Annex B: Modelling errors and omissions

Summary

This annex addresses a number of significant issues with Ofgem's current modelling that need to be rectified.

Ofgem has included in this consultation an inappropriate upward revision of smart 2017 opex:

- Ofgem's revision is not explained and is likely to be considerably overstated;
- it is not reasonable to expect suppliers to factor in retrospective changes to the smart costs that Ofgem assumes are included within the baseline when determining compliant spend under the "all reasonable steps" framework; and
- in any event, reclassifying elements of existing opex does not increase available smart funding.

There are significant revisions needed to Ofgem's treatment of supplier IT systems costs, in particular investment in hardware and software (excluding enrolment):

- Ofgem's assertion that a 5-year amortisation period is conservative is factually incorrect and demonstrates a fundamental misunderstanding of its own Disclosed Model; and
- Further, there are questions about the reliability of the supplier data that Ofgem is using and Ofgem's interpretation of it.

Ofgem has included in this consultation assumed benefits that are poorly evidenced and inconsistent with the treatment of the opex baseline:

- Ofgem continues to assume levels of benefit which are unevidenced or poorly evidenced, notably the reductions in theft and inbound customer calls. These unevidenced benefits are not realised by British Gas in its position as a market leader in the rollout of smart meters and are therefore speculative and inappropriate for a cap that constrains smart roll out; and
- Ofgem assumes that suppliers will be able to avoid average traditional meter costs, but the cap only allows for lower than lower quartile traditional meter costs. This means that suppliers are assumed to realise savings from smart meters that are greater than the underlying traditional meter costs allowed in the cap.

There are additional costs not accounted for in Ofgem's modelling:

- Ofgem does not account for the significant increases in uninstalled meter rental resulting from Brexit and COVID-19; and
- Ofgem should recognise the cost of recycling meters. This is a continuing problem for SMETS1 meters and is likely common to all suppliers.

The reliability of the SMNCC model is in question:

- The disclosed model falls well short of best practice modelling;
- Ofgem relies on the quality assurance of the underlying BEIS model, however, this does not extend to the derivative SMNCC model; and
- Ofgem's disclosed model contains a number of errors that compromise the calculation of the SMNCC.

We address each of these issues in turn.

Ofgem's assessment of smart costs in 2017

Ofgem provides the allowance for net smart meter costs in two parts.

- The SMNCC; and
- Net smart meter costs included within the opex allowance.

In this consultation, Ofgem has revised upwards its assessment of the net smart meter costs that are included within the opex allowance by £2.61 as shown in Figure 1 below.

Figure 1 Comparison of net smart costs included in the opex allowance

	Smart costs included in the 2017 opex baseline (excluding IT)		
	October 2019 assessment[1]	May 2020 assessment[2]	Delta
Electricity	6.51	7.69	1.18
Gas	7.36	8.78	1.42
Dual Fuel	13.87	16.48	2.61

This upward adjustment does not provide extra revenue. Instead it merely reallocates revenue that Ofgem was deeming to be covering general opex costs to cover costs that are associated with rolling out smart meters. We believe that this reallocation is overstated. Any assumption that more of the opex allowance is supposed to be funding the smart programme will further increase the losses the industry face[3].

Ofgem provides no commentary on this reassessment and has not provided evidence as part of this (or previous) Disclosure Processes to allow the 2017 non-smart opex baseline estimation to be understood or verified.

Ofgem cannot simply increase the share of the opex allowance that it attributes to smart costs without considering whether the level of non-smart opex it leaves for suppliers to fund their operations is reasonable. Ofgem must make this assessment. Based on our consultant's assessment of information in the Disclosed Data, we understand that Ofgem's assessment of lower quartile net smart costs in 2017 is likely to be overstated, and we are aware that it exceeds the modelled net smart costs of the two suppliers closest to the opex benchmark.

Further, it is not reasonable to expect suppliers to factor in retrospective changes to the smart costs that Ofgem assumes are included within the baseline when determining compliant spend under the "all reasonable steps" framework.

Ofgem should revise its assessment of supplier IT system costs to better reflect suppliers' actual smart costs

We have serious concerns over Ofgem's assumptions regarding amortised investment in hardware and software, excluding enrolment. Our concerns relate both to the assumption that

[1] October consultation, Para 4.13
[2] Consultation document, Table 6.6
[3] See pages 2 and 3 of our submission "2. SMNCC and PPM statcon Centrica response", and Annex B on Financeability for further details.

Ofgem makes to translate IT capex into an annual amortized cost and the way Ofgem treats the data that it has collected from suppliers on IT costs. We discuss each of these in turn.

Amortisation of IT capital expenditure

Ofgem has made an incorrect assumption with regard to the amortisation period for IT capex. This is an error and results in a reduction in the SMNCC that will not reflect the change in amortised smart IT costs that suppliers face.

