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OFGEM
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Canary Wharf

1 February 2019

Dear Andrew,

Letter in opposition to BSUoS proposals as part of Targeted Charging Review Minded To Decision

Contents

1.0 Background

1.1 Ofgem issued its minded-to decision (the **Minded To Decision**) and draft impact assessment for its Targeted Charging Review (the **TCR**) on 28 November 2018.

It is consulting on proposals for setting transmission and distribution residual charges and on the remaining principal embedded benefits that the review has considered.

Your work and decision making has been guided by three principles[1]. These being

1) reducing harmful distortions;

2) fairness; and

3) proportionality and practicality.

1.2 Responses to the consultation are due by the 4 February 2019 and a final decision is expected by mid 2019.

1.3 You have provided 13 Consultation Questions and we have cross referenced this letter to these where appropriate.

1.4 Toucan Energy is one of the UK's largest owners of embedded solar generators and would be negatively impacted by the proposals relating to residual embedded benefits. Our finance includes local authorities.

Toucan Energy is a small team of 6 and we were not part of the CMP 264/265 review and the general discussions on the TCR and were very much surprised by the way this reform has been pushed forward without any transparency, often from the footnotes and periphery of a different process.

This is our consultation response; it is not confidential.

1.5 We raise four main points where it is clear to us the principles have not been followed (**Our Four Disagreements**). For ease of reference and by way of summary, these are:

i)	Flaws in the Analysis	(paragraphs 4.3 – 4.14);
ii)	The Firm Grid Distortion	(paragraphs 4.15 – 4.21);
iii)	The Load Factor Distortion	(paragraphs 4.22 – 4.32); and finally
iv)	The Recipient Risk	(paragraphs 4.33 – 4.38)

2.0 The Proposed Reforms

2.1 We understand as part of the TCR you have proposed:

i) to remove the balancing services use of system (**BSUoS**) embedded benefit that arises from charging suppliers on a net demand basis, and

ii) also to apply a BSUoS charge to embedded generators (the **Proposed Reforms**).

2.2 Your analysis and impact study estimate that embedded generators could be adversely impacted by up to £150m in relation to each change, i.e. a potential £300m annual change from status quo.

The beneficiary would be the consumer, potentially saving £6bn[2] over twenty years. The quantum of the changes is not disputed by us.

2.3 You want the Proposed Reforms to be implemented in April 2020 or April 2021, and therefore time is of the essence.

[1] Annex 1 –https://www.ofgem.gov.uk/system/files/docs/2018/11/annex_1_-_tcr_principles.pdf
[2] Section B, table 7 of Annex 7 £5.99bn overall monetised benefits

3.0 Your rationale for the Proposed Reforms

3.1 We understand you consider that the two Proposed Reforms can reduce the BSUoS that consumers have to pay by about £300m annually. This represents about 20% of the total cost for the balancing system (2018-19 is around £1.2bn).

3.2 You reason that residual benefits should not influence behaviour and they are doing so. The first part of your rationale we agree with. We differ on our views on whether BSUoS is influencing behaviour for the majority of embedded generation.

3.3 Your rationale is therefore to remove the BSUoS embedded benefit and levy a charge to cover the residual cost.

4.0 Our Four Disagreements with the Proposed Reforms

4.1 Whilst your goal of saving the consumer money is shared and acknowledged, your Proposed Reforms are completely at odds with the evidence on costs and behaviour and further your own TCR Principles.

4.2 Each of our four disagreements has been structured as follows:

i) The consultation question(s);

ii) Evidence supporting our position; and

iii) Conclusion

Flaws in the analysis

Our first disagreement is that the analysis performed by Frontier is neither sufficient or appropriate (the **Flaws in the Analysis**).

The consultation questions

4.3 This point is relevant to the following consultation questions:

4.3.1 Question 11: Do we agree with your proposed approach to reform of the remaining non-locational Embedded Benefits?

Our response is **No**

4.3.2 Are there any reasons we have not included that mean the remaining Embedded Benefits should be maintained?

Our response is **Yes**

Evidence supporting our position

4.4 We refer to the following documents and events:

i) Distributional and Wider System Impacts of Reform to Residual Charges November 2018 Report (the **Main TCR Report**)[3]

ii) Wider system impacts of TGR and BSUoS reforms (the **Supplementary Report**)

iii) The letter from OFGEM to all interested stakeholders of 29 July 2016 (the **2016 Open Letter**)[4]

iv) The letter from OFGEM to all interested stakeholders of 2 December 2016 (the **2016 Update Letter**)[5]

v) The Aqua Book: Guidance on Producing Quality Analysis for Government of March 2015 (the **Aqua Book**)[6]

vi) We refer to the suspension of the UK Capacity Market by the European Court of Justice on 15 November 2018 (the **CM Suspension**)

vii) We refer to the OFGEM led Balancing Services Task Force, which at the date of this letter has had one meeting in Warwick on 29 January 2018 (the **Balancing Services Task Force**), which describes its objective as *to provide analysis to support decisions on the future direction of balancing services.*[7]

viii) The 2014 DECC Quality Assurance Report of the Dynamic Dispatch Model (the **2014 QA Review**)[8]

ix) Targeted Charging Review: a consultation (the **TCR 2017 Consultation**)[9]

4.5 **Your work is not finished**

The Balancing Task Force Remit

4.5.1 Following your Minded To Decision, you have asked whether we agree with your approach to reform the BSUoS treatment received by embedded generators.

[3] ofgem.gov.uk/system/files/docs/2018/11/distributional_and_wider_system_impacts_of_reform_to_residual_charges.pdf
[4] ofgem.gov.uk/system/files/docs/2016/07/open_letter_charging_arrangments_for_embedded_generation.pdf
[5] ofgem.gov.uk/system/files/docs/2016/12/update_letter_charging_arrangements_for_embedded_generation.pdf
[6] assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/416478/aqua_book_final_web.pdf
[7] ofgem.gov.uk/system/files/docs/2018/11/decision_to_launch_a_balancing_services_charges_taskforce.pdf
[8] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/358356/DDM_QA_Summary.pdf
[9] https://www.ofgem.gov.uk/system/files/docs/2017/03/tcr-consultation-final-13-march-2017.pdf

4.5.2 Yet your own work on the matter is not complete, despite the Minded To Decision. We find this confusing and reduces the transparency and confidence in the process. Our position is evidenced simply by looking at the terms of reference and objectives of your own task force on the matter.

4.5.3 Your Balancing Services Task Force is expected to ***assess*** (**emphasis added**) three main issues, including *whether or not existing elements of the balancing services have the* ***potential*** *to be made cost reflective* and *the* ***feasibility*** of such measures[10]:

4.5.4 So on the one hand, you have conducted a principles based review which incorporates **practicality** which concluded you are Minded To introduce a £6bn policy change relating to balancing services; whilst on other hand you are just starting to **assess potential** and **feasibility**.

Qualitative assessment factors – the assumption investors did not value BSUoS

4.5.5 You say *Embedded Benefits are increasing and unlikely to have been factored into business models*[11]. This is simply untrue and indicative of the lack of the qualitative review that Frontier identify as critical. It is telling there is no supporting evidence to your assertion in this regard.

4.5.6 The first part of your assertion, that BSUoS is increasing, is given a more sensational billing in paragraph 1.80, where it states BSUoS has *increased dramatically*. This *dramatic* increase is the £0.83/MWh rise from 2011/12 as you disclose in the footnote. This amounts to an annual 6.4% rise. Whilst this is an increase, it certainly does not offset the loss of the Levy Exemption Certificate and it is not fully agreed whether it is dramatic at all.

4.5.7 We present our own analysis on the BSUoS cost in Appendix VI and the Load Factor Distortion. It shows in our view the cost of balancing the system at night and on extreme days are increasing.

4.5.8 The 2nd part of your assertion that the current BSUoS values are not part of the business model simply does not pass muster.

4.5.9 We have sent separately on a confidential basis extracts from an independent power market forecaster whose forecasts are released each quarter and underwrite billions of pounds of investment into generation assets.

