

CUSC Alternative and Workgroup Vote

CMP393: Using Imports and Exports to Calculate Annual Load Factor for Electricity Storage

Please note: To participate in any votes, Workgroup members need to have attended at least 50% of meetings.

Stage 1 - Alternative Vote

If Workgroup Alternative Requests have been made, vote on whether they should become Workgroup Alternative CUSC Modifications (WACMs).

Stage 2 - Workgroup Vote

2a) Assess the original and WACMs (if there are any) against the CUSC objectives compared to the baseline (the current CUSC).

2b) Vote on which of the options is best.

Terms used in this document

Term	Meaning
Baseline	The current CUSC (if voting for the Baseline, you believe no modification should be made)
Original	The solution which was firstly proposed by the Proposer of the modification
WACM	Workgroup Alternative CUSC Modification (an Alternative Solution which has been developed by the Workgroup)

The Applicable CUSC Objectives (Charging) are:

- 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;
- 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);
- 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 *; and
- e) Promoting efficiency in the implementation and administration of the system charging methodology.

*The Electricity Regulation referred to in objective (d) is Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity (recast) as it has effect immediately before IP completion day as read with the modifications set out in the SI 2020/1006.

Workgroup Vote

Stage 1 – Alternative Vote

Vote on Workgroup Alternative Requests to become Workgroup Alternative CUSC Modifications.

The Alternative vote is carried out to identify the level of Workgroup support there is for any potential alternative options that have been brought forward by either any member of the Workgroup OR an Industry Participant as part of the Workgroup Consultation.

Should the majority of the Workgroup OR the Chair believe that the potential alternative solution may better facilitate the CUSC objectives than the Original proposal then the potential alternative will be fully developed by the Workgroup with legal text to form a Workgroup Alternative CUSC modification (WACM) and submitted to the Panel and Authority alongside the Original solution for the Panel Recommendation vote and the Authority decision.

“Y” = Yes

“N” = No

“-“ = Neutral (Stage 2 only)

“Abstain”

The two Alternatives raised for CMP393 were deemed by the Workgroup to be out of scope of the modification and as such, no Alternative Vote was held. The Alternatives were subsequently withdrawn. This information can be found in Annex 10 of the Workgroup Report.

Stage 2a – Assessment against objectives

To assess the original and WACMs against the CUSC objectives compared to the baseline (the current CUSC).

You will also be asked to provide a statement to be added to the Workgroup Report alongside your vote to assist the reader in understanding the rationale for your vote.

ACO = Applicable CUSC Objective

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Damian Clough – SSE Generation					
Original	Y	Y	Y	-	-	Y

Voting Statement:

Currently TNUoS charges for Storage do not reflect the impacts both positive and negative that Storage has on the Total System in terms of utilisation of the existing network, the reinforcement required, and the storage of low carbon and displacement of carbon at a later date. This is a step in the right direction and is an improvement on the baseline, which only considers a worse case scenario, snapshot of exports.

- 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;

Generation should be charged based on the impact they have on the System. If charges do not reflect the impacts on the system or benefits then this will harm 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);

As with objective a) TNUoS charges do not reflect the actual reinforcement carried out on the System or the benefits Storage can bring. Transmission Companies, the SQSS, NOA Models etc are slowly catching up and recognising the current processes are not fit for purpose, but it will be the case that TNUoS will be the leader in this regard. This solution although not perfect, appears on reflection to be far more cost reflective than the current baseline and therefore aligns with the general direction of travel. This needs to be considered in any decision. It's a pragmatic approach. Of course more cost reflective solutions may be proposed in the future when the SQSS etc finally catches up.

- 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;

Transmission Businesses appear to have already assumed that the status quo is incorrect by adjusting the MW's in the CPA's. There are also a number of other initiatives looking at properly forecasting the impact storage will have on the System

and the reinforcements necessary or in many cases the reinforcements avoided. This modification therefore better aligns with the direction of travel

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Graz Macdonald – Waters Wye					
Original	Y	Y	Y	-	-	Y

Voting Statement:

CMP393 is an improvement over the baseline against CUSC objectives a, b and c, and an overall improvement.

Against CUSC objective a, the mod will improve the charging methodology such that the dynamics of storage – that they can both import and export power – are better and more fairly applied, thereby being more cost reflective and improving competition by improving incentives for actions that will overall benefit the system and the consumer.

The mod better reflects Objective b as it will ensure that the charging better reflects the import and export characteristics of storage, as the analysis commissioned by the workgroup has demonstrated.

