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Ofgem open letter on charging arrangements for embedded generation published 29th July 2016

Dear Frances,

Thank you for the opportunity to respond to your open letter considering charging arrangements for embedded generation.

We agree with many of the sentiments raised in your letter, and have provided some additional information and data in support of your observations. To this end, we are committed to working with industry to progress a rapid, short term change to the embedded benefit arrangements through the CMP264/5 process.

However, we do not believe that the CUSC modification process will be able to deliver an enduring solution to the issue of embedded benefits. This is due to a number of factors – not least the fact that the issue of embedded benefits cuts across a number of charging regimes, and that individual features of commercial arrangements related to embedded benefit are intrinsically linked and interdependent. As a result the CUSC modification approach (a discrete defect identified in one charging regime) will not be able to deliver an enduring solution in this area.

At the same time, broad and rapid market change is fundamentally changing the way that parties use and value the transmission network - with the network now providing access to the market and security as much as delivery of electricity from transmission connected generation. In this context, we believe that **a holistic review of transmission commercial arrangements**, with clear governance, goals and timescales that is unambiguously signalled to the market is the best way to address current challenges (including an enduring solution to the issue of TNUoS embedded benefits) – and to ensure a level playing field across all technologies. We develop these views in further detail below.

Embedded benefits and broad market change

As noted in the open letter, we agree that there are a range of embedded benefits available to distributed generation arising from a number of features of the charging regimes and other industry arrangements, and we explore this further later in this response and also in Annex 2. We also note and agree that the embedded benefit related to the TNUoS demand residual is currently the most significant of these benefits, however observe that other embedded benefits are not insignificant. We will first provide thoughts on the TNUoS demand embedded benefit, the main subject of your letter, before providing considerations on the other embedded benefits.

The issue of TNUoS embedded benefits has been of significant industry interest for some time, with a number of attempts made to review the area, most recently an informal review by National Grid in [2013](#). At

that time, our conclusions were to take forwards some discrete work streams, for example seeking to better reflect the impact of exporting GSPs on transmission investment - but not to consider a wider reform of, for example, how to charge the TNUoS HH demand residual.

Since this previous review of TNUoS embedded benefits concluded there has been considerable change and evolution in the electricity industry which is fundamentally changing the way in which the industry operates. For example, a changing generation mix, decentralisation of generation, the emergence of new technologies such as battery storage, the growth of opportunities for prosumers and tighter system margins are all significantly impacting the landscape for commercial arrangements in transmission charging. The need to take forward CMP224 (regarding Regulation (EU) No. 838/2010 which mandates a €0 - €2.50/ MWh average limit for transmission generation use of system charges) and the launch of the capacity market mechanism in 2014 (requiring industry parties to make longer term commitments) are also of specific impact to the embedded benefit, and the impact embedded benefits have on the market.

The need for a rapid solution to address market distortion from the TNUoS embedded benefit

At our charging seminars (held in London and Glasgow in July 2016) we presented high level analysis to illustrate how the embedded benefit could potentially grow if industry charging arrangements remain completely unchanged. Other parties have also done work in this area. This analysis (see annex 1) shows that there has been a marked increase in the TNUoS demand residual (and hence the related embedded benefit) in recent years. This has in part been due to factors unrelated to the avoided cost of transmission reinforcement - for example the increase in offshore transmission, and the effect of the Regulation (EU) No. 838/2010 regulation noted above. This regulation has the effect of limiting TNUoS revenue that can be collected from generation - and hence increasing the revenue that needs to be collected from demand parties, thereby increasing the demand residual and the ensuing embedded benefit available to embedded generation, by virtue of the netting arrangement with their suppliers.

It is clear that this situation is not sustainable – our analysis based on the 2016 FES scenarios shows the demand TNUoS embedded benefit reaching between £76 to £105¹ / kW in 2030/31, paying out a total of £1bn to 1.9bn per annum to embedded generation (as compared to an estimated £341m in 2016/17). We share Ofgem's concerns that this is likely to be driving costs up to consumers, and hence we agree that there is a need to do something quickly to avoid the associated potential negative effects of this distortion getting worse (as listed on page 5 of the open letter).