Ofgem assumes an amortisation period for smart IT capex of 5 years. Ofgem justifies its amortisation assumption with the following statement:

> "*The 2019 CBA amortises over five years and our inquiries suggest this is a reasonable, if conservative, approximation of the average approach. Most suppliers amortise assets over a similar period, or longer. Approaches vary depending on each supplier's approach and their assets. We select a single simplified approach around which individual suppliers will inevitably vary.*"[4]

This statement makes it clear that Ofgem has selected an assumption of a five-year amortisation period despite the fact that "suppliers amortise assets over a similar period, or longer". Indeed, British Gas's own IT smart costs have been amortised over ✂.[5]

Ofgem has not released data into the Disclosure process to enable this to be verified.[6] However, British Gas's own costs, and Ofgem's statement that amortisation happens over five years "or longer" would mean that use of an average amortisation period would imply a period of greater than five years, ✂). Despite this Ofgem asserts that the five-year assumption is "a reasonable, if conservative, approximation of the average approach". This is not correct.

Erroneously assuming that suppliers amortise smart IT capex over five years rather than the actual average is in fact the opposite of conservative. This assumption reduces the SMNCC allowance rather than increases it. This is because it overstates smart costs in 2017 (with a corresponding understatement of non-smart costs implied), which in turn inflates the smart cost position against which future costs are compared to derive the SMNCC.

The impact of Ofgem's incorrect assumption is material. Given the limitations of data available to our consultants as part of the Disclosure Arrangements, it has only been possible to increase the average amortisation period by just one year more than Ofgem's assumption.[7] However, Figure 2 below shows that even this small increase in assumed amortisation period increases the SMNCC for electricity credit and PPM in all future periods.[8] The values for gas credit and gas PPM are equivalent.

[4] Technical annex to reviewing smart metering costs in the default tariff cap: May 2020 statutory consultation, Ofgem, Para 3.188
[5] RFI Submission Sept 2019
[6] This was requested in a letter from Towerhouse to Anna Rossington sent 25 June 2020.
[7] This is despite using all of the further information on IT capital expenditure in 2010 and 2011 that is included in the IT cost model (included as part of the Disclosed SMNCC & PPM Data) and referenced in Anna Rossington's letter to Towerhouse dated 26 June 2020.
[8] Ofgem has not provided the information necessary for us to be able to calculate the actual average amortisation period that suppliers use. Therefore, this scenario is illustrative but based on a conservative assumption of a one-year increase in the amortisation period.

Figure 2 Impact of changing the IT amortisation assumption on the SMNCC

	Cap Period	Cap 5	Cap 6	Cap 7	Cap 8	Cap 9	Cap 10	Cap 11
DF Credit NPT SMNCC	5 Year Amortisation	£6.61	£1.34	-£0.11	-£1.57	-£2.05	-£2.53	-£2.53
	6 Year Amortisation	£8.28	£3.06	£1.81	£0.55	£0.00	-£0.56	-£0.56
	Delta	£1.67	£1.72	£1.92	£2.13	£2.05	£1.98	£1.98
DF PPM NPT SMNCC	5 Year Amortisation	-£19.63	-£27.94	-£30.21	-£32.48	-£34.18	-£35.89	-£35.89
	6 Year Amortisation	-£18.30	-£26.57	-£28.64	-£30.71	-£32.50	-£34.28	-£34.28
	Delta	£1.32	£1.37	£1.57	£1.76	£1.69	£1.61	£1.61

Ofgem should adjust its assumption on the smart IT amortisation period to reflect the average supplier position.

In addition to this significant direct impact, there is also an indirect impact associated with Ofgem's error. Ofgem's erroneous belief that the amortisation assumption is conservative is taken into account in its review of uncertainty. Given that the assumption is not actually conservative, Ofgem will need to re-consider its assessment of uncertainty in light of this information.

Ofgem's identification of Smart IT capital expenditure

Ofgem's approach to the data it has received on IT capex overstates smart IT capex and understates non-smart IT capex. The profile of capex over time will mean that the SMNCC is understated unless Ofgem improves its identification of smart and non-smart IT capex. This is because the SMNCC will be reduced to reflect expected changes in non-smart IT costs as well as smart IT costs. This would treat non-smart IT costs differently from all other non-smart costs and would effectively be adjusting the non-smart opex allowance over time. This is not appropriate.

Ofgem states that it "*is irrelevant what proportion of [IT capex] costs in 2017 is allocated to the smart rollout and what proportion is not. The total costs included in the operating cost allowance would remain the same*".[9] This is not true in respect of costs in 2017 and nor is it true after 2017 given that Ofgem applies a declining trend in smart IT capex. This means that if the starting value is overstated, then the reduction in suppliers' smart costs from the declining trend will also be overstated.

Ofgem has collected data from suppliers on their IT capital expenditure. This includes a breakdown of IT costs between smart and non-smart activities. Ofgem then uses suppliers' historic and forecast data on smart IT capex, together with an assumed amortization policy for IT costs, to calculate the change in smart IT costs.

