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Consultation Appendix

Default Tariff Cap: Statutory Consultation

Appendix 7 – Smart Metering Costs

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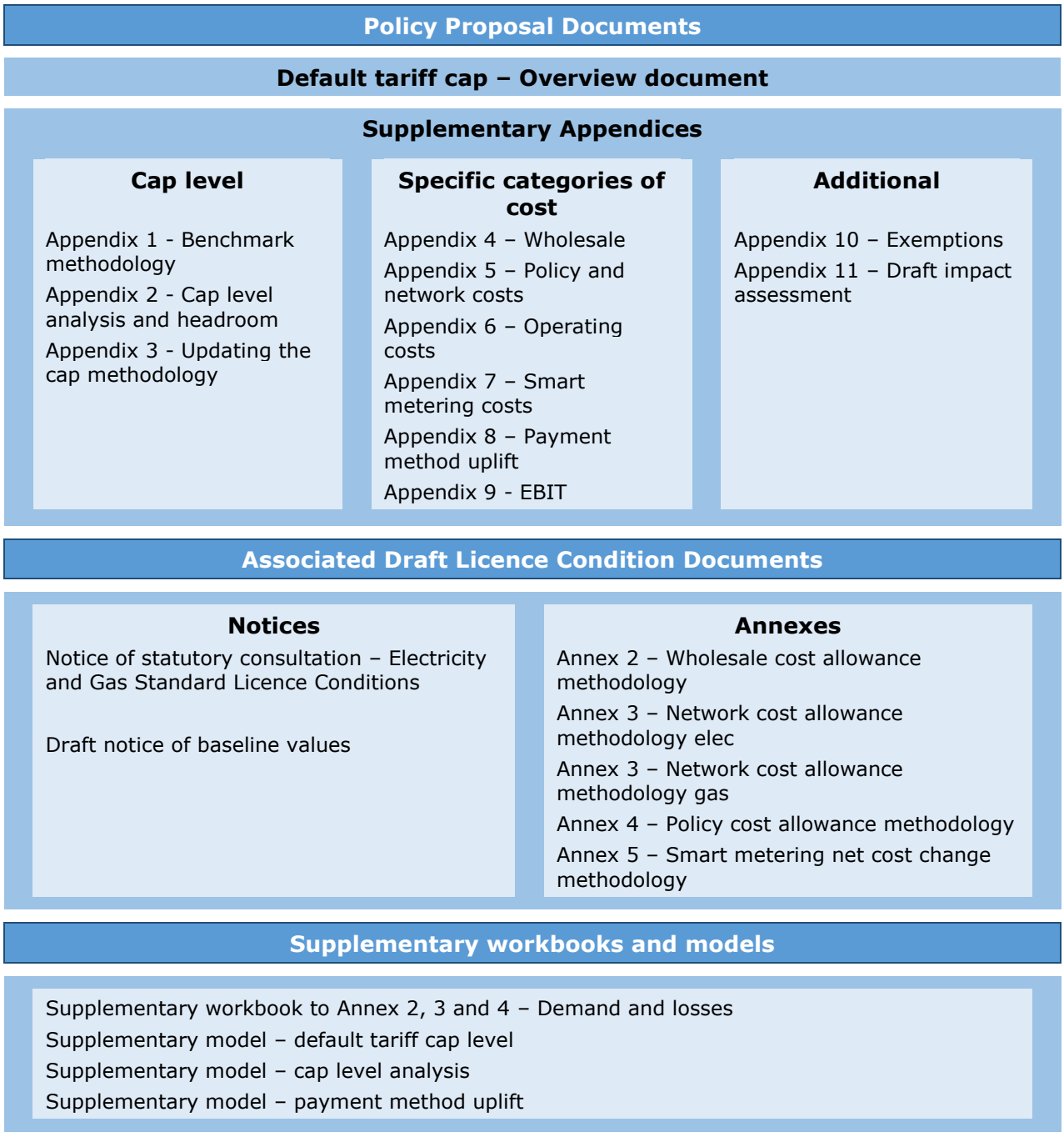
We are consulting on our proposals for setting and updating a default tariff cap in accordance with the Domestic Gas and Electricity (Tariff Cap) Act 2018. This supplementary appendix provides details of the proposals and methodology in relation to smart metering costs. This document is aimed at those who want an in-depth understanding of our proposals. Stakeholders wanting a more accessible overview should refer to the Default tariff cap – Overview document.

We welcome views from stakeholders on all of our proposals set out within this document. Please see the Default tariff cap – Overview document for instructions on how to respond to the consultation.

Document map

Figure 1 below provides a map of the default tariff cap documents published as part of this statutory consultation.