4.5.10 For the purpose of this letter to be read on a standalone basis we have evidenced the following statements are included with their reference case:

i) April 2016 Reference Case states it includes a *flat BSUoS rate of £1.81/MWh;*

ii) Oct 2016 Reference Case states it includes a *flat BSUoS rate of £2.42/ MWh; and*

iii) Nov 2017 Reference Case states it includes a *flat BSUoS rate of £2.31/MWh*

All of these values are real and often investment cases assume they grow with in line with an inflation index.

4.5.11 The significant proportion of solar was constructed in the periods given above. The values are squarely in line with the £2.33/MWh you disclose in your own footnote.

[10] 28 November 2018 Balancing Service Task Force Launch

[11] Annex 5 paragraph 1.81

Considering your position has no substantive evidence we rely on the above as evidence that investors did indeed include BSUoS embedded benefits in their investment models and further your qualitative work is far from complete.

4.6 **Caveat and Carve Outs in the analysis**

4.6.1 Frontier state their work "*should **not** be used for determining whether particular modifications to a charging regime are appropriate."*

4.6.2 In the Main TCR Report, Frontier confirm they "*do not take into account the effect that future changes to the market structure may have on the behaviour of market participants*" (the **Future Build Carve Out**).

4.6.3 Finally, Frontier reiterate *a qualitative assessment against clear criteria is of critical importance.*[12]

4.6.4 As we evidence later in this letter with the both the Firm Grid Distortion and Load Factor Distortion, the qualitative assessment has not been completed to the standard required to satisfy the three TCR principles.

4.6.5 We conclude on a matter that results in a £6bn policy adjustment stakeholders should not be expected to rely on the analysis with such clear caveats and carve outs which have not been addressed elsewhere.

4.7 **Illogical Inputs**

4.7.1 The analysis does "*not take into account the effect that future changes to the market structure may have on the behaviour of market participants*".

4.7.2 This effectively means that the supply of solar PV capacity as determined in the National Grid scenarios are accepted as fixed quantities in the impact assessment, despite the extremely significant impact that the Embedded Benefit reforms in question would have on this supply of generation capacity built going forward.

4.7.3 In simple terms BSUoS revenues would make up 5%-10% of a non-subsidy supported PV Plant at the investment decision stage.

4.7.4 It is not logical nor credible to assume the Proposed Reforms do not impact capacity delivered. We explain this point further below.

4.7.5 You will be well aware the viability hurdle for new infrastructure projects is exactly in the 5% - 10% range, which is in the same range as the Proposed Reforms.

It is therefore simple to evidence that the Proposed Reforms will delay and reduce the deployment on subsidy free solar.

Frontier even acknowledge this by stating *a small change in charges can be enough to tip the economics of an investment decision for a large new build project from going ahead to not going ahead.*

4.7.6 Our position is that those conducting the analysis and reviewing it are well aware of the impacts the Proposed Reforms will have on future PV deployment but the use of caveats and disclaimers is being used in an attempt to deflect future consequences.

4.7.7 It is simply not appropriate for participants to agree with conclusions drawn from analysis with such assumptions.

4.8 **Dispatch Intent in Relation to Capacity Market Distortions**

There are clear contradictions between the intent set out in the 2016 Open Letter, the 2016 Update Letter (which makes no mention of BSUoS and the TCR). These include but are not limited to the example given below.

[12] Page 5 of the Supplementary Report

4.8.1 In the 2016 Open Letter you state in the opening paragraph your "*concerns that the charging arrangements for embedded generators may over reward embedded generation and lead to inefficient outcomes in the Capacity Market*

[13]*We have concerns that the BSUoS benefit is likely to distort operational decisions (ie dispatch), by bringing some generators into merit at times when they should be out of merit.*"

This focus on dispatch decisions then flows through to the Frontier Analysis.

4.8.2 For example the Supplementary Report states the *main objective is to keep the other embedded benefits that may be distorting dispatch conditions under review* and later *BSUoS has the potential to .. drive inefficient dispatch decisions.*

4.8.3 Dispatch decisions arises again when the analysis states *changes to the BSUoS will have an impact on the generation mix in the short term by directly affecting plant dispatch decisions and operation.*

4.9 It is clear to us the intent of the review relates to embedded generation with similar operation and generation decisions to the larger assets directly connect to the transmission network, such as reciprocating gas engines.

This assumption is also consistent with the three principles of the TCR as it is logical to correct distortions between the same technologies on different parts of the network.

There is no solar on the transmission network which means there can be no distortion to solve.

Solar is not eligible to enter the Capacity Market. (Emphasis added).

4.10 Indeed if there was any doubt as to your intent, you confirmed the intent to place cost signals and dispatch at the heart of the logic for your reforms at the Future of Network Charging event held at TLT, 20 Gresham Street, EC2V 7JE 3:30pm, 22nd January 2019.

These concerns are not new to OFGEM. We note it is similar in nature to feedback put forward back in 2016 such as the Falck response to the July 2016 Open Letter.

Notwithstanding the previous feedback which has been ignored, the reality is there is 30GW of installed capacity on the embedded network[14]. Approximately 25GW is embedded solar and wind generation which does not dispatch on this merit order, nor can it bid into the capacity market.

It is our view the natural reading of the 2016 Open Letter and Supplementary Report that embedded wind and solar were not intended to be in the scope of this review or analysis.

4.11 Embedded solar will continue to dispatch and not change behaviour. It is therefore not logical, fair nor justifiable for the analysis to impose costs and Proposed Reforms that will do nothing to change the merit order and dispatch conditions.

The intent that sits behind the Proposed Reforms relates to the Capacity Market, which embedded solar cannot enter, and following the CM Suspension there is no prejudice being suffered by anyone. The Proposed Reforms would create additional distortions, not less.

4.12 It is therefore clear that neither the TCR principles nor the evidence are the reason for levying the Proposed Reforms onto Solar. The startling thing is you already know this. Your own analysis[15] designed to reform behaviours and pricing signals admits *we do not consider that a significant*

[13] Para 3.4
[14] Source: BEIS and Dukes shown in Annex 5
[15] Section 5.2.1 Residual Charging Assumption

behavioural response from solar is likely. However, following the change to charges the payments to onsite solar under CDCM are removed creating a consumer benefit.

It is here the scope creep is laid bare. Fully departed from the worthy principles of fixing distortions and inefficiencies in the merit order you are just blinkered on reducing consumer bills somehow and have decided that assets that are built and will not change their behaviour is the low hanging fruit.

With 80% of the hardship faced as a result of the Proposed Reforms falling onto market participants clearly not intended to be part of the review, the assertion that the TCR decision is somehow compliant with your own principles is not sustainable.

Using publicly available data (as we show in Appendix V), it is relatively simple to calculate that over £60m of your £300m annual consumer savings are achieved using this arbitrary cash grab on solar.

4.13 **QA Environment**

The Aqua Book and Macpherson Review

4.13.1 In the foreword to the Aqua Book it is stated by its owner "*from forecasting our future energy needs to the **complex commercial decisions** that underpin our infrastructure ambitions. High quality analysis is therefore fundamental". (**Emphasis added**)*

4.13.2 Later in the introduction the Aqua Book outlines *"The InterCity West Coast franchise competition of 2012 illustrated both the importance of analysis and modelling in delivering a major government project and the consequences when things go wrong".*

4.13.3 As the TCR involves changes to existing energy infrastructure, how it is dispatched and to what extent it is built in the future the TCR and Proposed Reforms are firmly in the scope of the Aqua Book.

4.13.4 Our points raised above and lack of express confirmation in the Frontier Analysis concern us the full measures, protocols and protections in the Aqua Book may not have been applied.

4.13.5 On 11 January 2019 we wrote to OFGEM seeking clarification on this matter.

No response has been received as of the date of this letter but we note and took comfort from your agreement with the complexity as *complexity* was your opening introduction when you spoke at the Future of Network Charging event held at TLT, 20 Gresham Street, EC2V 7JE 3:30pm 22nd January 2019.

On 19 January 2019 we directly questioned Sam Street on behalf of Frontier and it would appear he had no knowledge of the Aqua Book.

