient market operation. In terms of billing arrangements, it is likely to have minimal effect on both National Grid and other parties to the CUSC.
6	Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?	As noted in the response to Q3, ENGIE would support just limiting CMP281 to CVA storage or widening it to all transmission connected generation demand. Removing BSUoS charges from all but “end consumption” will lead to a more efficient energy system with reduced costs for consumers. It is for Ofgem to decide whether or not the scope of the modification should just be limited to storage and for Ofgem to take into account the cost differential of the two options. It is important that both options are put to Ofgem to given them the choice.

APPENDIX 1

CMP281: REMOVAL OF BSUOS CHARGES FROM ENERGY TAKEN FROM THE NATIONAL GRID SYSTEM BY STORAGE FACILITIES

Summary

Storage operators currently pay BSUoS on both their import and export volume from and to the grid. CMP281 proposes to remove the liability from storage to pay BSUoS charges on imported volume. Engie has conducted an analysis of both the costs and benefits of such a measure for other market participants (particularly focused on consumers).

It is estimated that removing BSUoS from transmission connected pumped hydro imports pumping will increase overall BSUoS by on average 2p/MWh and by 5p/MWh if the increase is just applied to those paying BSUoS overnight.

Offsetting this increase, there will be a benefit in terms of lower peak traded prices as the pumped storage 'fuel' costs will be lower allowing it to generate in periods when it would have been 'out of the money' due to paying BSUoS on imports. This is estimated to save consumers around £36m giving a net benefit of around £15m. On top of this the cost of managing constraints arising from excess overnight generation can be expected to fall.

Estimated Cost Impact

If implemented, the storage sites that would become exempt from import BSUoS charges are the existing pumped storage (PS) sites (Foyers, Cruachan, Dinorwig and Ffestiniog) and existing and planned battery storage projects.

Engie has examined historic BSUoS charges to understand the impact of CMP281. In 2015 the volume of imports to PS sites totalled 3,701GWh out of a total generation and demand volume of 526,408GWh (includes only generation and demand subject to BSUOS charges). PS sites contributed £10.64m to the total BSUOS charge of £1,135m. The cost of BSUoS was £2.16/MWh (£1,135m divided by 526,408GWh) and would have been £2.17/MWh if PS had been exempt from paying BSUOS on imports (£1,135m divided by 522,707GWh). The impact on average BSUOS charges across the year would have been £0.016/MWh in 2015. Similar impacts would have occurred in 2016 and 2017 YTD (see table 1).

Table 1: BSUoS Costs/Volumes since 2015

Year	PS Imports BSUoS (£k)	PS Imports (GWh)	Total BSUOS (£k)	Total Volume (GWh)	Actual BSUoS Cost (£/MWh)	CMP281 BSUoS Cost (£/MWh)
2015	10,643	3,701	1,135,132	526,408	2.16	2.17
2016	12,247	4,002	1,219,830	522,303	2.34	2.35
2017 (H1)	6,127	2,020	601,007	254,545	2.36	2.38

The overall cost to other market participants from removing BSUoS charges on imports would have been an annualised £10.6m to £12.2m since 2015. Looking just at the impact on overnight BSUoS, the impact on other market participants between 23:00 and 07:00 would be around 5p/MWh on average.

However, additional PS demand would have occurred overnight with CMP281 in place (estimate 246.4GWh of additional pumping) which would reduce the impact on other market participants. In addition, by increasing demand in regions with excess generation (particularly during high wind/low demand periods where currently PS is uneconomic due to high BSUoS charges), the additional consumption would have contributed to alleviating constraint costs. Therefore, overall the cost of implementing CMP281 would be less than the £10.6m to £12.2m range outlined above.

Estimated Benefits

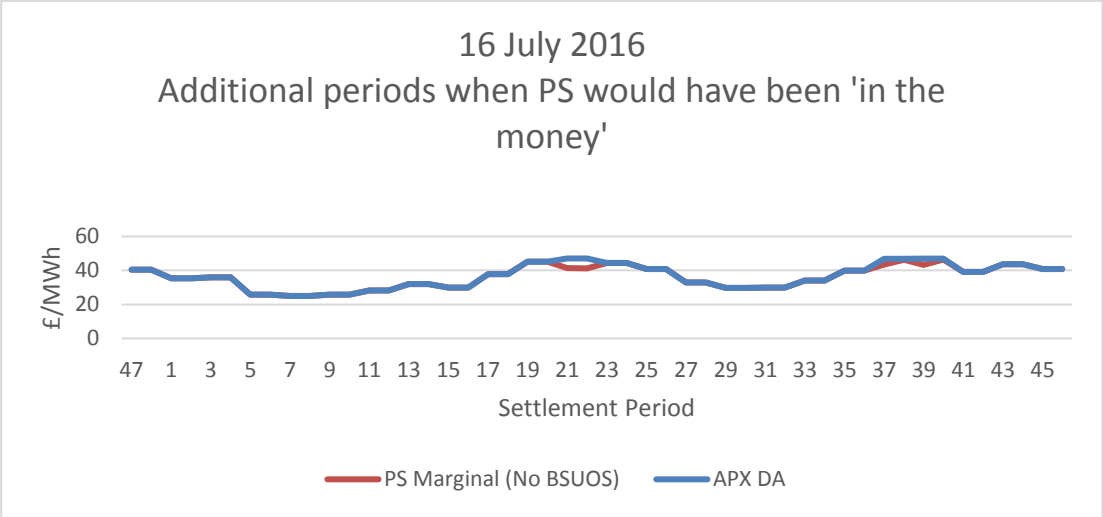
Engie has investigated the potential benefit to consumers from removing the BSUOS charge from volume imported by storage sites. The basic premise is that import BSUoS increases the price at which storage sites are able to generate during demand peaks. The result is PS generates for fewer hours each year and when it is generating at the margin sets a higher wholesale price.