Figure 1: Default tariff cap – statutory consultation document map



Contents

1. Introduction

1.1. Energy suppliers are required to take all reasonable steps to rollout smart meters to all their domestic and small business customers by the end of 2020. Smart metering brings immediate benefits to consumers, helping them to take control of their energy usage. It is a key enabler for the transition to a more flexible energy market and the move to a low carbon economy, with suppliers seeing net savings over the longer term that, in a competitive market, will be passed on to customers.

1.2. In our May consultation,[1] we set out a minded-to position to include a separate smart metering increment which would enable us, when initially setting and subsequently updating the cap, to vary the costs of the smart metering rollout in a different manner to the other elements of the cap. Metering costs are an inherent part of a supplier's operations and, as such, we consider they should be considered as part of the operating cost element of the cap.

1.3. We maintain this position and propose to include a separate smart metering increment, designated the Smart Metering Net Cost Change (SMNCC). This would reflect the change from the baseline to subsequent cap periods of industry body charges for smart metering and suppliers' smart metering net rollout costs. The baseline for smart metering net costs would be set as part of the operating costs baseline, using supplier submissions to Ofgem and be inclusive of the Data Communications Company (DCC) (including charges for Alternative Home Area Network Company (Alt HAN Co), Smart Energy Code Administrator and Secretariat (SECAS)), Smart Energy GB (SEGB) and Smart Meter Installation Code of Practice (SMICoP) governance charges (hereafter referred to as "DCC, SEGB and SMICoP charges") as well as baseline year smart costs.

1.4. We propose industry body charges would be updated when new charging statements/budgets are available. The other elements included in the SMNCC would be set for the first two periods of the cap, up to the end of September 2019. We then propose to conduct a review of the smart metering rollout profile, costs and benefits before setting the SMNCC from October 2019 onwards. This is explained further in Chapter 2.

1.5. In Chapter 3 we set out our proposed decisions on the smart metering model and the modelling assumptions for the rollout profile. We also describe which costs and benefits we propose to include and exclude in the calculation of the SMNCC.

1.6. In Chapter 4 we consider whether any non-efficiency cost variations should be included in the SMNCC. We do not propose to include any specific treatments for non-efficiency variations as part of the SMNCC, having considered the issues raised by stakeholders in the round. Instead we are minded to adopt an average efficiency approach that should account for any unidentified cost differences between suppliers or other uncertainties relating to the rollout.

[1] Default Tariff Cap: Policy Consultation Appendix 10 - Smart metering costs
https://www.ofgem.gov.uk/system/files/docs/2018/05/appendix_10_-_smart_metering_costs.pdf

1.7. In Chapter 5, we outline our proposal to provide a disclosure room as part of statutory consultation to allow suppliers to further review the detail of our model and the assumptions used in the calculation of the SMNCC.

Context and related publications

1.8. Ofgem (2018), Default Tariff Cap: Policy Consultation. Appendix 10 – Smart metering costs. https://www.ofgem.gov.uk/system/files/docs/2018/05/appendix_10_-_smart_metering_costs.pdf

2. How we account for smart metering costs in the baseline, first period of the cap and subsequent updates

We explain the proposed approach to establishing the baseline for smart metering costs. We detail the approach for calculating the SMNCC, and how the SMNCC will be updated beyond 2019.

Including smart metering costs in the baseline

Proposed decision

2.1. We consider that the baseline costs of smart metering are already included in suppliers' operating costs (as submitted to Ofgem in April) and, as such, we do not propose to use a separate modelling approach to calculate the smart metering baseline.

2.2. We propose also including the 2017 charges to suppliers of smart metering industry bodies (DCC, SEGB and SMICoP) in the operating costs baseline.

What we consulted on

2.3. As part of our May consultation we proposed to include smart metering costs (including DCC, SEGB and SMICoP charges) in the operating costs baseline.

Stakeholder feedback

2.4. One supplier disagreed with our statement that we were not calculating the smart metering costs for 2017 because in their view in order to calculate the change in costs between the baseline and the cap period we must have calculated the absolute cost level at each point.

Rationale for proposed decision

2.5. We consider the most appropriate way of setting the smart metering baseline is by using suppliers' own cost information, as smart metering is now fully embedded in the operations of many suppliers.

2.6. While the model (see Chapter 3 for further details) includes an estimate of the net cost (ie the cost minus the benefits) of smart metering in 2017, we think it would not be appropriate to attempt to separate suppliers' smart costs from their other operating costs. We remain of the view that the model provides the best available approach for forecasting the net cost change of smart metering, as described below.