4.13.6 We have invested significant time and effort to attempt to unpick the provenance of the model behind the £6bn Proposed Reforms and it would appear to be the **2012 LCP Envision Power Market (Dynamic Dispatch Model)**[16] with the following updates:

23 January 2013;

24 January 2014; and

25 September 2014

The Quality Assurance on this model is published[17]. It includes comments in para 11 that confirm the MacPherson Review was ongoing and the model had ***not undergone either internal or external audit***.

[16] https://www.gov.uk/government/publications/dynamic-dispatch-model-ddm

[17] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/267616/Annex_G_-_Modelling_Quality_Assurance.pdf

4.13.7 The 2014 DECC Quality Assurance Report is the most recent review we could find. It gave the Dynamic Dispatch Model a QA score of **82%** and included recommendations that *key recommendation to enhance data and assumptions traceability is still outstanding*. There were also issues noted around *version control*.

We believe the points above evidence our position why you have not met the standards required in relation to a complex commercial decision.

4.14 **Conclusion**

To issue a decision that you are Minded To change the balancing services charging regime to the tune of £6bn with these open points leaves us no choice but to respond negatively.

Firm Grid Distortion

Our 2nd disagreement is the ignorance of the flexibility we provide as a result of our grid agreements. This is free to consumers, a revenue for transmission assets at the expense of embedded generation via non firm grid arrangements (the **Firm Grid Distortion**)

The consultation questions

4.15 This point is relevant to the following consultation questions:

4.15.1 Question 2: do we agree with how we have assessed the impacts of changes against the principles?

Our response is **No**;

4.15.2 Question 4: do we agree that it is fair for all users in the same segment to pay the same charge?

Our response is **No**

Evidence supporting our position

4.16 You state[18] "*The reduced balancing services payments this affords suppliers are often passed to the relevant small embedded generators through contractual arrangements, placing them at an advantage to larger generators. The second distortion arising from balancing services charges which we think should be reformed, arises from small embedded generators who do not pay distribution balancing services payments, compared to larger generators who do pay transmission balancing services payments.*"

4.17 You conclude that "*these differences between larger and smaller generators effectively allows smaller generators to offer services to the market at lower cost than larger generators, because of the 'embedded benefits' that they receive.*

The analysis suggests that there are consumer and system savings from removal of these benefits."

4.18 It is our view that your purported advantage that embedded generation enjoys is flawed and is in contradiction of the TCR principles as it only considers part of the connection arrangements and costs for embedded generators.

An embedded generator as part of its Connection Agreement with the Distributed Network Operator (the **DNO**) agrees to comply with the Distribution Connection and Use of System Agreement (the **DCUSA**).

The Connection Agreement would typically include non firm grid access. This allows the DNO to curtail the embedded generator when generation from larger assets is too high with no compensation paid to small embedded generators.

This single circuit connection was the default in the new connection process and made in good faith. It is also generally not proportionate on the size of the embedded generator to pursue a different connection.

4.19 Our losses under this arrangement are significant. Further, this arrangement creates a harmful distortion that allows larger generators to export. Generators such as Cowes Power Station owned by RWE on the Isle of Wight and Ely Power Station near Cambridge receive favourable treatment as a result of their larger status and are able to export with the consumer paying more as a result of this distortion.

We have provided evidence separately to OFGEM to substantiate costs borne by embedded generation in favour of other transmission participants on a redacted and confidential basis.

[18] Para 1.10, 1.11 and 1.12 of Annex 1 TCR Principles

Embedded generation is often solar or wind with a near zero short run marginal cost, and it makes way for larger generation that is more expensive. The cost of this across the embedded generation fleet would be significant, yet we understand the need for distribution networks to manage their assets in this way. For the TCR to satisfy its principles the analysis should be broadened to include this.

Conclusion

4.20 In conclusion it is our view that it is neither fair[19], holistic nor justifiable[20] to charge smaller and larger generators equally for BSUoS without equalising other distortions. There is certainly no logic in expecting embedded solar generators to go back and physically fund and implement an alternative connection arrangement years after construction.

4.21 By remedying one perceived distortion you are simply creating another. As a result you are not creating the level playing field you seek[21].

You have been told this by various participants from the 2016 Open Letter including network operator WPD when they confirmed assets **"***at transmission level, a generator usually has rights to an unconstructed connection and is paid compensation if it is constrained due to network constraints"*.

National Grid also specifically included the Firm Grid Distortion and other complex commercial arrangements that differ between transmission and distribution in Annex 4 in their July 2016.

[19] Para 1.30 of Annex 1 Components of Fairness makes no reference to the full terms of small generator gird access
[20] Para 1.35 of Annex 1 defines Justifiable as having strong logic.
[21] Page 14, Section B of Annex 7 Draft Impact Assessment

Load Factor Distortion

Our third disagreement is the ignorance of the inherent difference between how an embedded PV Plant interacts with the network compared to a large asset (the **Load Factor Distortion**).

The consultation questions

4.22 This point is relevant to the following consultation questions:

4.22.1 Question 2: do we agree with how we have assessed the impacts of changes against the principles?

Our response is **No**;

4.22.2 Question 4: do we agree that it is fair for all users in the same segment to pay the same charge?

Our response is **No**

Evidence supporting our position

Load factors are clearly different

4.23 A small solar asset will interact with the network governed by the sun. In the UK that results in utilising approximately 11% of our annual connection capacity. Our assets do not supply the network during the lucrative winter afternoons and evenings. This was obviously understood at the outset but factored into the connection choices made at that time.

The Proposed Reforms would see us pay a charge based on capacity which would be the same as assets that can access the market at those times. We would be subsidising their use of the network and this is creating a distortion that goes against the principles of the TCR.

It is as clear a night and day

4.24 We found it striking that throughout the many hundreds of pages of work that repeatedly bemoan the increasing consumer costs and behaviour distortions there was no clear summary of what these purported *distortive* and *dramatically increasing* costs were.

4.25 Surely if one is looking to protect a consumer from rising costs it would be a sensible place to start to understand where this cost is coming from. The rationale for this starting point is even more logical when one understands that National Grid in its role as System Operator records and reports the entire BSUoS cost on a half hourly basis and this is publicly available data[22].

4.26 Again, if one is Minded To implement a £6bn Proposed Reform which includes charging participants a fixed amount then the data should be expected to support that.

4.27 At our own time and cost we have taken the effort of collating and analysing the half hourly BSUoS data. We were planning to include this graphic in the appendix, but it is so forceful we thought it can only sit in the main body.

4.28 One area our analysis shows agreement with you is the need to review and reform this cost. As the network has changed the extreme balancing days are costing more. We note that the daily data which includes 2017 shows the vast majority of the expensive days are in 2018.

We note from reviewing the daily system operator reports that wind volatility plays a part in the vast majority of these extreme days.

[22] https://www.nationalgrideso.com/balancing-data/system-balancing-reports

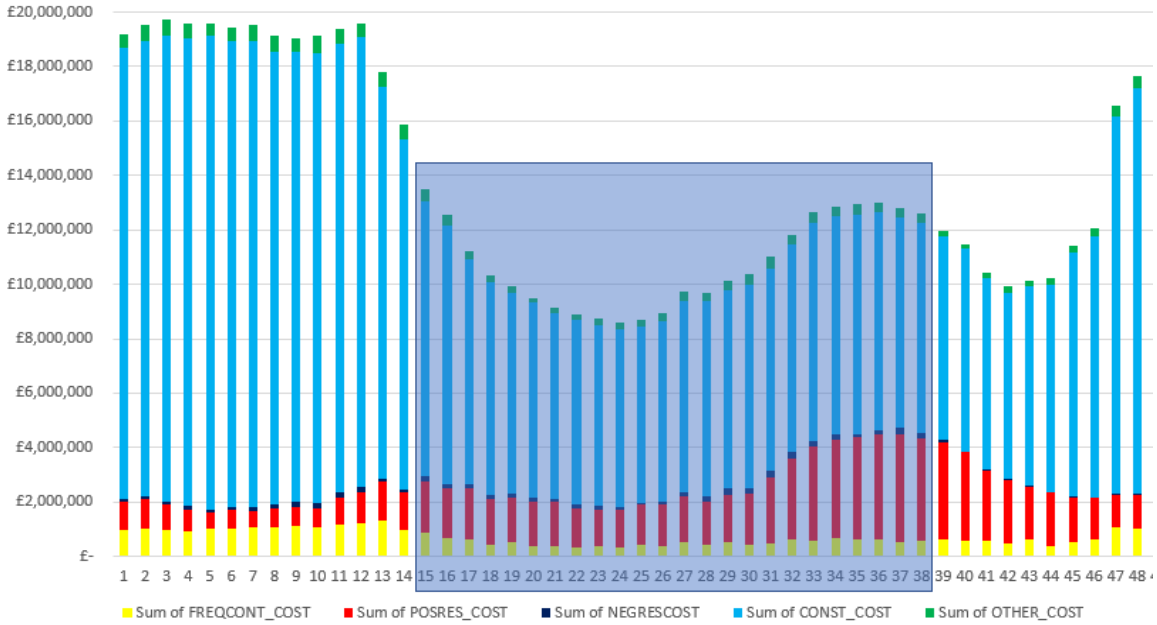
4.29 System costs by period and by type

Below we show the 2018 Balancing Mechanism[23] activities in terms of cost. It is shown by the half hourly period.