We note that one of the recent CUSC proposals mentioned in the open letter, CMP264, was raised by the Proposer, Scottish Power, as an interim solution, but pending the need for a broader charging review. We agree with this sentiment, recognising the need for a rapid intervention in this area to address immediate market distortion. We are therefore actively working with both the CMP264 and CMP265 workgroups to develop proposals that will reduce market distortion in a shorter time frame. However we believe that the CUSC process is unable to provide an enduring solution to the issue of embedded benefits, as this area needs to be considered more broadly, including the impact of embedded benefits on other commercial drivers. The remainder of this letter will discuss this view in further detail.

Wider ramifications of embedded benefits

Ofgem's open letter notes that there are a range of other areas related to network charging that may require further work and modification in future – noting other elements of embedded benefits and allocation of sunk / fixed costs, including for storage and 'behind the meter' generation.

We agree that these are important issues and therefore welcome Ofgem's indication that it will look to progress further work in these areas. However we would note that the issue of embedded benefits is much wider than the CUSC, and cuts across a number of charging arrangements including TNUoS, BSUoS, transmission and distribution losses, DUoS, the Capacity Market levies and the CfD supplier obligations (see annex 2). We recognise that within these arrangements, it is not only the charging regimes but also the rights and obligations associated with paying charges that can influence commercial decisions, and we therefore suggest that any work needs to consider these associated arrangements in parallel.

Moreover, individual features of the commercial arrangements related to embedded benefit are intrinsically linked, interrelated and interdependent. In annex 3 we include a brief description of the interaction of a

¹ 16/17 prices

number of additional features with the area of embedded benefits. Additionally, the area of embedded benefits sits within a much wider set of interrelated issues in the area of commercial arrangements. We have detailed these in an interdependencies map in annex 4.

In order to address the issue of embedded benefits and to determine an appropriate, future-proofed, longer term solution therefore requires a review that is broad in scope and ambition. We do not feel that such a review can be achieved by looking solely at a number of discrete issues or features of the current commercial arrangements via the CUSC process.

Difficulty in using the CUSC modification process to address the area of embedded benefits

In light of the various interactions and dependencies detailed in annexes 3 and 4, we note that the structure of the CUSC modification process does not lend itself to a more fundamental change to commercial arrangements, such as a change to embedded benefits – as debate is *designed* to be limited to a discrete defect in the CUSC. The CUSC process is designed for incremental change to existing methodology. The approach of a distinct defect looking to change a single industry code cannot carefully consider the wider ramifications of a change to an area as large as the embedded benefit, nor build a sustainable long term solution that considers the whole electricity system.

To take the example of the CMP 264 and 265 proposals, these cut across 2 industry codes (the CUSC and the BSC) with the CUSC workgroups running to an accelerated timescale. Because the 2 CUSC proposals were raised at similar times, industry has been able to consider the issues on both modifications together, but had this not been the case the timescales for consideration of each aspect of these issues would have been disjointed, despite significant overlap in e.g. required analysis. Moreover the impact and data issues for the BSC have had to be considered separately and to a different timescale.

Given the breadth and impact of likely broader changes to commercial arrangements, it is reasonable to suggest that changes will needed to be made, in parallel, to the CUSC, BSC, DCUSA and Data Transfer Catalogue each using their own governance processes. Running these changes as separate incremental modifications would present challenges for governance, timescales, and industry involvement, at a time when our stakeholders tell us they are very busy with industry change.

We have had feedback from industry parties that resourcing numerous modifications (see below and annex 5) is becoming ever more challenging, and we are concerned that smaller parties in particular may not be able to effectively resource the numerous Workgroups that are currently in play. There is therefore a risk that they are not being adequately represented in modifications that could fundamentally affect their business models. We note that any proposals to change the embedded benefit could by their very nature affect a large number of smaller parties. It is important that any industry process is accessible to all parties with an interest in the outcome. We also note that a high number of discrete modifications is challenging for both National Grid and industry to resource effectively, and a potentially inefficient way of addressing interrelated issues.