Accounting for smart metering costs in the first two periods of the default tariff cap

Proposed decision

Separate smart metering increment

2.7. We propose to include a separate smart metering increment, the SMNCC, which enables us, when initially setting and subsequently updating the cap, to vary smart metering costs in a different manner to the other elements of the cap. The increment focusses only on supplier costs, therefore it does not account for network benefits or direct customer benefits (through energy savings). Stakeholders wishing to understand the overall net benefits of the rollout of smart meters should refer to the latest version of the Department of Business, Energy and Industrial Strategy (BEIS) Impact Assessment.[2]

2.8. Given the uncertainty on smart metering costs and rollout profile, we propose to set the SMNCC for the first two periods of the default tariff cap up to the end of September 2019. In 2019, we propose to carry out a review of smart metering costs and rollout profile in order to set the SMNCC for cap periods from October 2019 onwards.

2.9. As previously described in our May consultation, we propose to use two models to calculate the SMNCC:

- The current BEIS Smart Metering Implementation Programme (SMIP) Cost Benefit Analysis (CBA) model is used as the starting point. We have made a number of modifications, including removing cost and benefit categories not relevant to suppliers as well as using more recent information from suppliers to better reflect the incremental net cost of smart metering on suppliers. As a result, we have created new outputs from the model that specifically calculate the net cost to energy suppliers for the purpose of setting the default tariff cap, (hereafter referred to as "the model").

- A separate model, using publically available charging statements and budgets, to calculate, firstly, the "pass-through" elements of the SMNCC (specifically this includes charges for DCC, SEGB, Alt HAN, SECAS and SMICoP), and secondly the SMNCC itself using inputs from the model. This forms part of the proposed changes to Supply Licence Conditions and was provided for information as part of the Supply Licence Condition changes consultation in June (hereafter referred to as "Technical Annex 5"[3]).

Components of SMNCC

2.10. We propose that the SMNCC is made up of two elements:

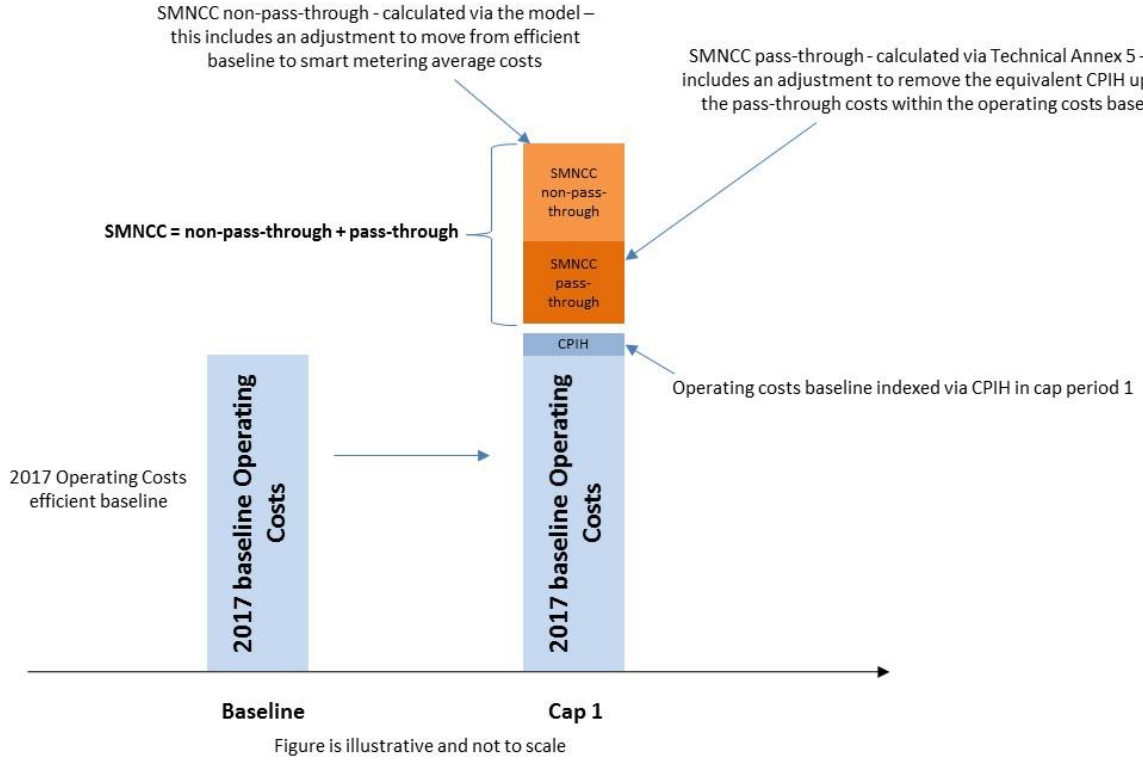
1. **SMNCC "pass-through costs": the changes in charges to suppliers of smart metering industry bodies** DCC, Alt HAN Co, SECAS, SEGB and SMICoP