It is clear that system costs are much higher at night, compared to day. Further the light blue bars represent the cost of curtailment actions.

It is clear from the data additional costs are incurred for night time curtailment costs and further that embedded solar is reducing the balancing costs and should retain the embedded benefit it receives in this regard.

As a solar asset owner, it is simply not acceptable to have to explain this to the Authority and the System Operator after a £6bn Minded To Decision has been reached.



Your own System Operator produces daily reports that clearly direct where you should focus your efforts on reducing system costs for the consumer benefit.

Indeed the trend shown above is only part of the picture. It only shows the cost in simple £ terms (the numerator). That System Operator reports (shown in Appendix VI deem £/MWh as key KPI, and so do we). Once the analysis accounts for the fact the network has less demand at night (the denominator), and still costs more to balance the difference is more pronounced.

Using 7am – 7pm split[24] for the total BSUoS costs we find the following:

BSUoS £/MWh	Night	Day
2010	£1.14	£1.31
2018	£3.26	£2.35

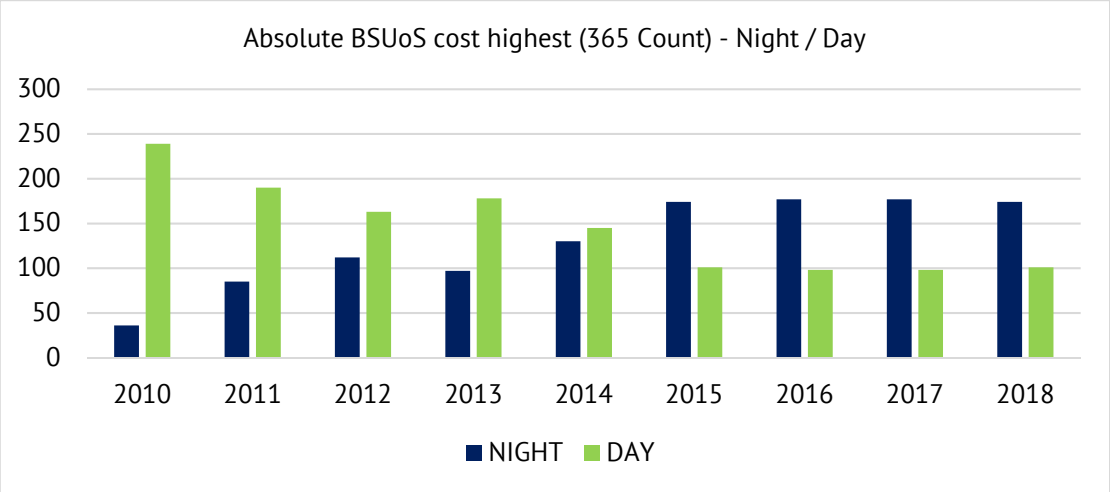
Over a significant sample time period it is substantively proven that BSUoS cost at night is around 40% more expensive than the day.

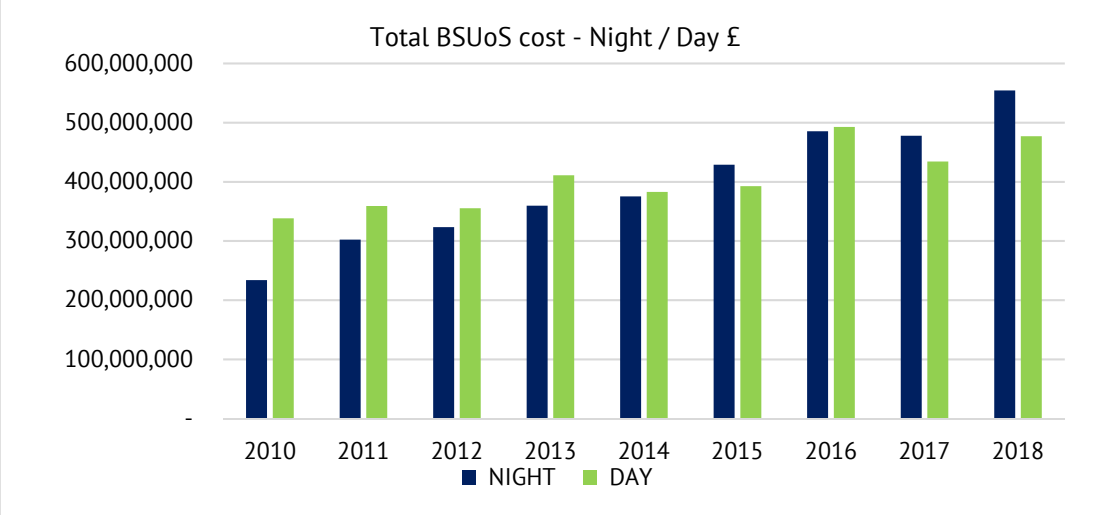
[23] 1 April to 31 Dec 2018

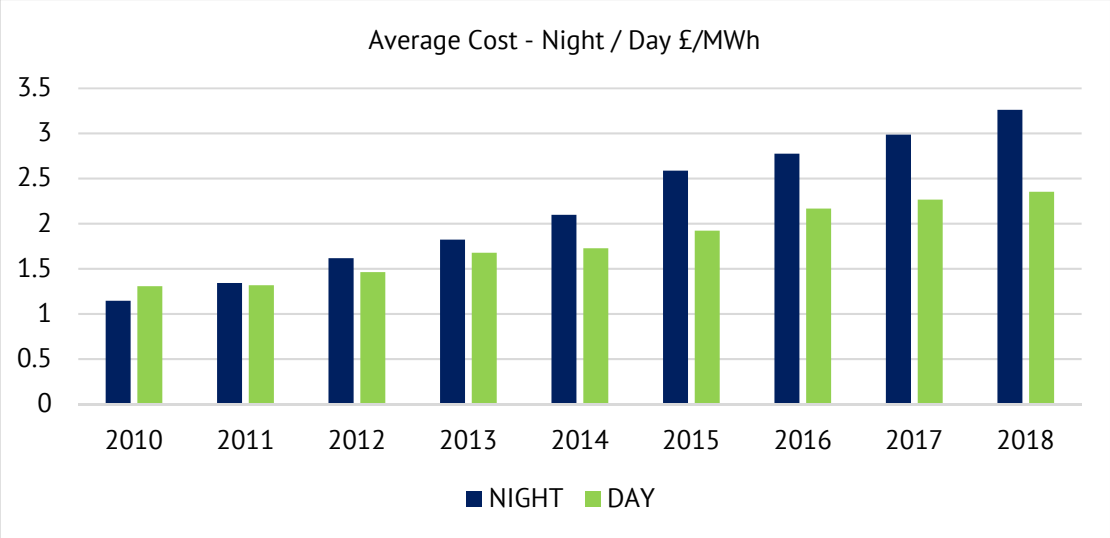
[24] Settlement period 1-14 and 39-48 as night. 15-38 for day. This is acknowledged to be a simple split but we have found it does not change the outcome and the periods are consistent with other parts of the energy market.