Ofgem has recognised that the data that suppliers have reported as smart IT capex is likely to include an element of non-smart IT capex and that there is very wide range of smart IT capex reported by different suppliers.[10]

[9] Technical Annex, Para 3.198
[10] Technical Annex, Para 3.196

> "*We estimate high smart metering IT costs in 2017 for half the suppliers (around twice the weighted average smart metering IT costs in 2017, which are about £12 per dual fuel account).*"[11,12]

This statement also implies that the other suppliers must have costs significantly below the weighted average. The distribution of costs implied by this statement is not a credible representation of actual smart IT costs. Instead, it is far more likely that this distribution is due to the misallocation of non-smart IT costs as smart IT costs by some suppliers.

British Gas has a limited ability to make a detailed assessment of the data submitted by other suppliers. However, ✂.

Ofgem should recognise that the dynamics of its SMNCC calculation mean that it does matter how IT capex is categorised between smart and non-smart costs. Further, excluding those suppliers for which the data is most likely to represent misallocation of costs has a significant impact on SMNCC. Ofgem must therefore make further detailed enquires with suppliers to more accurately identify the split of costs between smart and non-smart. If Ofgem cannot do this then Ofgem must exclude those suppliers with very high reported smart IT costs from its assessment of industry average smart IT costs. This would remove from Ofgem's calculation that data which is most likely to represent a misallocation of costs between smart and non-smart.

Figure 3 below shows the impact of this exclusion of unreliable data on the SMNCC for electricity credit and PPM. The values for gas credit and gas PPM are equivalent.

Figure 3 Impact of excluding suppliers with very high reported smart IT capex on SMNCC

	Cap Period	Cap 5	Cap 6	Cap 7	Cap 8	Cap 9	Cap 10	Cap 11
DF Credit NPT SMNCC	Ofgem	£6.61	£1.34	-£0.11	-£1.57	-£2.05	-£2.53	-£2.53
	Removing very high smart IT costs	£8.37	£3.54	£2.61	£1.69	£1.58	£1.47	£1.47
	Delta	£1.76	£2.20	£2.73	£3.26	£3.63	£4.01	£4.01
DF PPM NPT SMNCC	Ofgem	-£19.63	-£27.94	-£30.21	-£32.48	-£34.18	-£35.89	-£35.89
	Removing very high smart IT costs	-£18.16	-£26.04	-£27.78	-£29.52	-£30.85	-£32.19	-£32.19
	Delta	£1.47	£1.90	£2.43	£2.96	£3.33	£3.70	£3.70

Ofgem will need to consider all of the impacts that correcting the allocation of counterfactual IT costs may have on its analysis. This must include any sense checks that it has performed on the extent to which smart costs may have distorted the opex benchmarking process.[13]

Ofgem must reassess the appropriate level of benefits to include in the SMNCC calculation

Ofgem continues to assume that suppliers are realising, and will continue to realise, levels of smart meter benefits that are inappropriately high for calculating the SMNCC. These assumptions mean that Ofgem is underfunding the smart rollout. Suppliers cannot sustainably spend the value of benefits which are not cost reflective or actually achieved.

We have two main concerns with respect to Ofgem's benefit assumptions:

[11] Ofgem, October consultation, Para 4.20
[12] This statement also implies that the other suppliers must have costs significantly below the weighted average
[13] For example, the sense checks mentioned in paras 6.18 and 6.28 of the consultation document.

- Ofgem assumes that suppliers will be able to avoid average traditional meter costs, even though the price cap only allows for lower than lower quartile traditional meter costs. This means that suppliers are assumed to realise savings from smart meters that are greater than the underlying traditional meter costs allowed in the cap.
- Ofgem continues to assume levels of benefit which are unevidenced or inappropriately evidenced. These unevidenced benefits are speculative and inappropriate for a cap that constrains smart roll out. As we have noted elsewhere in this submission, it is concerning that Ofgem has refused to provide our consultants with the underlying evidence and input data which Ofgem has used to make assumptions about the quantum of benefits of smart metering. These assumptions are material – they form a very significant part of the total 'net cost' of a smart meter – and Ofgem has provided the equivalent data for costs. It is regrettable that as a result of Ofgem's failure to disclose relevant material, on which it proposes to make material assumptions, we are not in a position to understand or comment on the way in which these assumptions have been determined.

Consistency of smart benefit assumptions and supplier opex

We believe that Ofgem's approach to its estimation of smart meter benefits is inconsistent with its approach to supplier opex. The net effect of this inconsistency is to overstate the smart benefits that Ofgem assumes in its calculation of SMNCC. Ofgem has not provided the necessary information for our Authorised Consultants to assess the impact of this overstatement, but we expect it to be material and we have illustrated the possible scale of the impact below.

Ofgem adopts an average efficiency standard for smart meter costs. It does so for the reasons that it has previously articulated.