[2] Smart meter roll-out (GB): cost-benefit analysis https://www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis
[3] Annex 5 - Smart metering net cost change methodology

2. **SMNCC "non-pass-through costs"**: **the changes in costs of suppliers rolling out smart meters** (including the cost of the metering assets, installation, In Home Display (IHD), system changes). This includes an adjustment to reflect different assumptions on efficiency levels of the operating costs baseline compared to the SMNCC, moving from an adjusted lower quartile cost approach to an average cost approach

2.11. Figure A7.1 below gives an illustrative view of how the SMNCC is constructed in the first period of the cap.

Figure A7.1: Smart metering costs approach



Source: Ofgem

Approach to smart metering industry bodies' charges

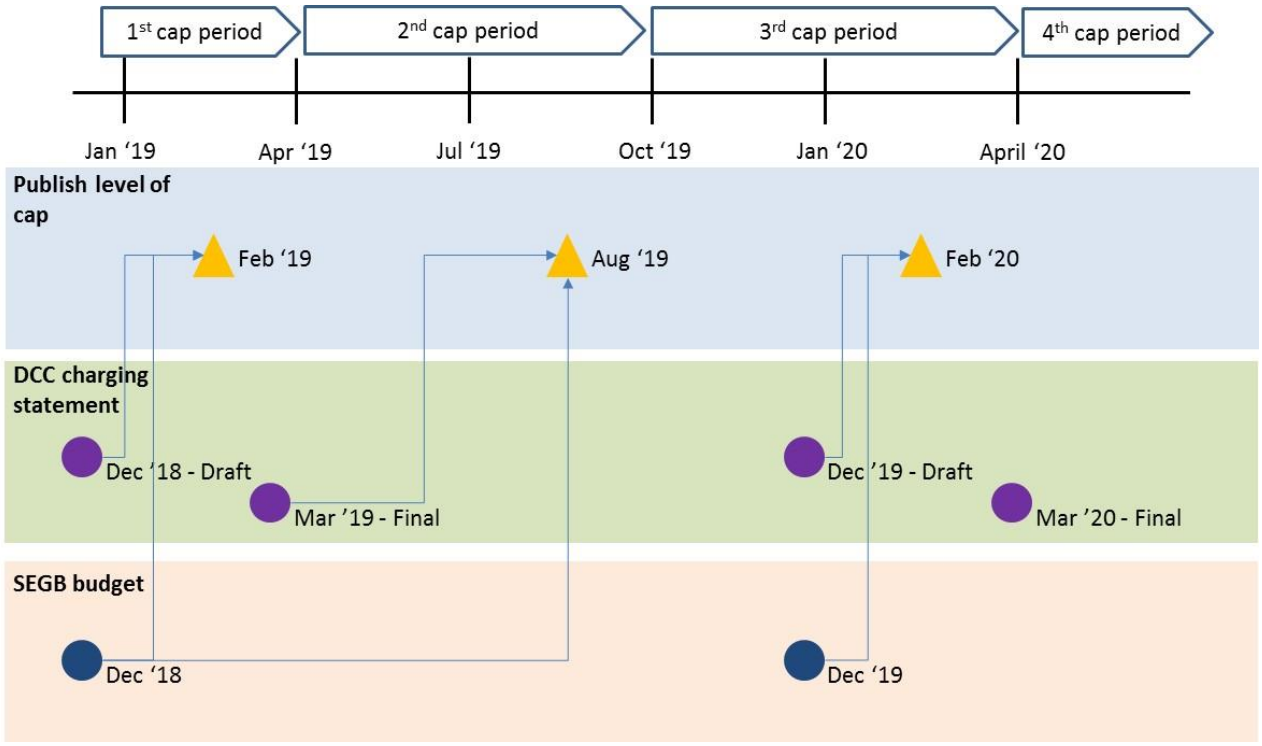
2.12. Within the SMNCC, we include DCC, Alt HAN Co, SECAS, SEGB and SMICoP charges as "pass-through"[4] costs. We will set these costs using published charging statements and a model which forms part of the licence.[5]

2.13. For DCC, SEGB and SMICoP we propose to use the most up-to-date charging statements/budgets available at the time of calculating the coming level of each period of the cap, summarised in Figure A7.2 below. Specifically:

[4] When we refer to "pass-through" we mean adjustments made to reflect the average cost across suppliers for smart industry bodies (DCC, SEGB and SMICoP).
[5] This model is included as Annex 5 to the gas licence (Standard Licence Condition 28AD.10) and electricity licence (Standard Licence Condition 28AD.11). We have published the licence conditions and models for consultation alongside this document.