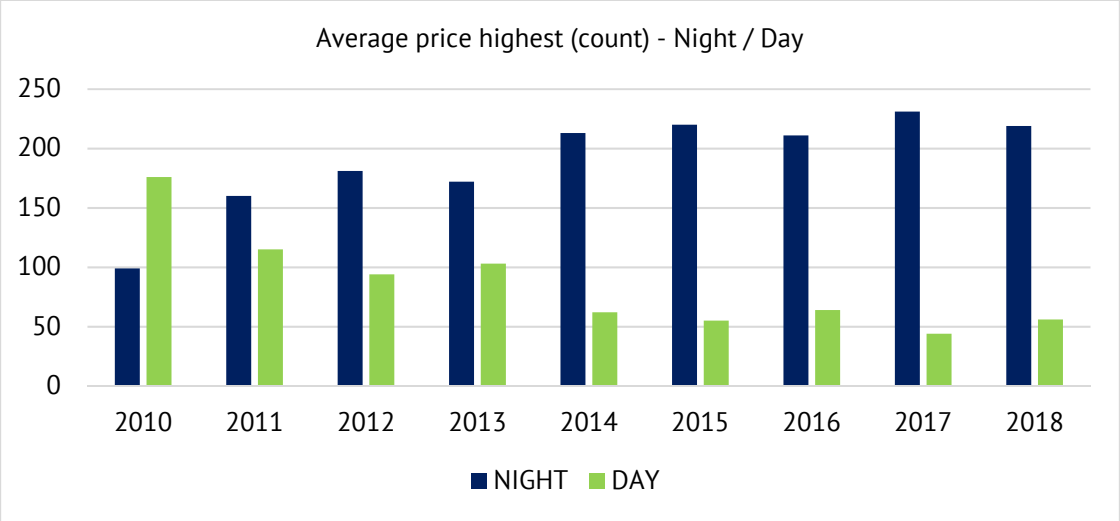
4.30 This disparity between day and night has not always been the case. When you discuss the dramatic increase of BSuOS in Annex 5 you quote 2011/12 as your baseline of £1.50 per MWh. You do not explain why this is your baseline but we have presented a similar time series.

We show in Appendix VII (Connect & Manage) why we suspect 2011 is your baseline.









4.31 Comments on findings

Overnight BSUoS

i) It is clear that from a relatively even split of balancing cost a decade ago, there has been a stark change resulting in materially higher costs to keep the system balanced at night. Overnight BSUoS costs **have more than doubled**;

ii) From a starting point of £1.14 per MWh for night time BSUoS in 2010 there has been a compound increase in the region of **14%** in relation to overnight BSUoS.;

ii) The costs in relation to the extreme days are vastly concentrated to overnight BSUoS;

iv) We note that that overnight BSUoS cost has risen from £250m to £550m over the period. This rise of £300m is the same amount you are looking to save consumers by your unjustified raid on the value of small scale embedded distribution.

v) We also draw your attention to a pattern we have noticed in relation to the balancing cost. This relates to where costs are incurred to accept a BM bid, but then also a curtailment was ordered and resulting in a cost on both sides.

We have not had the opportunity to fully particularise this and reserve our rights in this regard but show this in Appendix VI.

Daytime BSUoS

vi) In absolute terms the daytime BSUoS cost is **lower** in 2018 than 2016 and rises on a per MWh basis are broadly inflationary;

Conclusion

4.32 The conclusions from this analysis are clear and logical using publicly available data. It is sobering the Minded To Decision occurred without due consideration of this.

We simply conclude that the right treatment of BSUoS residual cost can only be assessed when the full costs imposed by different network users is known and analysed between cost reflective and residual. That is part of the NAR, and that would be fair, proportionate and practical to wait.

Recipient Risk

Our final disagreement is whether the Proposed Reforms will result in lower costs for the consumer (the **Recipient Risk**)

The consultation question

4.33 This point is relevant to the following consultation questions:

4.33.1 Question 6: do we know of any reasons why the expected consumer benefits from the proposed changes might not materialise?

Our response is **Yes**

Evidence supporting our position

Your own position is unsubstantiated with evidence lacks conviction

4.34 You expect that the Proposed Reforms will reduce bills for the majority of domestic consumers but crucially acknowledge[25] *how such charges are passed to consumers will be for suppliers to determine*.

This doubt appears to be further underscored by those conducting the analysis. In the key assumptions and risks it is stated *one source of uncertainty is that the modelling assumes that benefits are passed on to consumers from both generation and suppliers.*

Suppliers have shown they are not reliable custodians for customer cash

4.35 As you know there been multiple recent failures of suppliers[26], which have triggered a mutualisation of liabilities incurred by failed suppliers to procure renewable obligation certificates with funds levied from domestic customers (the **Market Failure**).

4.36 The Market Failure has already left generators (often embedded generation) out of pocket until the mutualisation is completed and we consider it as relevant evidence for OFGEM to consider in relation to the Proposed Reforms.

4.37 Stephen Littlechild the former CEO of OFGEM summed up views on the suppliers handling of cash and pricing when he said *how were some suppliers allowed to build up debts of £58m? Should there not be more monitoring?* The total cost of the Market Failures is expected to be in the hundreds of millions.

4.38 As recent analysis has shown[27], embedded generation which is often renewable has contributed to the significant reduction in wholesale energy prices (£4.10 per MWh since 2010).

This conclusion is not controversial and widely accepted. There is evidence however that suppliers did not pass saving to the consumer and this would be relevant in the context of these Proposed Reforms and the Market Failure.

Conclusion

4.39 We conclude little to no evidence has been presented to us to assert that the suppliers will pass this saving on to domestic consumers. The Proposed Reforms are a retrospective transfer of value from owners of small assets to someone else, but not necessarily consumers.

[25] Page 3 of Annex 7 Draft Impact Assessment
[26] Shown in Appendix I to this letter
[27] Aurora Energy Research

5.0 Next steps

5.1 Our evidenced position shows we disagree on almost everything:

i) We show the majority of embedded generation does not behave differently as a result of the BSUoS embedded benefit and that your changes would not change dispatch behaviour;

ii) We show the balancing costs that are increasing are clearly nothing to do with small embedded solar generation.

Assets that are able to participate in markets we cannot, accessing the grid in a way we cannot and receiving compensation arrangements we cannot are significantly increasing costs in an understandable and correlated manner;

iii) We show the suppliers that you rely on to pass the savings from the Proposed Reforms savings on, may not be reliable;

iv) We show the model and analysis is not complete or sufficiently scoped and audited to rely up such a dramatic change;

v) We show that investors did indeed count on BSUoS revenues in their investment decisions; and finally

vi) We show that the principles of the TCR and your statutory duty have been abandoned at many important junctions in blinkered pursuit of a wealth transfer.

5.2 We only agree on two areas:

i) That the balancing system needs to be reviewed in light of the significant additional costs from balancing wind; and

ii) that the Proposed Reforms have the *potential* to lower consumer bills.

5.3 The next step should be clear, for you to accept the fatal flaws in the process and conclusions to date and start afresh, combining network costs into network access and conducting a review in a manner that stands up to scrutiny.

However, despite the clear evidence we have little optimism. The Market Failures and unfolding scandal in the supply industry, the speed which you are looking to conclude your review and implement the Proposed Reforms is clear.

5.4 Looking ahead, we believe the Proposed Reforms will also lead to a lower deployment of non subsidy renewables. This is unnecessary and could contribute to the UK's failure to meet its legally binding targets. We will write to the appropriate people in this regard.

5.5 You sum up your views on small distributed generation well when you confirm your policy objectives and effects:

OFGEM *"Removing the incentive to generate on site means less incentive to use smaller scale generation, which is often less efficient than generation through the network*[28].

We note your position appears in contrast to that of Rt Hon Claire Perry, Minister of State when as recently as 8 January 2019 the message was clear:

Energy Minister *"From power stations to solar panels the future is local.*
This revolution has also taken root at a smaller scale up and down the country as more homes, schools and businesses choose to generate their own electricity from solar panels, small wind turbines and hydro power.