- "*Smart metering has a number of uncertainties that are not present in business as usual activities*"[14]
- "*There is variation in efficient costs between suppliers (at least due to different rollout profiles, and probably due to customers' circumstances*" [15]
- "*Benchmarking to the lower quartile could increase pressure on suppliers' funding for the rollout, reducing protection to future customers. In particular, for suppliers, that have made above-average progress with their rollout*."[16]

Ofgem is right to allow average smart costs. Therefore, allowing for average smart costs should not be considered as being conservative or providing mitigation for other errors in Ofgem's approach.

Ofgem does not allow for average non-smart costs. Ofgem applies an efficiency standard to general operating costs that is equal to the lower quartile of supplier operating costs in 2017 minus £5. For simplicity of explanation we refer to this efficiency standard as 'lower than lower quartile costs'. In contrast, when calculating benefits, Ofgem assumes that the costs that are being avoided by suppliers are average costs. Therefore, costs are being assumed to be saved that have never in fact been allowed. This cannot be Ofgem's intention.

Ofgem does make an adjustment for different definitions of efficiency between its opex benchmarking and smart costs allowance. However, this does not address our concern.

[14] November 2018 DTC Decision, Appendix 7, Para 1.13
[15] October Consultation document, Para 3.35
[16] October Consultation document, Para 3.35

Ofgem explains why it should not include greater than average benefits when making its adjustment for different definitions of efficiency.

> "*We maintain average benefits. This reflects the complexity of assessing benefits that are avoided costs. The suppliers with greater benefits (lower quartile) achieve greater cost reductions by avoiding the costs of managing customers with traditional meters. That would make the most 'efficient' suppliers with respect to these benefits the most costly suppliers with respect to the costs of managing traditional meters (as they would have the greatest scope for cost reductions). That makes it unlikely their total operating costs would be efficient in our analysis of costs in 2017.*"[17]

We agree with Ofgem's position on this point. However, our concern is of a different nature. Our point is that Ofgem should be assuming lower than average benefits in its calculation of SMNCC because, as Ofgem implies in the quote above, the benefits that could be realised by a supplier with benchmark level costs would be lower than average (reflective of a lower than lower quartile opex allowance).

We must also make clear that our point is not confined to looking at adjustments in 2017. As smart penetration increases the importance of the level of benefits assumed also increases and so the size of the error that Ofgem has made increases. Therefore, Ofgem must correct for this by adjusting downwards the level of the smart meter benefits that are assumed per meter to reflect lower quartile benefits and not rely on one off adjustments.

If Ofgem does not correct for this error, in aggregate it will not be funding suppliers for average smart costs.

This error impacts on the following categories of benefit, all of which relate to traditional meter opex.

- Avoided site visits
- To read a meter or change a meter tariff
- Reduced costs of customer switching
- Reduced inbound call contact

We have not been given access to the data to estimate the size of this error. However, assuming that LQ costs are 20% below for the benefits identified above the average Figure 4 below illustrates the impact on the SMNCC.

Ofgem has the information to rectify this. To do otherwise will set a price cap below efficient supplier costs even on Ofgem's own measure of efficiency.

[17]Consultation Document, Para 6.16

Figure 4 Illustrative Impact on SMNCC of aligning benefits with lower quartile costs

		Cap 5	Cap 6	Cap 7	Cap 8	Cap 9	Cap 10	Cap 11
Elec Credit	Ofgem's SMNCC	£7.19	£4.19	£3.82	£3.45	£3.56	£3.67	£3.67
	-20% benefit sensitivity	£7.62	£4.67	£4.40	£4.12	£4.31	£4.51	£4.51
	Delta	£0.42	£0.49	£0.58	£0.67	£0.75	£0.84	£0.84
Gas credit	Ofgem's SMNCC	-£0.58	-£2.84	-£3.93	-£5.03	-£5.61	-£6.20	-£6.20
	-20% benefit sensitivity	-£0.19	-£2.40	-£3.41	-£4.42	-£4.93	-£5.45	-£5.45
	Delta	£0.39	£0.45	£0.53	£0.60	£0.68	£0.76	£0.76

Theft

Ofgem continues to rely on a CBA assumption to include a smart meter benefit associated with a reduction in theft. This assumption is unevidenced. These benefits have not been seen by British Gas and, based on what Ofgem has reported, it is not something other suppliers have seen either. Further, Ofgem cites evidence that "The Allocation of Unidentified Gas Expert, the body responsible for reporting on gas losses and theft, said that it was too early to make an adjustment to unidentified gas based on the installation of a smart meter."[18] This makes it clear that there is no evidence for theft reductions. Since the smart meter programme has now been running for over 10 years, we would expect that if there was a supplier benefit that can be realised from a reduction in theft, there would be some evidence available by now.

Ofgem's quantification of theft benefits, relies on the CBA assumption and is therefore linked to reduced costs of supplier revenue protection teams rather than reductions in the cost of theft itself. Ofgem states that excluding the value of reductions in theft from consideration "is a conservative assumption, and will understate benefits".[19] However, it cannot be considered to be conservative to exclude the value of a benefit for which there is no evidence.