- DCC (which operates on an April to March financial budgeting year)
    - April to September default tariff cap period – we propose to use the draft charging statement (which DCC is obliged to publish before December 31st)
    - October to March default tariff cap period - we propose to use the final published charging statement (available in March)
- SEGB (which operates on January to December financial budgeting year)
    - We propose to use the most recent annual budget. This will come into effect 3 months before we reflect it in the cap increment, so, if the budget has increased, suppliers will need to meet the additional costs for the new budget for three months (January – March). However, the materiality of this lag is low (e.g. between CY2017/18 and CY2018/19 we have modelled an increase of £0.07 per dual fuel customer) and budgets may go down as well as up.

Figure A7.2: Timetable for DCC and SEGB updates



Source: Ofgem

Approach to suppliers' smart metering costs

2.14. We propose to use the model as the starting point to calculate the change in costs of suppliers rolling out smart meters. Our modelling approach is fully described in Chapter 3.

Adjusting the smart metering costs baseline to reflect average costs approach

2.15. Because the efficient baseline for operating costs is deliberately proposed to be set on a different basis to the smart costs benchmark for future years, an adjustment is made: this is fully described in Chapter 4.

SMNCC at nil consumption

2.16. At nil consumption, we propose to include a reduced SMNCC value (73% of the full SMNCC amount). This approach and the rationale behind it is described in Appendix 1 - Benchmark methodology.

Proposed SMNCC

2.17. The proposed values for the SMNCC (all components) up to the end of September 2019 are shown in Table A7.1. In each case the value is shown as an individual increment above the 2017 baseline.

Table A7.1: SMNCC increment against 2017 operating costs baseline

Cap period	Electricity	Gas
Period 1: January 2019 – March 2019	£7.28	£7.77
Period 2: April 2019 – September 2019[6]	£10.61	£10.35

Source: Ofgem

What we consulted on

2.18. In our May consultation, we set out the following minded-to positions:

- We intended to include a smart metering increment which enables us, when initially setting and subsequently updating the default tariff cap, to vary smart metering costs in a different manner to the other elements of the operating cost part of the default tariff cap.
- Within the smart metering increment, we proposed to consider smart metering industry bodies' charges as "pass-through" costs for the purposes of the default tariff cap, and to be set with reference to published charging statements.
- The remainder of the smart metering increment would be set in advance, based on our view of the expected impact of the rollout on the operating costs of an efficient supplier.
- The increment was referred to as the SMNCC and would be calculated using two models:
  - The model to estimate the net cost change of smart metering to suppliers
  - Technical Annex 5 to estimate the charges to suppliers for DCC, SEGB and SMICoP.

2.19. For the purposes of modelling the SMNCC we assumed a smart metering rollout profile based on an average of supplier forecasts, as provided to Ofgem in February 2018.

[6] The proposed SMNCC is based on DCC forecast budget for regulatory year 2019/2020 https://www.smartdcc.co.uk/media/461820/ib_ry2021-ry2122_-_issue_2.0_vfinal.pdf

2.20. In addition, we specifically consulted on the following areas:

- Our minded-to position to include a separate smart metering increment to reflect the changes in costs from the baseline (2017) to the initial year of the default tariff cap.
- Our initial assessment for the SMNCC, including the costs of SEGB, SMICoP and DCC charges.

Stakeholder feedback

Our minded-to position to include a separate smart metering increment to reflect the changes in costs from the baseline (2017) to the initial year of the cap

2.21. Supplier responses indicated a strong preference for having a separate smart metering increment with no suppliers disagreeing with the approach. Suppliers cited that smart metering was a significant cost to their businesses, with costs evolving in a different manner from other operating costs.

2.22. Whilst agreeing with the concept of the SMNCC increment, suppliers raised a number of concerns with our proposed approach to calculating the SMNCC using the model, the costs and benefits that were relevant to the calculation of the SMNCC and the transparency of the input data, assumptions and the model. We respond to these in Chapter 3.

2.23. One supplier noted that the inclusion of a separate smart metering increment was critical, as for them smart metering was not a business-as-usual activity and there were significant challenges over the next two years of rollout, including the transition from Smart Metering Equipment Technical Specifications (SMETS) first version (SMETS1) to SMETS second version (SMETS2) meters. A number of other suppliers referenced significant challenges that the industry faces over the next two years, including the introduction of Dual Band Communication Hubs (DBCH), the enrolment and adoption of SMETS1 smart meters and the implementation of the Alternative Home Area Network (Alt HAN) solution.