Small scale generation and battery storage can play a crucial role in cutting carbon emissions as part of this smarter energy system by reducing local demand and providing clean power into the grid when it is needed.

Rather than a new cable costing tens of millions of pounds, using solar, batteries and smarter management of the local network can deliver resilience much more cost effectively."[29]

5.6 We agree with the Rt Hon Claire Perry.

5.7 This letter is sent without prejudice to our rights. All of which are reserved.

Yours sincerely,

Daniel Kirk, Director

[28] Page 3 Annex 7 Draft Impact Assessment,
[29] https://www.energylivenews.com/2019/01/08/claire-perry-from-power-stations-to-solar-panels-the-future-is-local/

Appendix I

Supplier failures 2018 – to date. Over 1 million customers impacted

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Future Energy

Flow Energy

GEN4U

Iresa

Affect Energy

Electraphase

USIO

Snowdrop Energy

Extra Energy

Spark Energy

One Select

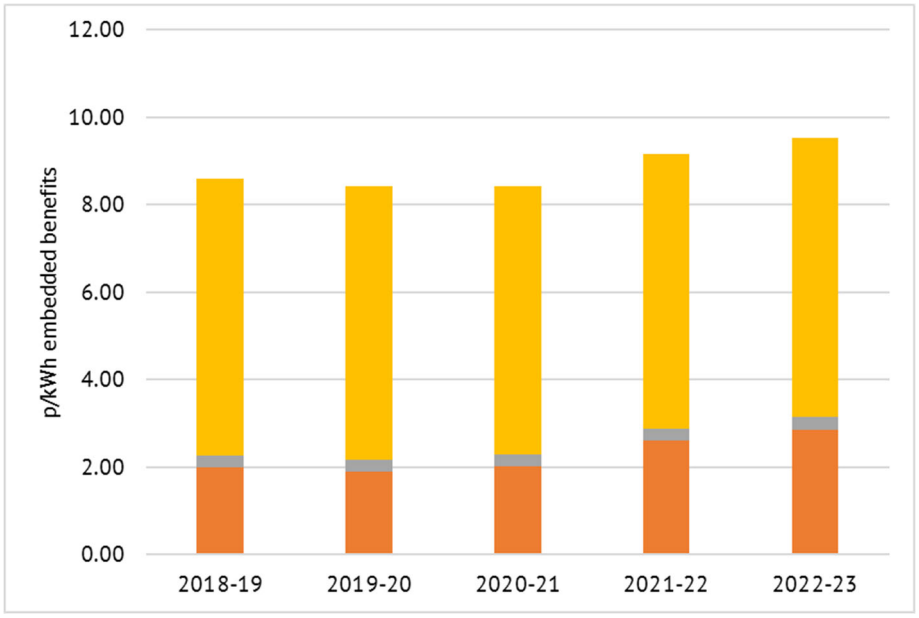
Economy Energy

Our Power

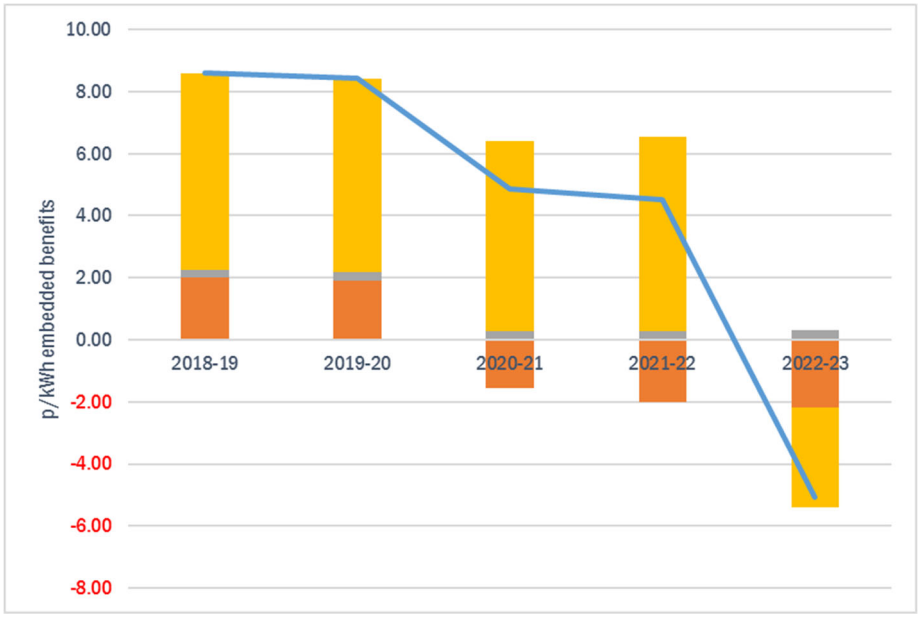
Appendix II

Impact of Proposed Reforms on Embedded Solar

Status Quo



OFGEM Minded To Decision and Proposed Reforms



Source: Cornwall Insight

Appendix III

Extracts from 2016 July 2016 Open Letter 145 responses

Participants that already fed back distortions not covered by Proposed Reform

"*At transmission level, a generator usually has rights to an unconstructed connection and is paid compensation if it is constrained due to network constraints.**" WPD to OFGEM***

"We do not feel it is appropriate to rush through changes in embedded benefits to address perceived problems in the outcome of the Capacity Market, particularly as over 20GW of existing embedded generation which operate outside of the Capacity Market will be impacted" ***Falck to OFGEM***

"By attempting to level one playing field the outlined proposals could unintentionally change another" **Bristol Energy to OFGEM**

Participants that already fed back a need for a wider holistic or fundamental review

"whilst we understand the urgency of dealing with the embedded benefits issue, there is an increasing urgency to undertake a more fundamental review" ***WPD to OFGEM***

"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. 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" ***National Grid to OFGEM***

"we believe than an independent and holistic approach to the quantification of the relative position of EG and transmission generators is essential before tinkering with just one element of it**"** ***Alkane to OFGEM***

"*We also feel that this approach seems rushed and we feel that a wider ranging review is needed***" Falck Renewables to OFGEM**

"*Embedded benefit is interrelated to other networking charges and they should be reviewed in unison**"* **ABDA to OFGEM**

Participants that already fed that OFGEM is not independent and / or CUSC process has been abused

"suggests that OFGEM has a view of the optimum generation mix which presumably maintains a substantial contribution from large coal and gas fired power stations connected to the transmission system. We would question what evidence OFGEM has used to form this view." **Welsh Power to OFGEM**

"Welsh Power has serious reservations about the governance of the CUSC process when large generators are permitted to use their membership of the CUSC to push through changes that are clearly in their own commercial self interest to the apparent detriment of smaller gencos and consumers who are not represented on the CUSC Panel." **Welsh Power to OFGEM**

"We are concerned that OFGEM is focused on equalising charges to improve the economics of specific players in the Capacity Market. It is vital that OFGEM plays an independent, active and analytical role in any review process, rather than relying on individual CUSC modifications. Furthermore, as distributed generators are neither CUSC experts, nor have large regulatory teams, they are at a significant disadvantage, especially on the accelerated timetable required by Ofgem." **ADE to OFGEM**