The trader's BSUOS expectation would not be a flat value across a year but would be based on wind/demand forecasts and how these drive BSUOS costs. There is uncertainty about what the overall pumping cost will be but traders will make a judgement and trade to their expectation of the BSUoS cost of replacing the stored energy (potentially with a risk premium added to cover forecast error). Removing BSUOS costs mean traders will factor zero BSUOS into offer prices, which will reduce them compared to their previous expectation and lead to the lower extended peak prices.

To determine the benefit, ENGIE looked at a 12 month period from 14th July 2016. Engie calculated the cost of pumping using a simplified formula to create by adding BSUoS to the next day's APX DA auction price. Dividing by 0.75 (to represent a 75% efficient PS site) gives an estimate of the strike price at which PS sites could generate in the following demand peak.

Removing BSUoS charges from pumping costs changes the formula above to just the APX DA auction price divided by 0.75. This means the reduction in generation costs from removing BSUoS is amplified and has a greater impact on costs during peak demand periods.

To determine the impact of removing BSUoS charges from import volume, Engie compared the highest priced 8 hours clearing in the APX DA auction for extended peaks (Ext PK) to the cost of generation of PS (taking account of the BSUoS cost applied to exports). It is assumed for simplicity that pumping occurs overnight. The aim is to find the settlement periods where PS is marginal and where the reduction in pumping costs will reduce the wholesale price. Ranking the overnight periods and matching the lowest prices to the highest extended peak prices shows the half hours where PS is deeply in the money (no price impact) or out of the money even without paying BSUoS costs on imports (no price impact). Marginal periods are defined as ones that cleared between the cost of generation with BSUoS and the cost without BSUoS. These are the periods where CMP 281 would have an impact.



Removing BSUoS and assuming that PS generates at cost would allow PS to break even in settlement periods 19 to 23 and 37 to 40 in the example above (price data taken from 16th July 2016) where previously it would have been out of the money.

For the 12 months from 14th July 2016, the average Ext PK price (including weekends, settlement periods 15 to 46) was £50.05/MWh. Following the methodology above for PS means the average price falls to £49.92/MWh. Out-turn demand for the period examined is 198.4GWh meaning a total saving to consumers of £25.8m. The net benefit of this change is therefore around £15m.

An alternative way of looking at the benefit would be to look at the average BSUoS costs for the same period (£2.69/MWh) and apply the above methodology to again determine the periods when pumped storage would move to being in the money. The result is the benefit drops from £0.14/MWh to £0.09/MWh or £17.9m giving a net benefit of around £9m. Given that BSUoS costs are higher overnight to manage the excess of wind on the system, using an average value is not appropriate. Whilst it can rightly be argued that traders will not have perfect foresight of BSUoS, as noted above they would make a judgement using in house analysis tools. Their judgement would produce a more relevant value than a flat assumption.

Other Benefits

One clear benefit of this reform is that it will encourage investment in new storage assets (particularly transmission connected battery storage projects) by improving the economics of such projects. As it stands there is a strong correlation between periods of high wind and low demand (when storage sites could offer a valuable service helping to manage renewable intermittency) and high BSUoS costs (often more than £10/MWh). Removing BSUoS costs from pumping improves the arbitrage potential in these periods and removes a major uncertainty.

Other benefits to the proposal include lower break even costs for providing ancillary services (particularly response services), which would translate into lower procurement costs and potential cost reductions in the Balancing Mechanism and Capacity Market.

If the modification was widened such that all transmission connected generation did not pay BSUoS when its net HH transmission connected metering was negative, the average increase in BSUoS to the remainder of the market would be around 4p/MWh over the same period. An assessment has not been made of the impact on overnight BSUoS as transmission connected generation may also be consuming during the daytime.