2.24. A number of suppliers noted that smart metering formed an important part of achieving the policy objectives behind the Domestic Gas and Electricity (Tariff Cap) Act (the Act) because smart meters will enable customers to better engage in the competitive market place. The suppliers considered that the Act's success would be measured, in part, by the smart meter rollout and that a default tariff cap that adversely impacted the rollout would impact the effectiveness of the default tariff cap and the case for removing the default tariff cap

2.25. We had limited comments on smart metering costs from consumer organisations and other non-supplier stakeholders. One consumer organisation noted that the deployment of smart meters was viewed as an important initial step in promoting customer engagement and interaction with the energy market, promoting behavioural change and opening the door to a range of innovative tariff and product offerings. They also noted one of the underlying reasons for introducing the default tariff cap is to serve as a stop-gap measure until the rollout of smart meters can mitigate some of the challenges associated with the current climate of the industry – notably a lack of customer engagement.

Our minded-to position to include an adjustment to the reference price (Smart Metering Reference Price Adjustment (SMRPA)) in the event that a material difference is identified between the smart metering net costs of the suppliers making up the reference price and the model

2.26. We note that a reference price approach is not proposed for the default tariff cap. The minded to position to use a bottom-up cost assessment approach was not related to smart metering costs. We thank stakeholders for their comments on smart metering costs under a reference price approach.

Our initial assessment for the SMNCC, including our inclusion and assessment of the costs of SEGB, SMICoP and DCC charges

2.27. In this section we document stakeholder comments regarding the initial assessment of the SMNCC. We describe specific stakeholder comments regarding the modelling approach or included costs and benefits in Chapter 3.

2.28. The majority of suppliers who responded on this subject agreed with the initial assessment of the SMNCC. Some agreed, but with a number of concerns, and a minority of suppliers responding disagreed with the proposed approach. Suppliers raised the following concerns:

- That the indicative level of the SMNCC was too low. Some suppliers confidentially provided their own assessment of the level of the SMNCC for their organisation.
- Ofgem had not provided sufficient detail and information regarding the model, input data and assumptions and that without this detail it was difficult to meaningfully respond – see Chapter 5.
- Ofgem should develop its own smart metering costs model – see Chapter 3.
- The timing of DCC charging statements may not align to price cap periods which could lead to the cap not fully reflecting DCC charges – see Chapter 3.
- Ofgem had not clarified the SMNCC approach at nil consumption – see Appendix 1- Benchmark methodology.

Rationale for proposed decision

2.29. We agree with suppliers that smart metering is an important part of an efficient supplier's operations and that the change in net costs for smart metering should be accounted for in a separate smart metering increment (the SMNCC) which can be varied to reflect the change in costs and benefits.

2.30. We also agree that smart metering is a significant factor for the removal of the default tariff cap and that the default tariff cap should not adversely impact the rollout. Our detailed responses are covered in the following areas:

- Modelling updates and included costs/benefits – suppliers raised a number of transparency, modelling and relevant cost issues which we have considered in Chapters 3 and 5
- Rollout profile – we have adjusted our approach to use a higher rollout profile for the purposes of the modelling of the SMNCC, which is also considered in Chapter 3.

Updating the SMNCC beyond October 2019

Proposed decision

2.31. In 2019 we propose to undertake a review of the SMNCC using updated supplier costs and rollout profile data.

2.32. This review is intended to set the SMNCC for October 2019 and for future default tariff cap periods. We may choose to conduct further reviews post 2019. We expect the SMNCC to be in place for all default tariff cap periods.

2.33. For DCC, SEGB and SMICoP charges, we propose to use the most up-to-date charging statements/budgets available at the time of calculating each coming level of the cap, as described above.

What we consulted on

2.34. In our May consultation we considered three options for updating the non-pass-through elements of the SMNCC:

1. No specific updating approach required
2. Periodic cost assessments
3. Specific smart increment based on net cost analysis.

2.35. We were minded to choose option 3. We consulted on our intention to increment smart cost changes, based on net cost analysis (option 3), and whether any other approaches would be preferable to option 3.

Stakeholder feedback

Option preference

2.36. One supplier was strongly opposed to option 1 – having no smart metering increment. They considered that smart metering costs will vary in a manner that is different from other operating costs.

2.37. The majority of suppliers responded recommending option 2 – periodic cost assessment. In particular, suppliers were concerned that the costs of smart metering are likely to develop in an unpredictable way, which could deviate from the SMNCC model. They argued that a regular cost assessment was the most appropriate way to ensure the SMNCC reflected any cost changes that occur during the period of the cap.