The need for a broader, holistic charging review

We have been undertaking stakeholder engagement since March of this year to ask industry parties about their views on current commercial arrangements for network charging. A significant number of stakeholders have raised what they believe to be fundamental issues with the current charging regime, and many have suggested that a broader review of network charging is needed, taking a holistic approach to ensure there are no unintended consequences of changes addressing specific defects.

As we noted at the start of this letter, the last 2 years in particular have seen fundamental changes in the energy landscape – including a changing generation mix, a more decentralised network with a growth in opportunities for prosumers and fluctuating demand patterns. There are huge opportunities to manage the system in new ways, including facilitating flexibility by involving new and non-traditional industry parties and with smart technologies encouraging new behaviours from energy consumers. Additionally there have been fundamental policy changes, including the launch of the capacity market in 2014. In such a world we need to ensure all the commercial and market frameworks remain appropriate, facilitating these new market entrants whilst continuing to provide effective signals to all parties to ensure effective competition and the delivery of efficiencies to the end consumer.

In reflection of these many changes in the energy landscape, we have observed a record number of CUSC modifications being raised in the area of transmission charging in the last 18 months (see annex 5). A large number of these are complex modifications where industry work has been ongoing for many months, and an

increasing proportion of these proposals are being submitted as urgent or accelerated work streams – with capacity market timescales often noted as driving requests for urgency. The high number of live modifications in the area of transmission charging increases regulatory uncertainty for industry players, and means that longer term forecasts of charging are less likely to be accurate. Some customers have suggested that regulatory uncertainty has become an increasingly difficult issue for investors.

In July 2016, we ran 2 charging seminars with over 160 industry attendees. As well as inviting other industry parties to present their research, we presented 6 ‘drivers for change’ in electricity network charging arrangements, based on initial thinking, data analysis, and the wide stakeholder feedback we had gathered earlier in the year.

We also asked stakeholders for their thoughts on a number of potential work areas in transmission charging related to each of these drivers. Whilst there were a variety of views, a number of work areas were identified where stakeholders indicated that the complexity and interaction across areas meant that there was clear added value in addressing these areas holistically. We also gathered thoughts from stakeholders about a potential vision, approach and principles for a holistic charging review. Further information and a full write up of the seminars can be found on our [website](#).

In summary, we welcome Ofgem’s recognition that there is a need to consider the area of embedded benefits and agree that this is an area that needs addressing quickly. We are working with industry through the CMP264/265 process to try and progress a short term ‘fix’ in this area, but mindful of the need for a broader review. We also welcome the confirmation that there are wider issues related to the embedded benefit, outside the so-called Triad benefit, that Ofgem would like to consider and address. However, we believe that the number of complex and interlinked issues impacting embedded benefits, beyond those listed in the open letter, warrant the need to consider the issue more holistically. Moreover, any long term solution must consider these interrelated issues in order to take a whole system view of changes to charging arrangements, to ensure efficient investment and operation signals are sent to all industry participants. This is not something the CUSC process is designed to do.

The growing number of CUSC modifications and our own data analysis and stakeholder engagement indicates that the current CUSC process is not delivering the kind of change that is currently needed in response to major market developments, and is not able to take a whole system view of individual CUSC changes. For all of the above reasons we believe that **a holistic charging review, with clear governance, goals and timescales that is unambiguously signalled to the market is the best way to address the current challenges in commercial arrangements (including an enduring solution to the issue of TNUoS embedded benefits) and to build sustainable solutions.**

A review needs to have input from all of industry, and we see an appetite from a large number of stakeholders to be involved in such a review. National Grid would be well placed to play a pivotal role in such a review, complementary to Ofgem’s role as decision maker and direction setter. We are keen to work with both Ofgem and stakeholders in the development of appropriate provisions to level the playing field in commercial arrangements and to ensure an efficient outcome for the end consumer.