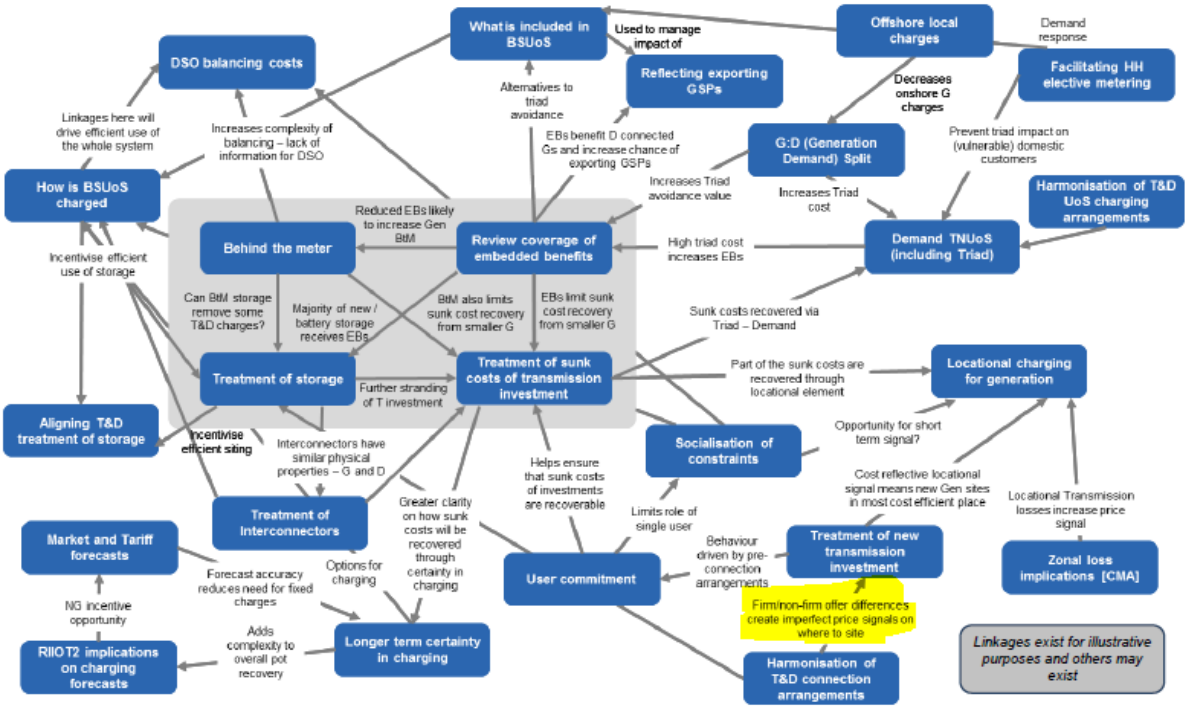
"We have a number of concerns regarding the CUSC process in this instance" **Vattenfall to OFGEM**

"We note that EG like Alkane do not even have a representative seat on the CUSC panel to on their position is represented in the discussions making recommendations to OFGEM." **Alkane to OFGEM**

Appendix IV

Extract from National Grid Response to July 2016 Open Letter (23 September 2016)

Annex 4: Interdependencies map – commercial arrangements



Toucan energy
Toucan Energy Services Limited
1 Long Lane
London
SE1 4PG

Appendix V

Transmission and distributed connected capacity (rounded to nearest gigawatt)

Tech	Transmission (GW)	Distribution (GW)	Cost of removing avoided BSUoS revenue £m	Cost of charging embedded generation BSUoS £m
Coal	14.0	-	-	-
CCGT	30.6	2.2	-	-
Oil	-	0.3	-	-
Nuclear	9.4	-	-	-
OCGT	1.5	-	-	-
Hydro	1.2	0.6	-	-
Onshore wind (30%)	3.9	7.8	51.0	51.0
Offshore wind (50%)	5.1	1.9	21.0	21.0
Bioenergy (60% load factor)	2.3	3.6	47.0	47.0
Solar	-	12.5	31.0	31.0
Diesel	-	0.1	-	-
Thermal gas	-	1.0	-	-
Pumped Storage	2.7	-	-	-
Total	**70.1**	**30.1**	**150.0**	**150.0**

We rely on the data from this table to show there are inherent technological differences between transmission and distribution.

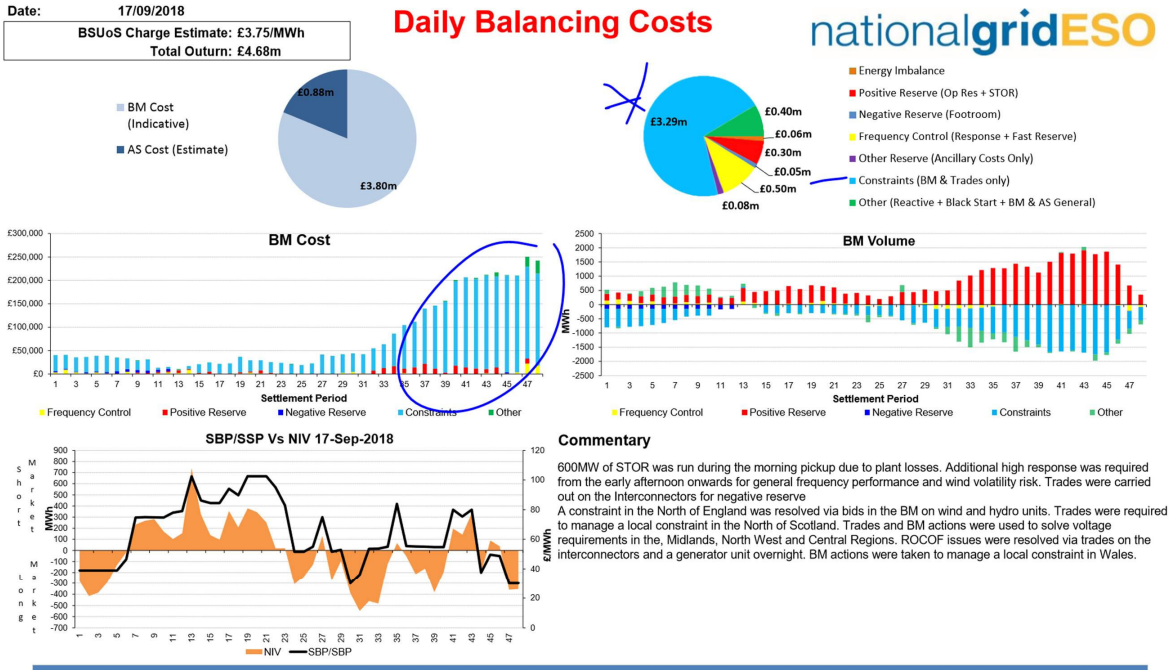
These differences, along with the contractual access rights described by us , WPD and National Grid mean that there is an unbreakable nexus between access (driven by technology and grid contracts) and the balancing costs.

To assume that distribution and transmission are ceteris paribus save for embedded benefits is simply misconceived.

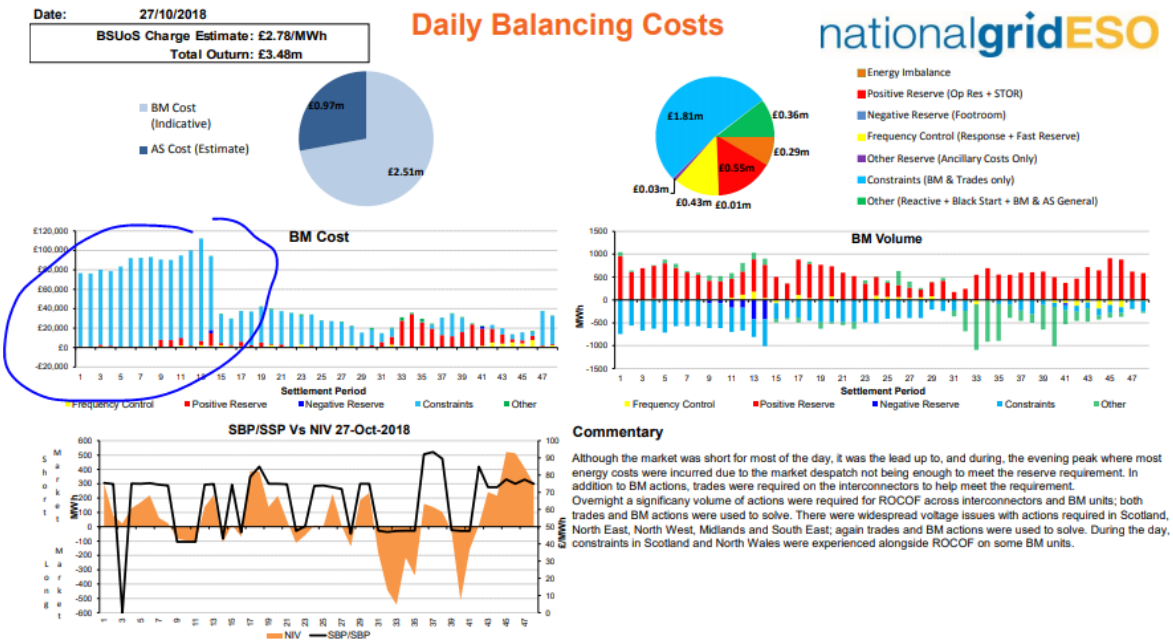
Appendix VI

Analysis of BSUoS cost

Typical daily system operator reports which show the trend we have aggregated in 4.28 Load Factor Distortion