2.38. A minority of suppliers agreed with our minded-to position to set the SMNCC using a specific smart metering increment approach based on net cost modelling. Within that minority, one supplier suggested that alternative methods may be more appropriate to calculate the SMNCC and that they considered adjustments would need to be made to the current modelling approach for it to be appropriate. Another supplier agreed with the minded-to position, subject to a number of issues and concerns.

2.39. One supplier noted that the ideal approach would be to combine the two. It proposed using a model which was periodically updated with accurate data.

2.40. One supplier noted that the proposed approach was too backwards looking and should also include accurate forecasts.

Rationale for proposed decisions

Option preference

2.41. We consider that smart metering is subject to uncertainty over the period of the default tariff cap. Supplier responses have demonstrated material differences in how suppliers consider that costs and benefits will evolve over the period of the default tariff cap.

2.42. We understand supplier concerns around smart metering net costs changing in a manner which is difficult to accurately model far in advance. As a result, we propose to:

- Set the SMNCC for the first two periods of the cap, noting the uncertainty that exists in forecasting smart metering costs and rollout profile beyond 2019.
- Include a review of the SMNCC in 2019 to set the SMNCC from October 2019 onwards. This review would use updated supplier smart metering costs data and rollout profiles as submitted to BEIS and Ofgem in early 2019.

2.43. We consider the above approach will provide sufficient scope to ensure the SMNCC accurately reflects the realities of the rollout, whilst providing suppliers with clarity on how it will be updated over the period of the default tariff cap.

3. Modelling, rollout profile and relevant costs

We set out our proposed approach to modelling the SMNCC, the rollout profile modelling assumption and which costs and benefits are relevant.

This includes detail of the major modelling changes since our May consultation.

The modelling approach

Proposed decision

3.1. We propose maintaining our minded-to position in our May consultation and use the model to assess the SMNCC relative to the baseline (2017) to allow for the change in smart metering costs over the period of the default tariff cap.

What we consulted on

3.2. Prior to our May consultation, we considered the options of using the BEIS SMIP CBA model as a starting point to develop a model to estimate the SMNCC. This would require a number of amendments, including removing costs and benefits not relevant for setting the cap or captured elsewhere, and adding new calculations and outputs. We considered an alternative option of issuing a full smart metering Request for Information (RFI) for the construction of a bespoke Ofgem smart metering model.

3.3. We set out in our May consultation that we were minded to use the BEIS SMIP CBA model as a starting point to develop a model to estimate the SMNCC (referred to as "the model"). We did not consider a full smart metering RFI and construction of a bespoke Ofgem smart metering model to be proportionate. However, we were minded to consider whether further adjustments to the model may be undertaken to reflect other relevant supplier costs and benefits.

Stakeholder feedback

3.4. The majority of responding suppliers agreed to the principle that modelling the forecast net costs of smart metering was an appropriate approach. In addition, a majority of responding suppliers agreed with using the BEIS CBA model as a starting point and then updating.

3.5. A minority of suppliers disagreed with the use of the model. They raised concerns that the BEIS CBA model was not built to model the net cost of smart metering for suppliers and instead was designed to assess the full economic case for smart metering. One supplier raised concerns around the time granularity of the model for assessing a six-month default tariff cap. The majority of the six largest suppliers stated that Ofgem should request additional information from suppliers to populate the model.

3.6. The majority of the six largest suppliers stated their view that it was difficult to provide a meaningful response given the information provided on input data, assumptions and outputs of the model. In addition, all of the six largest suppliers requested additional insight on the data, assumptions, structure and outputs of the model, with a majority also requesting a data/disclosure room be established (see Chapter 5).

Rationale for proposed decision

3.7. Having reviewed supplier responses, we still consider using an updated and adjusted version of an existing smart metering model to be significantly better than starting a new model and new data. A new model would add significant uncertainty compared to one that has been developed and refined over time, and as a result is unlikely to provide a more accurate forecast of the SMNCC.

3.8. We understand suppliers' concerns that the original BEIS CBA 2016 model was built for a different purpose. We have addressed these concerns through updating the model to use up to date cost and rollout information from suppliers, removing costs and benefits that are not relevant and updating assumptions based on current information. In the sections below we describe the further adjustments we have made since our May consultation as a result of supplier comments and our analysis. Annex A of this document sets out an assumptions log for calculating the SMNCC.