Appendix 2

Stage 1 Initial request

A CUSC party writes to Ofgem and requests a “part C” notice be issued to National Grid relating one of its power stations that it believes should be categorised as storage and lists the BMUs it considers should be an “Exemptible Storage BMU”

The application provides sufficient evidence to allow Ofgem to consider the request typically including:

a) Bilateral Connection Agreement listing the BMU’s: and
b) Outline details of the type of storage (e.g. pumped hydro, battery compressed air) and details of the location of the site; and
c) A directors statement that the power station is used as:-

(a) a means of converting electricity imported from the National Grid system into a form of energy which can be stored, and of storing the energy which has been so converted; and
(b) a generating unit which is wholly or mainly used to re-convert the stored energy into electrical energy for the purpose of its supply to the National Grid system.

Stage 2

Ofgem consider the request asking for additional information if it requires any then if appropriate issues the “part C “ notice to National Grid ESO with a copy to the requesting party. The notice would state the applicable date.

Stage 3

National Grid ESO would ensure notified BMUs were treated as Exemptible Storage BMU’s from the applicable date and not subject to demand BSUoS.

CUSC Workgroup Consultation Response Proforma

CMP281 Removal of BSUoS Charges from Energy Taken from the National Grid System by Storage Facilities'

Industry parties are invited to respond to this consultation expressing their views and supplying the rationale for those views, particularly in respect of any specific questions detailed below.

Please send your responses by **12 November 2018** to cusc.team@nationalgrid.com Please note that any responses received after the deadline or sent to a different email address may not receive due consideration by the Workgroup.

Any queries on the content of the consultation should be addressed to Joseph Henry at joseph.henry@nationalgrid.com

These responses will be considered by the Workgroup at their next meeting at which members will also consider any Workgroup Consultation Alternative Requests. Where appropriate, the Workgroup will record your response and its consideration of it within the final Workgroup Report which is submitted to the CUSC Modifications Panel.

Respondent:	*Bill Reed bill.reed@rwe.com*
Company Name:	*RWE Supply & Trading GmbH*
Please express your views regarding the Workgroup Consultation, including rationale. **(Please include any issues, suggestions or queries)**	For reference, the Applicable CUSC objectives are: **Use of System Charging Methodology** (a) That compliance with the use of system charging methodology facilitates effective competition in the generation and supply of electricity and (so far as is consistent therewith) facilitates competition in the sale, distribution and purchase of electricity; (b) That compliance with the use of system charging methodology results in charges which reflect, as far as is reasonably practicable, the costs (excluding any payments between transmission licensees which are made under and accordance with the STC) incurred by transmission licensees in their transmission businesses and which are compatible with standard licence condition C26 requirements of a connect and manage connection); (c) That, so far as is consistent with sub-paragraphs (a) and (b), the use of system charging methodology, as far as is reasonably practicable, properly takes account of the developments in transmission licensees' transmission businesses*; (d) Compliance with the Electricity Regulation and any relevant legally binding decision of the European Commission and/or the Agency. These are defined within the National Grid Electricity

	Transmission plc Licence under Standard Condition C10, paragraph 1; and (e) Promoting efficiency in the implementation and administration of the CUSC arrangements.

Standard Workgroup consultation questions

Q	Question	Response
1	**Do you believe that CMP281 Original proposal, or any potential alternatives for change that you wish to suggest, better facilitates the Applicable CUSC Objectives?**	CMP281 will better facilitate CUSC Objective (a). It will remove BSUoS charges from off takes related to electricity generators at facilities (BMUs and Trading Units) where that person is carrying on activities authorised by a Generation Licence. The proposed solution is a non-discriminatory approach towards implementation with respect to all Generation Licensees. The solution facilitates the BEIS/Ofgem Smart Systems and Flexibility Plan by enabling storage to benefit from the proposed arrangements once the relevant Generation Licence changes are implemented.
2	**Do you support the proposed implementation approach?**	We support the proposed implementation approach for the CMP281 solution. We note that the proposal as originally defined would have required new administrative proposals with respect to the definition of storage in the CUSC which would have been cumbersome to implement and difficult to enforce.
3	**Do you have any other comments?**	We have no other comments.
4	**Do you wish to raise a WG Consultation Alternative Request for the Workgroup to consider?**	*If yes, please complete a WG Consultation Alternative Request form, available on National Grid's website[1], and return to the CUSC inbox at cusc.team@nationalgrid.com*

Specific questions for CMP281

[1] http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/forms_guidance/

5	**Can you confirm how CMP281 will impact CUSC Parties (for example, operations, billing, contractual, tariff stability, processes and information flows)?**	The CMP281 solution will have no impact on our billing or contracts and we do not believe that there would be any material implications for tariff stability.
6	**Do you believe CMP281 original proposal would level the playing field in the way that Ofgem and Government have intended in recent publications?**	The proposed CMP281 solution ensures that all generation including existing pumped storage generation would be relieved from the obligation to pay off taking BSUoS. This is compatible with the approach taken by BEIS/Ofgem in the designation of storage under the Generation Licence as envisaged in the Smart Systems and Flexibility Plan.