Yours faithfully

Nikki Jamieson

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Head of Charging and Access Arrangements, Market Change Electricity

Annex 1: Need for an immediate solution for the embedded benefit associated with the TNUoS demand residual

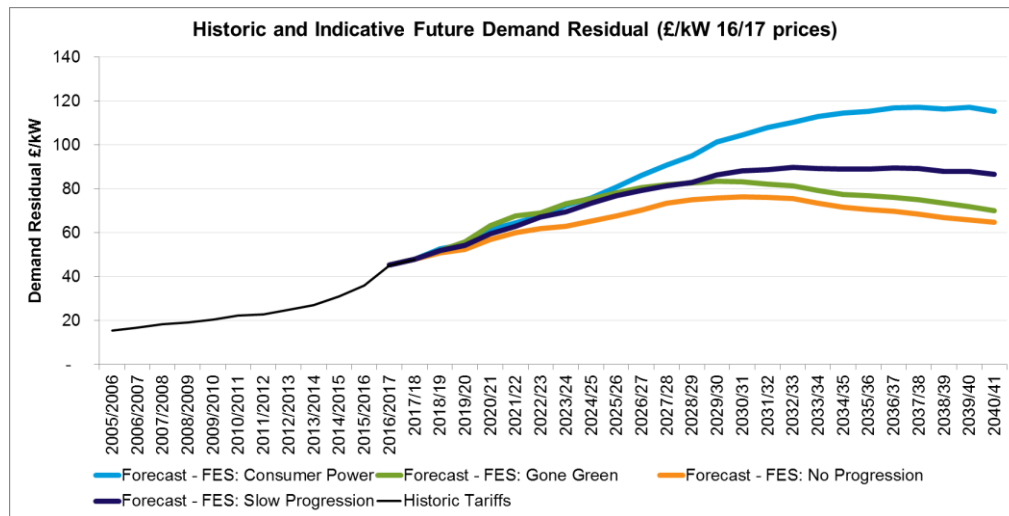


Figure 1: Historic and Indicative potential value of TNUoS demand residual to 2040

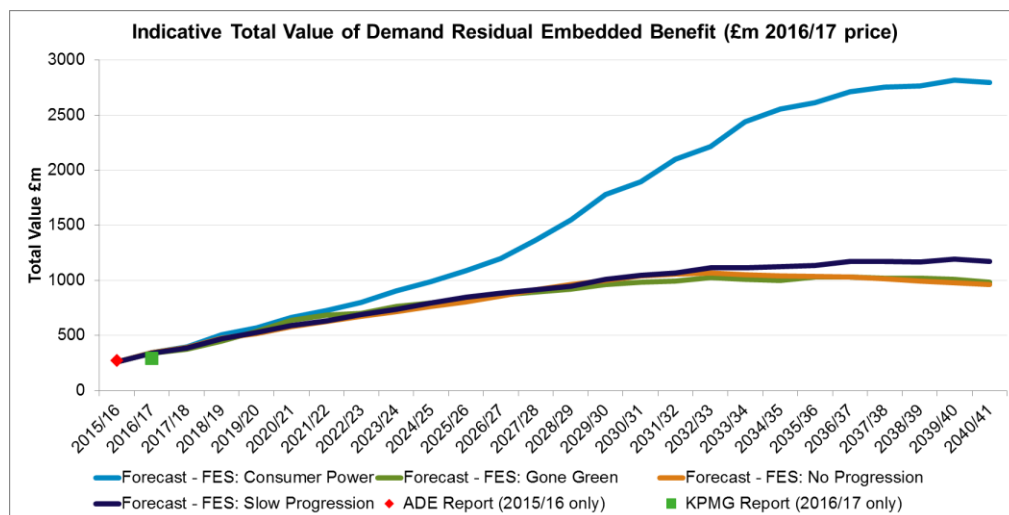


Figure 2: Indicative potential value of TNUoS HH demand residual embedded benefit to 2040