Further, since Ofgem's actual benefit assumption is entirely related to a reduction in the costs of supplier's revenue protection operations, this is something that could be ascertained by a simple RFI. Ofgem has chosen not to do so.

Inbound customer calls

We continue to dispute the way in which Ofgem has estimated these benefits. In our response to the October 2019 SMNCC review we highlighted that Ofgem's assumed reduction in call volumes was an over statement. In a subsequent follow up with Ofgem[20] we provided detailed evidence to support our view that Ofgem's assessment of the benefit is a substantial overstatement. This evidence was based on actual call data and showed that the assumed call contact benefit that Ofgem is using based on ASR data is overstated due to sample selection bias.

Ofgem dismisses this evidence on the basis that if "*current smart metered customers are those who are likely to have lower contact costs even without a smart meter then there may be*

[18] Technical Annex, Para 4.103
[19] Technical Annex, Para 4.104
[20] Email from Don Wilson to Tariff Cap Design Team sent 28th November 2019.

greater scope for reductions in call volumes from other customers (who call more frequently)".[21] On the basis of this alone, Ofgem makes no adjustment.

There may be greater scope for reductions in call volumes in the current non-smart meter population but Ofgem has no evidence this is actually the case. The idea that suppliers may be able to achieve greater savings on future smart installations is speculative and cannot logically justify Ofgem making zero adjustment to its estimated benefit in response to our analysis.

For Ofgem's position to be logically sound it would need to be the case that even though one group of customers (those currently without a smart meter) called more before the introduction of smart meters both groups would have the same call frequency after smart meters have been installed. This would mean 100% of the difference in the current call propensity of the two groups of customers is explained by their type of meter. This is highly unlikely to be true. Therefore, Ofgem's estimate of savings is still likely to be a biased estimate of impact of smart meters on call volumes. Ofgem's estimate of the impact of smart meters on customer call volumes can at very best be considered as a maximum figure for the true benefit, rather than a 'most likely' figure, which is how Ofgem currently characterises it.

Ofgem must therefore accept that the true value of supplier benefits is likely to be lower than the value it is currently assuming and make an adjustment for this.

Consistency of avoided traditional meter rental and supplier opex allowance

Ofgem has made an amendment to its smart cost model to take account of the fact that once a PRC is paid in respect of a traditional meter, no further rental payments are due in respect of that meter.[22] While we recognise that this is in principle an appropriate development from Ofgem's previous modelling, the way Ofgem has undertaken the adjustment contains an error.

The adjustment that Ofgem has made assumes that suppliers avoid an average level of traditional meter rental payments when installing a smart meter. However, this is more than the cost of traditional meter rentals that have been allowed for by Ofgem in the opex allowance. This is because the opex allowance has been subject to a lower than lower quartile efficiency standard. Therefore, Ofgem is assuming the benchmark supplier is saving more on traditional meter rentals than Ofgem is allowing in the cap in the first place. This reduces the overall opex allowance (smart + non-smart) below the costs of the efficient supplier, even based on Ofgem's own measure of efficiency.

This issue is material. Figure 5 below shows the impact on the SMNCC of a 10% reduction in the assumed traditional meter rental as an illustration of the impact of aligning the assumed avoided meter rental costs in the SMNCC calculation with the allowed meter rental costs in the opex benchmark.

[21] Technical Annex, Para 4.54
[22] Consultation document, Para 5.4

Figure 5 Illustrative impact on SMNCC of aligning avoided meter rentals with lower quartile costs

		Cap 5	Cap 6	Cap 7	Cap 8	Cap 9	Cap 10	Cap 11
Elec Credit	Ofgem's SMNCC	£7.19	£4.19	£3.82	£3.45	£3.56	£3.67	£3.67
	-10% traditional meter rental sensitivity	£7.54	£4.53	£4.20	£3.87	£4.01	£4.15	£4.15
	Delta	£0.35	£0.34	£0.38	£0.41	£0.45	£0.48	£0.48
Gas credit	Ofgem's SMNCC	-£0.58	-£2.84	-£3.93	-£5.03	-£5.61	-£6.20	-£6.20
	-10% traditional meter rental sensitivity	£0.40	-£1.90	-£2.88	-£3.86	-£4.34	-£4.83	-£4.83
	Delta	£0.98	£0.94	£1.05	£1.17	£1.27	£1.38	£1.38
Elec PPM	Ofgem's SMNCC	-£2.34	-£6.47	-£7.32	-£8.18	-£8.71	-£9.24	-£9.24
	-10% traditional meter rental sensitivity	-£1.39	-£5.48	-£6.30	-£7.12	-£7.59	-£8.06	-£8.06
	Delta	£0.95	£1.00	£1.03	£1.06	£1.12	£1.17	£1.17
Gas PPM	Ofgem's SMNCC	-£17.29	-£21.47	-£22.88	-£24.30	-£25.48	-£26.65	-£26.65
	-10% traditional meter rental sensitivity	-14.9799	-£19.07	-£20.39	-£21.72	-£22.78	-£23.85	-£23.85
	Delta	£2.31	£2.40	£2.49	£2.58	£2.69	£2.81	£2.81

Other costs not accounted for

We are concerned that Ofgem's modelling of net smart costs does not account for all the relevant costs that are driven by the smart meter programme. We have identified three areas where British Gas incurs smart meter related costs, but which Ofgem do not appear to take into account. These are:

- Uninstalled meter rental;
- The cost of recycling meters and
- DCC functionality change.