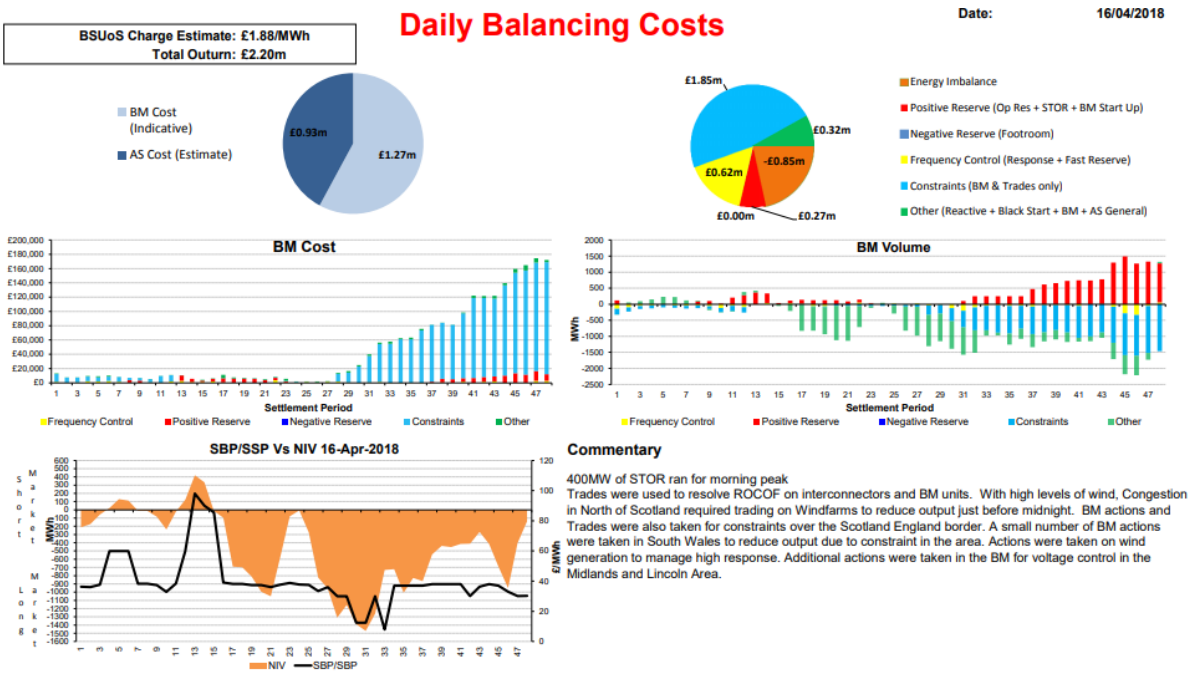


Note: A new category - Other Reserve - has been more clearly defined. Costs in this category used to be mapped to either Positive Reserve or Fast Reserve. These costs include BM Startup, Fast Start and some Hydro services. These changes have been made to align with the new Monthly Balancing Services Summary report.



Note: A new category - Other Reserve - has been more clearly defined. Costs in this category used to be mapped to either Positive Reserve or Fast Re serve. These costs include BM Startup, Fast Start and some Hydro services. These changes have been made to align with the new Monthly Balancing Services Summary report.

16 April 2018



System Operator Reports and our analysis confirm a £1.88 per MWh daily cost.

Top 10 BSUoS costs by day

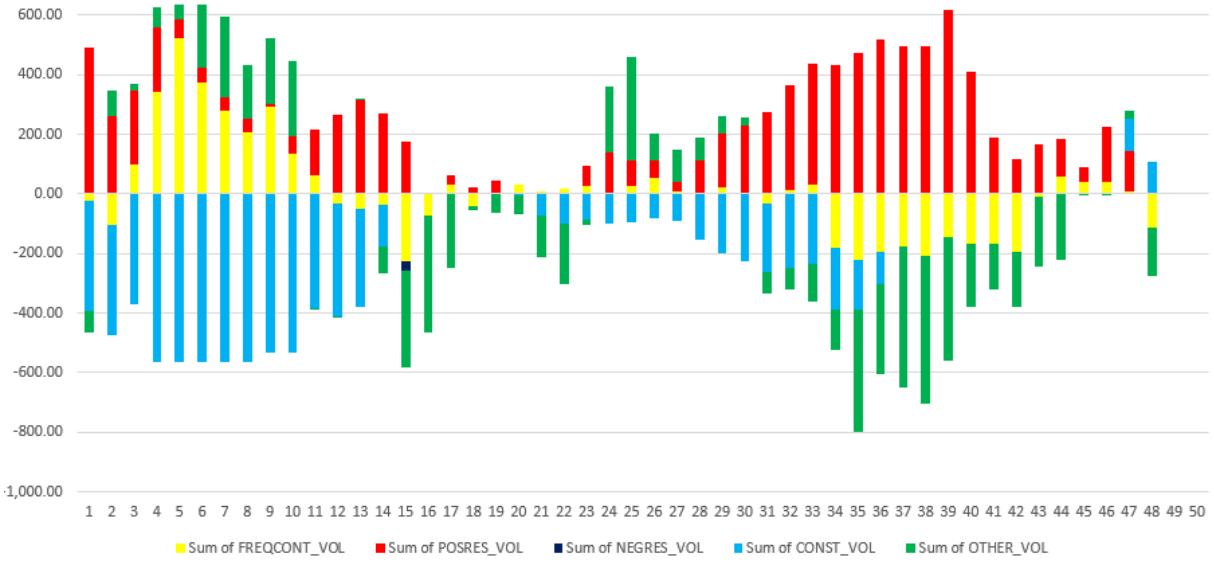
In 2018 the total BSUoS cost was approximately £1.2bn. Our analysis shows that these days (which represent less the 3% of the year incur nearly 10% of the cost.

Further, 70% of these days are in the Winter energy season. There is evidence the extreme events are behind the cost increase.

The top 10 days in the year are as follows:

Day	**Energy season**	**£m**
1/3/18	Winter	16.5
8/10/18	Winter	12.1
9/10/18	Winter	12.1
7/10/18	Winter	11.0
30/9/18	Summer	10.9
28/7/18	Summer	10.8
19/9/18	Summer	10.8
2/10/18	Winter	10.2
12/10/18	Winter	10.1
	Total	**113.6**

BSUoS costs incurred on both sides of balancing – predominantly night time



Appendix VII

The Connect and Manage Impact

2nd report from Ofgem 1 April 2011 to 30 September 2011

https://www.ofgem.gov.uk/ofgem-publications/52810/110930cmreporttosos.pdf

4th report from Ofgem 1 October 2012 to 30 September 2015

https://www.ofgem.gov.uk/ofgem-publications/84982/connectandmanagear2013final051213.pdf

5th report from Ofgem 1 October 2013 to 30 September 2015

https://www.ofgem.gov.uk/ofgem-publications/92053/fifthconnectandmanagereport141216.pdf

6th report from Ofgem 1 October 2014 to 30 September 2015

https://www.ofgem.gov.uk/sites/default/files/docs/monitoring_the_connect_and_manage_electricity_grid_access_regime_sixth_report_from_ofgem_0.pdf

We note the strong statement made in respect of future curtailment cost expectations "*National Grid expects these constraint costs to drop to nearly zero in 2017/18*." We can find no updates on these reports and our analysis and findings shown in 4.29 and Appendix VI leave us unable to verify whether Connect and Manage constraint costs did indeed drop to nearly zero.

We would rely on this as further evidence of an incomplete qualitative review and lack of transparency in the TCR Minded To Decision.

We wrote to tcr@ofgem.gov.uk as to the status of later report on 30 January 2019, but had no response as at the date of this letter.