For Objective c, batteries were not in use on the network when the current approach was developed (though pumped storage was of course). Changing system needs due to increased renewables and resulting network requirements, and issues with constraints, has meant that there is need for the unique characteristics of storage to be better reflected in the charging methodology to ensure that the technology requirements of today's network are fairly and appropriately incentive.

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Hugh Boyle – EDF Energy					
Original	Y	Y	Y	-	-	Y

Voting Statement:

The TNUoS methodology does not currently reflect how storage assets both import and export power. This proposal to change the methodology would provide storage operators with a more accurate economic signal that would remove a barrier to entry so promoting more effective competition.

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Joe Colebrook – Innova Renewables					
Original	Y	Y	Y	-	-	Y
Voting Statement:						
I agree with the rationale identified by the Proposer against the objectives.						

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	John Prime – EnergyGridPower Ltd					
Original	Y	Y	Y	-	-	Y
Voting Statement:						
We agree with the Proposer that the current arrangements do not adequately reflect the characteristics of storage and the benefits that it brings to the system, and believe that the proposal represents a better fit with the applicable CUSC objectives.						

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Mark Field – Sembcorp					
Original	Y	Y	Y	-	-	Y
Voting Statement:						
Whilst there remain pros and cons for CMP393, the proposed modification, on balance, better facilitates ACOs a), b) and c) as it will facilitate effective competition for storage that operates differently from other forms of dispatchable generation and the TNUoS charging methodology should reflect this, as it is not wholly cost-reflective for storage, at present. Furthermore, implementation is likely to reduce the ESO balancing costs over time and has the potential to reduce the Transmission costs associated with managing constraints.						

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Paul Youngman – Drax					
Original	Y	Y	Y	-	-	Y
Voting Statement: We broadly agree with the proposers premise that the current charging arrangements for storage are not suitably cost reflective. We agree that these arrangements may benefit from reform. From the analysis presented we (marginally) concur that the proposal may better reflect the ACO (a) in relation to competition although there are many other aspects that will drive a storage developers business case. We do agree that CMP393 may have a positive impact on Charging Objectives (b) and (c), based on the analysis provided by Cornwall Insight, which shows that the change may better reflect the burden and cost that storage presents to the transmission system, both in terms of initial connections and ongoing operations.						

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Ryan Ward – Scottish Power Renewables UK Ltd.					
Original	Y	Y	Y	-	-	Y
Voting Statement: The CMP393 proposal would update the current charging methodology to better account for how storage assets import as well as export power. An update that will ensure the charging methodology provides a more cost reflective charge, representing storage assets interaction with the network more accurately.						

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Rob Newton – Zenobe					
Original	Y	Y	Y	-	-	Y
Voting Statement: We find that the proposed modification will improve on the baseline and make the charging methodology better fit for purpose in the context of the increased need for and deployment of electricity storage on the system.						

It will support ACO (a) by ensuring that the charging methodology better reflects how storage assets interact with the transmission system. This will remove a barrier to entry, better incentivising storage operators to compete to connect and provide system services. This will facilitate competition in the generation of electricity.

It will support ACO (b) by ensuring that the transmission charging methodology reflects how battery storage and pumped storage assets import power from the transmission system, as well as exporting it. As a result, charges will better reflect the impacts of electricity storage on the transmission system. The methodology was last substantially updated in 2014, and was not designed with battery storage specifically in mind. Since 2014, the amount of electricity storage, and in particular battery storage, connecting to the system has increased substantially. As a result of this, the charging methodology does not fully reflect the way electricity storage now interacts with the system. The modification will help to rectify this and improve cost reflectivity.

It will support ACO (c) by ensuring that the transmission charging methodology responds to the accelerating deployment of storage in the NETS. The methodology was last substantially updated in 2014, and was not designed with battery storage specifically in mind. Since 2014, the amount of electricity storage, and in particular battery storage, connecting to the system has increased substantially. This is an important development in transmission licensee business, and the modification will help to ensure that energy storage is better represented in the transmission charging methodology.

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Simon Lord – Engie					
Original	N	N	N	-	-	N

Voting Statement:

The modification effectively (by using net load factor, 0% for all storage) proposes removing the year round locational element from storage. The consequence is that in areas closet to demand (typical the South of the UK) storage TNUoS charges increase where as in areas furthest away from demand centre storage costs reduce significantly.

Annex 12 shows clear example of the cost increase that will be faced by storage closest to demand centres. There is no justification for cost increases being imposed on this class of users as their location is likely to reduces network size and hence investment. This is clearly at odds with the fundamental design of the TNUoS model.

that seeks to impose lowest costs on generation that is sited closest to demand as this will reduce the size of the network.