These are legitimate areas of costs that British Gas incurs as a business as a result of the smart programme and Ofgem should take these into account when assessing the SMNCC. If Ofgem does not take these into account, it will understate the net cost of smart meters and understate the SMNCC.

Uninstalled Meter Rental

Ofgem has information on suppliers' uninstalled meter rental costs from 2019 based on RFI responses. However, Ofgem does not model this cost and instead propose to take this into account in its review of uncertainty.[23] Ofgem justifies this position on the basis that "*the total costs do not appear to be very large*".[24] Ofgem can observe from the RFI data it has collected that for 2019, uninstalled smart meter rentals were equivalent to 3.5% of installed smart meter rentals for electricity and 4.2% for gas.

Ofgem also states that it "*would expect suppliers to have had a stock of smart meters awaiting installation in 2017*".[25] Based on this Ofgem infers that the change in uninstalled meter rental costs from 2017 may be small and so have a small impact on the SMNCC. Ofgem makes this assumption without any supporting evidence even though it could have asked suppliers about their uninstalled smart meter rental costs in 2017.

✂

Ofgem should account for the increase in uninstalled meter rental costs that the industry has incurred to prudently plan for potential Brexit related supply disruptions and to allow the smart meter rollout to ramp up post-COVID.

Recycling of Meters

Ofgem recognises that one supplier ✂ had highlighted the issue of the costs of recycled meters.[26] However, Ofgem declines to account for these costs explicitly, instead saying that it is sufficient to account for the issue in its review of uncertainty.[27] Ofgem justifies this position on the basis that:

[23] Technical Annex, Para 3.100
[24] Technical Annex, Para 3.100
[25] Technical Annex, Para 3.100
[26] Technical Annex, Para 3.51
[27] Technical Annex, Para 3.54

- recycled meter installation costs should not be a material issue in the future;
- it does not have evidence of the issue being widespread; and
- it is complex to model.[28]

British Gas expects SMETS1 meter recycling to continue to be an issue for some time to come. Whilst the protracted enrolment of SMETS1 meters progresses, churn-suppliers are continuing to remove SMETS 1 meters from the wall. ✂. Until SMETS 1 meters are fully enrolled, likely towards the later part of 2021, British Gas envisages this expense to continue.

Ofgem states that it does not have evidence of the issue being widespread. If Ofgem is unaware of whether this issue is more widespread, then it should ask suppliers whether they face costs related to SMETS1 returned meters.

We do not expect the issue to be specific to British Gas given a general reluctance by receiving suppliers to take on the liability for the subsequent stranding of a SMETS 1 meter on churn. This means that until churn contracts are fully embedded, it is likely that the installing supplier or MAP will need to continue to absorb the cost impact of removed meters. Ofgem should explicitly account for this.

Ofgem further justifies not taking this issue into account in the Disclosed Model with reference to the complexity of the modelling required. Ofgem fails to recognise that the complexity of the modelling required is a direct result of its adoption of the BEIS CBA model as the starting point for the SMNCC calculation. It is not appropriate to state that the issue cannot be taken into account when it is Ofgem's own modelling decisions that has led to this outcome.

<u>DCC functionality change</u>

There is the potential for increased Smart metering related costs as a result of a functionality decision by the DCC. Currently our Supplier Licences allow for faulty SMETS 1 assets to be substituted by another SMETS 1 asset, both prior to and beyond Enrolment. The existing decision relating to this functionality was communicated back in 2016 and gave us confidence to continue with our SMETS1 rollout and to support the transition to SMETS2 without our install volumes suffering. Discussions within the Enrolment and Adoption programme now seem to suggest a lack of system support for this functionality post enrolment from the DCC. If this position were to be confirmed, British Gas, and no doubt other suppliers, would be exposed to significant SMETS1 PRC costs in the future and the immediate write down of any stock currently held for future maintenance events.

Reliability of the Disclosed Model as the SMNCC calculator

Ofgem has used the BEIS 2019 CBA model as the starting point for its Disclosed Model. This is justified with reference to the 'high quality' of the BEIS CBA model, which suppliers have not yet been given access to review. The actions of Ofgem in significantly adapting the BEIS CBA model for use in a manner that it was not designed for mean that the assessment of the BEIS CBA model as high quality cannot provide any guide to the quality of Disclosed Model itself. The Disclosed Model itself falls well short of best practice modelling standards and cannot itself be considered high quality.