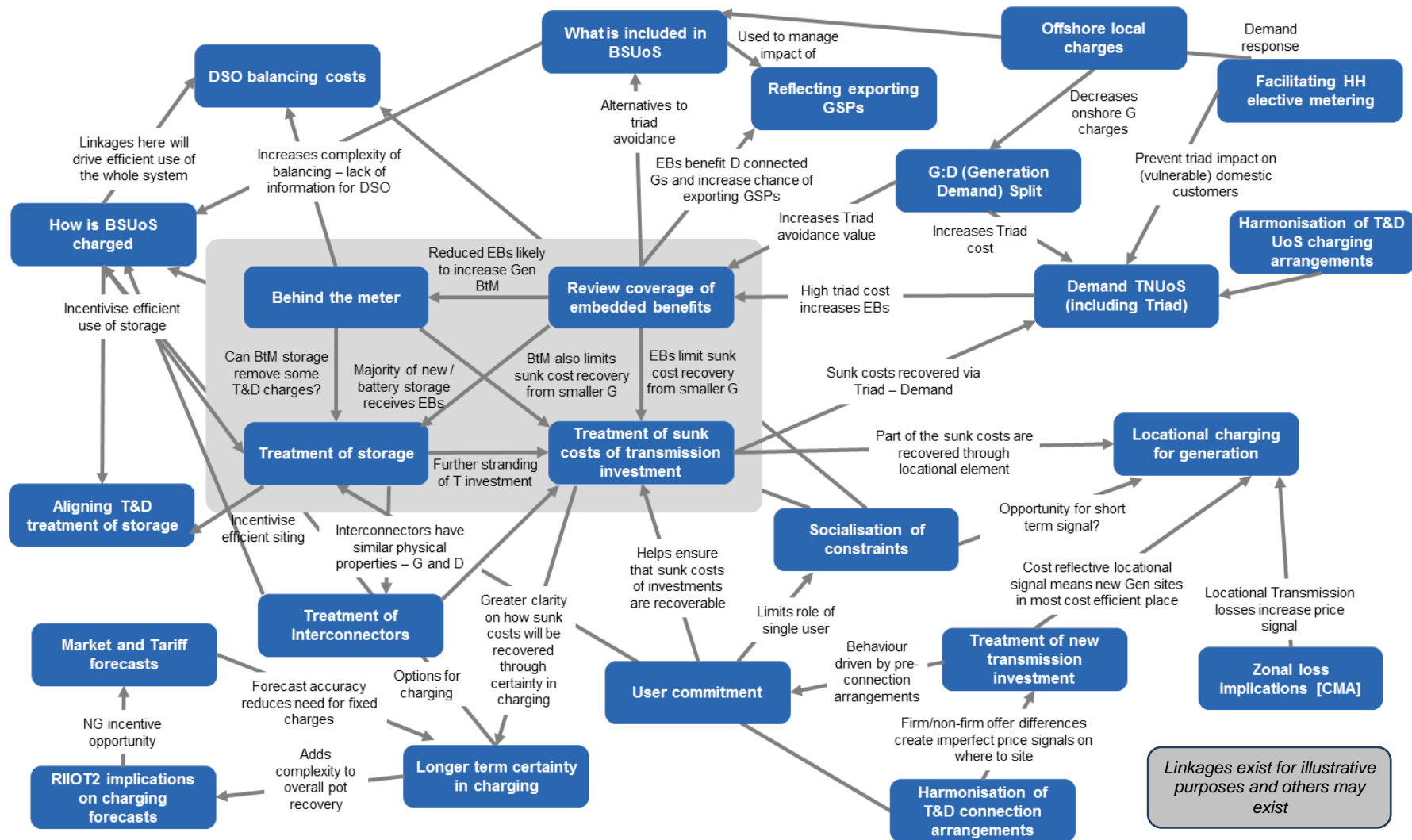
Annex 2: Areas which give rise to embedded benefits

Balancing Services Use of System charges
Transmission network use of system charges – locational and residual elements
Distribution losses
Transmission losses
Distribution Use of System charges
Areas of assistance
Capacity Market supplier charge
Contracts for Difference supplier obligation
Spill energy revenue that occurs for Non BM provision as opposed to BM provision – for example in ancillary services such as STOR