The TNUoS charges are based on peak load flow condition which is the primary design criteria for networks, both the year round and the peak scenarios use the same demand criteria. Analysis was presented to the group (Annex 11) shows that there was low correlations between storage use during period of constraint which is to be expected as the principle driver of generation (storage or conventional) is market price.

Storage has a role to manage constraints but the “reward” for this actively is via the BM and other traded markets where the ESO manages storage generation and demand and final demand in real time to relieve constraints with “constrained off” payments being made where appropriate.

TNUoS is primarily designed to be cost reflective imposing costs that help to minimise network investment. The analysis has shown (Appendix 11) that storage can and does export at time of high levels of system congestion (and by implication demand) as such removing the Year round element from storage is demonstrably not cost reflective. It is highly likely that new storage installation will be treated as generation from a network design perspective as it has the same price seeking characteristics.

The proposal seeks to reward storage for demand activity where generation charges are highest this brings in a the prospect of undue discrimination between classes of demand as demand credits are floored in most Northern zones but storage would be able to access these negative charges.

Workgroup Member	Better facilitates ACO (a)	Better facilitates ACO (b)	Better facilitates ACO (c)	Better facilitates ACO (d)	Better facilitates ACO (e)	Overall (Y/N)
	Steve Dale – ESO					
Original	N	N	N	-	-	N

Voting Statement:

ACO(a) The proposal aims to promote competition, claiming the baseline discriminates against storage. Given that storage can participate in the market in both charging and discharging, and TNUoS is based on TEC on one of these flows, this would seem to be to storage operators advantage. Studies ESO have on behaviour indicates storage dispatches in line with market pricing as we would expect. If the TNUoS charges are based on load in one direction and we take the discharge /generation flow as the flow most likely undertaken at times of high demand, the current baseline would seem to be treating all generators consistently.

ACO(b) TNUoS is intended to reflect the load on the network, and in principle is to be technology agnostic. The proposal uses a net figure on a bi-directional connection,

ESO

therefore, because storage operation is close to symmetrical save for losses, ALF will generally be negative and floored at zero under the proposal. This gives the impression that there has been no energy flow from a charging perspective and the generator has not put any load on the system, which we know is not the case.

Therefore, arguing the principle that operations creating flows in both directions offsets the need for investment seems ignore the need for someone to invest in transmission capacity to enable the storage to operate at all, and in doing so assumes other generators will pick up that cost, which could be seen as discriminatory, and we are back to ACO(a).

ACO(c) The analysis from the ESO Revenue team highlights that the proposal results in storage in Scotland receiving a benefit and storage facilities in southern regions losing benefit. The proposal would seem to incentivise the location of storage in the north and disincentivise storage in the south which are closer to the centres of demand, easing demand on the network at peak times, whilst also reducing the TNUoS contribution for storage. The proposer advocates the modification is justified as the current baseline creates a barrier to entry. The large volume of sites with storage seeking connections would seem to disprove that the baseline is a barrier to entry and advocating that large numbers of new connections would not be liable for TNUoS contributions would not seem to be in line with ACO(c).

ACO(d) & (e) we see the proposal as broadly Neutral.

Of the 11 votes, how many voters said this option was better than the Baseline.

Option	Number of voters that voted this option as better than the Baseline
Original	9

Stage 2b – Workgroup Vote

Which option is the best? (Baseline, Proposer solution (Original Proposal))

Workgroup Member	Company	Industry Sector	BEST Option?	Which objective(s) does the change better facilitate? (if baseline not applicable)
Damian Clough	SSE Generation	Generator/Storage	Original	A, B, C
Graz Macdonald	Waters Wye	Representing Generators/Storage	Original	A, B, C

ESO

Hugh Boyle	EDF Energy	Generator/Supplier	Original	A, B, C
Joe Colebrook	Innova Renewables	Generator/Storage	Original	A, B, C
John Prime	EnergyGridPower Ltd	Storage	Original	A, B, C
Mark Field	Sembcorp	Generator/Storage	Original	A, B, C
Paul Youngman	Drax	Generator/Supplier	Original	A, B, C
Ryan Ward	Scottish Power Renewables UK Ltd.	Generator/Storage	Original	A, B, C
Rob Newton	Zenobe	Storage	Original	A, B, C
Simon Lord	Engie	Storage	Baseline	N/A
Steve Dale	ESO	System Operator	Baseline	N/A