Indeed, we have found that the Disclosed Model includes a number of modelling errors that compromise the calculation of the SMNCC. In particular, we note the following points.

[28] Technical Annex, Para 3.51-3.54

1. Ofgem has applied an uplift to installation costs in the Disclosed Model to ensure that the modelled costs line up with supplier data. However, Ofgem has not used this uplift in the calculation of sunk installation costs. This results in the model underestimating sunk costs.
2. Ofgem has applied an uplift to the debt handling benefits to account for the difference between the pre-tax and post-tax WACC. This has been applied to the total debt handing benefit. However, the element 'Reduced operational costs of staff and administration associated with debt management' does not reflect working capital costs and as such should not have the WACC uplift applied to it. By applying the WACC uplift to all elements of the debt handling benefit, Ofgem has overstated the total size of this benefit.
3. Ofgem has used an unweighted average rather than a weighted average to find the proportion of supplier installation costs that are sunk for installations lost due to COVID-19. This figure is then used to calculate the sunk cost adjustment in the Disclosed Model. This use of an unweighted average is not appropriate and does not reflect that larger suppliers represent a greater proportion of the installations lost and therefore sunk costs due to COVID-19.
4. Ofgem includes in its input assumptions consumption weights for summer and winter periods. We noted in our response to the October consultation that for gas these weights sum to less than 100%, and following subsequent correspondence understood that they would be updated to reflect the latest Xoserve load profiles.[29] This does not appear to have happened in the latest version of the Disclosed Model, in which the input source still refers to the Xoserve load profiles for 2017/18. Further, we reject Ofgem's assertion that the use of the weightings is correct due to the need to account for the leap day in 2020. Ofgem is correct to account for the 2020 leap day, however, the weightings are applied equally across all subsequent years in the model, despite these years not being leap years themselves. This is incorrect and compromises the calculation of the SMNCC for the cap periods that fall after 2020.
5. The Disclosed Model relies on two rollout scenarios, named in the consultation document as the 'All reasonable steps' and 'Delayed rollout' profiles. In each, the rollout (absent the effect of COVID-19) is assumed to continue at the average outturn rate achieved by the industry between 2017 and 2019. Despite Ofgem stating that the two profiles should be based on the same average installation rate, the two profiles assume different rollout speeds from 2021 onwards. Ofgem has not provided the calculations used to estimate this rollout speed.
6. Ofgem has assumed that COVID-19 will lead to the replacement of fewer dumb meters following their expiration. However, Ofgem has not properly accounted for these meters in the following calculations, which results in the model reporting a fall in the total meter stock due to COVID-19. This can be seen in the failed check cells in the model. Despite this, in the calculation of the sunk costs arising from COVID-19, Ofgem assumes that there were no fewer installations of dumb meters due to COVID-19.

We also recognise that in the time available (and given the complexity of the model and the fact that, through a series of modifications, the model is a long way short of best practice) we may not have identified all errors. This is illustrated through the following more general points.

1. A number of the check cells within the Disclosed Model show that the check is failed even when the model is producing the final results that Ofgem uses;
2. The model contains a large number of incorrect data labels that inhibit comprehension;

[29] "*we would be proposing to use the 2018/19 Xoserve ALP dataset for the upcoming Charge Restriction Period while allowing for 100% gas demand weighting*". Letter to Tim Dewhurst from Anthony Pygram, dated 24 January 2020.

3. The model relies on a number of inputs that are hard-coded in the calculation sheets without proper reference to their source;
4. The model relies on a number of inputs from the Disclosed Data, which themselves rely on inputs from the Disclosed Model. This should be avoided to aid quality assurance;
5. The model has a number of very long formulae that should be split out to aid quality assurance and comprehension;
6. The model has a number of blocks of formulae that are inconsistently entered when performing the same calculation. These should be made consistent to aid quality assurance;
7. The model has a number of formulae which are insufficiently flexible and do not properly adjust to changes in the input data. These should be made more flexible to allow for changes in the input data to be properly reflected in the model's outputs; and
8. The model is provided with no accompanying user guide. For a model of this size, complexity and importance it is best practice for a user guide to be produced alongside the model that explains the functioning of the model and the calculation logic.

Estimation of the materiality of errors

We have used the Disclosed Model to quantify some of the issues described above. This is a difficult exercise for a number of reasons:

1. First, the Disclosed Model is complex. Changes made to one section of the model can have impacts elsewhere. As described above, the model falls significantly short of best practice in a number of regards, which has further affected our ability to audit it and implement changes in the available time.
2. Second, there are a number of areas where data is not available to us (or even to our advisors as part of the Disclosed Data) to substitute into the model. Where possible, we have made simple assumptions and used British Gas's own data. However, as described above, further industry-wide evidence is required in some areas. We have therefore not been able to quantify all of the errors that we have identified above.