Annex 3: Wider features of commercial arrangements linked to embedded benefits

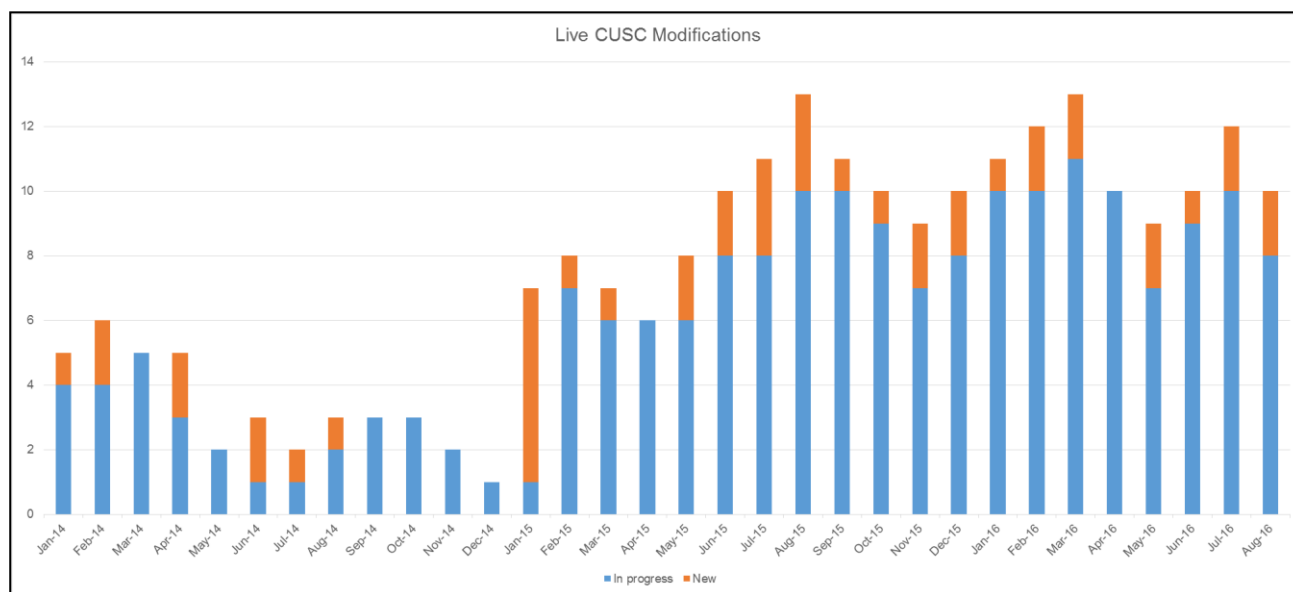
Issue	Linkage to embedded benefits
Demand TNUoS (including Triad)	High triad cost increases EBs
EC 838/2010 - the 'G:D split'	Increases Triad avoidance value of EB as more revenue is recovered from demand
Treatment of sunk costs of transmission investment	EBs limit sunk cost recovery from smaller generation
Behind the meter generation	Reduced EBs are likely to increase generation behind the meter (which in turn limits sunk cost recovery from smaller generation also)
Reflecting exporting GSPs	EBs benefit distribution connected generation and hence increase the likelihood of exporting GSPs.
What is included in BSUoS / How BSUoS is charged	Moving monies between recovery mechanisms changes embedded benefits.
Treatment of storage	Majority of new / battery storage schemes receive EB
Imbalance arrangements for non-BM parties	EG of Ancillary Services (in particular STOR) can benefit from a utilisation price from NGET plus receiving a payment from their supplier for the spill energy when dispatched - potentially distorting the market.
Transmission and distribution interface	Influence overall revenue streams and siting decisions of embedded generation
C13 Small generators' discount	Treatment of 132kV in England and Wales vs. Scotland
Interaction of Triad and STOR	EG parties anticipating a Triad may declare unavailable for STOR - but if a Triad does not arise are not able to be re-dispatched. This could increase STOR prices.
Capacity market	Impact on previous (EG commitments) and future auctions

Annex 4: Interdependencies map – commercial arrangements



Annex 5: Increasing number of CUSC charging modifications, including urgent and accelerated work streams

In the last 18 months we have observed a record number of CUSC modifications being raised in the area of transmission charging. A large number of these are complex modifications where industry work has been ongoing for many months, and an increasing proportion of these proposals are also being submitted as urgent or accelerated work streams:



Based on bilateral feedback from our customers, the indication of possible areas to be addressed in the Ofgem open letter and the discussion of scope items where there is significant industry interest at our recent charging seminars, we estimate that by 2017/18 we could see 14+ CUSC modifications running each month.