The figures presented below are therefore not comprehensive. However, they do clearly demonstrate the materiality of the errors identified above.

Further, the figures presented are based on the roll-out profile and approach to clawback set out in Ofgem's consultation document. As stated on page 6 of our main response, we consider it unreasonable that a supplier, when determining now how many meters to install in pursuance of its All Reasonable Steps (ARS) obligation, cannot know what level of funding will be available in future periods to support the smart meters it is installing now, since the funding will be set on the basis of a historic industry rolling average that is unknown to the supplier and outside its control and, in any event, may be subject to clawback. Consequently, Ofgem's proposals for historic clawback to be unlawful. Were the Disclosed Model to be updated to reflect this, the figures presented below would change.

The table below sets out the modifications that we have made to the model. It shows the modelled SMNCC (for October 2020 – March 2021) after each adjustment has been made. The adjustments are applied cumulatively.

The final column shows the effect that each adjustment has on the overall dual fuel SMNCC. Note that some adjustments may interact with each other and so the size of each individual adjustment may depend on the order in which the assessment is carried out.

Figure 6 Estimation of the materiality of errors, October 2020 – March 2021 SMNCC

Adjustment	2020 Oct - 2021 Mar SMNCC (following the specified adjustment and all above it)			Impact of adjustment on DF SMNCC
	Elec	Gas	Dual Fuel	
Original SMNCC	7.19	-0.58	6.61	
Amending model mistakes	7.87	0.04	7.91	1.30
Removing very high smart IT costs	8.75	0.92	9.67	1.76
Changing IT amortisation assumption to 6 years	9.08	1.24	10.32	0.66
Correcting error in model adjustment to remove avoided meter rental costs	9.43	2.23	11.66	1.33
Aligning benefits with lower quartile costs Energy theft	9.68	2.47	12.15	0.49
Aligning benefits with lower quartile costs	9.85	2.63	12.49	0.34
Aligning benefits with lower quartile costs	9.90	2.68	12.58	0.09
Aligning benefits with lower quartile costs	9.95	2.68	12.62	0.04
Removing theft benefits	10.11	2.79	12.90	0.27

Figure 7 Estimation of the materiality of errors, April – September 2021 SMNCC

Adjustment	2021 Apr - 2021 Sep SMNCC (following the specified adjustment and all above it)			Impact of adjustment on DF SMNCC
	Elec	Gas	Dual Fuel	
Original SMNCC	4.19	-2.84	1.34	
Amending model mistakes	4.41	-2.64	1.77	0.43
Removing very high smart IT costs	5.51	-1.55	3.97	2.20
Changing IT amortisation assumption to 6 years	5.74	-1.33	4.41	0.45
Correcting error in model adjustment to remove avoided meter rental costs	6.08	-0.39	5.69	1.28
Aligning benefits with lower quartile costs Energy theft	6.35	-0.12	6.23	0.54
Aligning benefits with lower quartile costs	6.54	0.06	6.61	0.38
Aligning benefits with lower quartile costs	6.61	0.12	6.73	0.13
Aligning benefits with lower quartile costs	6.66	0.12	6.78	0.05
Removing theft benefits	6.84	0.25	7.09	0.31

These are the adjustments that we have made to the model. These adjustments reflect only those that it was possible to make in the time available and with the data disclosed by Ofgem.

1. **Amending model mistakes**. We have attempted to fix the errors described in the section “Reliability of the Disclosed Model as the SMNCC calculator” where possible. In particular, we have made the following adjustments:
    a. We have uplifted the installation costs used to calculate sunk costs to be consistent with the installation costs used elsewhere in the Disclosed Model;

   b. We have adjusted the calculation of debt handling benefits such that only benefits associated with working capital costs are uplifted by the post-tax cost of capital;
   c. We have adjusted the percentage of installation costs that are sunk; and
   d. We have adjusted the treatment of expiring traditional meters such that there is no fall in the total meter stock due to COVID-19.
2. **Removing very high smart IT costs**. We have removed suppliers with very high reported smart IT capex from the assessment of average smart IT costs.
3. **Changing IT amortisation assumption to 6 years**. We have increased the assumed IT capex amortisation period from five to six years.
4. **Correcting error in model adjustment to remove avoided meter rental costs**. We have reduced the value of traditional meter rental by 10%.
5. **Aligning benefits with lower quartile costs: avoided site visits**. We have reduced the value of the avoided site visits benefit by 20%.
6. **Aligning benefits with lower quartile costs: inbound customer calls**. We have reduced the value of the inbound customer calls benefit by 20%.
7. **Aligning benefits with lower quartile costs: customer switching**. We have reduced the value of the customer switching benefit by 20%.
8. **Aligning benefits with lower quartile costs: change of tariffs**. We have reduced the value of the change of tariff benefit by 20%.
9. **Removing theft benefits**. This benefit has been excluded from the calculations.