Rollout profile

Proposed decision

3.9. In our May consultation we proposed using a rollout profile based on a volume weighted average of the largest eleven suppliers' rollout forecasts to calculate the value of the SMNCC. We have since completed further analysis and now propose to use a different rollout profile to set the SMNCC for the first two default tariff cap periods. This profile balances the need to ensure that the smart meter increment does not allow energy suppliers to collect more money from consumers during 2019 than is appropriate, with the need to ensure that efficient suppliers are able to continue progressing with the timely rollout of smart meters during the same period.

3.10. We also propose to review the approach to setting the SMNCC in 2019 in time for the third cap period, reflecting the uncertainty on smart meters over the period of the default tariff cap.

What we consulted on

3.11. For the May consultation, we proposed using a rollout profile based on a volume weighted average of the largest eleven suppliers' rollout forecasts.

Stakeholder responses

3.12. One supplier requested access to our smart metering rollout profile assumptions. We have provided our updated assumptions in Table A7.2.

Rationale for proposed decision

3.13. The rollout profile is a major factor in determining the non-pass through element of the SMNCC, and the level at which it is set within the modelling could influence an energy supplier's rollout of smart meters. We do not want to disadvantage energy suppliers who are making progress above the industry average or to disincentivise them from rolling out smart meters. Doing so would have a detrimental impact on consumers.

3.14. We have considered different modelling assumptions for the rollout profile at the end of 2020. Given that there is uncertainty in forecasting the rollout profile beyond 2019, we propose to focus on the first two periods of the default tariff cap (January 2019 to end September 2019). We also propose to review the SMNCC ahead of the third period of the default tariff cap (October 2019).

3.15. Whilst we recognise that BEIS SMIP delivery is not being driven by EU action, we consider that the EU target for installing electricity meters by end 2020 is a prudent minimum end point modelling assumption for the purposes of considering the SMNCC. For 2019, we have extrapolated between the level forecast in 2018[7] and this modelling assumption. The proposed modelling assumption for the rollout profile for the SMNCC is shown in Table A7.2.[8]

Table A7.2 – Proposed smart metering rollout profile

Fuel	Supplier actual installations		Rollout allowance *(supplier forecast)*	Rollout allowance *(extrapolated)*
	End 2016	End 2017	for end 2018	for end 2019
Electricity	9.9%	19.9%	29.9%	55.0%
Gas	9.5%	18.9%	28.5%	54.3%

Source: Ofgem

3.16. For the avoidance of doubt, this does not represent a change to suppliers' obligations to take all reasonable steps to rollout smart meters to all their domestic and small business customers by the end of 2020.

3.17. We note that, when we review the SMNCC in October 2019, we are not obliged to select the same approach and will consider the most appropriate rollout profile as part of the review.

Included and excluded costs and benefits in the SMNCC

Context

3.18. In our May consultation, we provided an overview of the cost and benefit categories within the model used to calculate the non-pass through element of the SMNCC (i.e. the elements of the SMNCC which are not related to smart metering industry body charges). Below is an updated table which includes the categories within the model, which takes account of our adjustments in response to stakeholder comments and further analysis.

[7] We have used an average of the forecast rollout profiles of the largest eleven suppliers to estimate the rollout profile for 2018.
[8] The 2017 baseline indicates completed installation numbers, and we have noted the 2016 completed installations for reference.

Table A7.3 – Costs categories used in the calculation of the SMNCC

Cost categories	Benefits categories
In premise costs Meters and IHDs Installation of meters Operation and maintenance of meters Communications equipment in premise **DCC related costs** Communications services[9] **Suppliers' and other participants' system costs** Supplier capex Supplier opex **Other costs** Disposal Pavement reading inefficiency Organisational	**Supplier benefits** Avoided site visits Inbound enquiries Debt handling Remote (dis)connection Reduced theft

Source: Ofgem

3.19. In this section we describe the proposed changes we have made to the modelling assumptions to reflect supplier consultation responses, along with changes that have arisen as a result of our own review of the modelling assumptions. We also explain where we consider a change is not required.

3.20. When assessing whether changes were required to the model we considered:

- **Whether the comment was supplier-specific or industry-wide.** Comments which are supplier specific are unlikely to be incorporated into the default tariff cap as we cannot develop a cap which is specific to particular suppliers.
- **Whether the comment referred to costs which were incurred prior to the implementation of the default tariff cap.** These are unlikely to affect our calculation of the default tariff cap in the relevant cap periods.
- **Whether the comment related to the baseline.** As the baseline is calculated based on suppliers' own cost information, comments related to the baseline are unlikely to affect a calculation of the SMNCC which is based on changes between years.
- **Whether the comment relate to costs which should already be included in supplier Annual Supplier Report submissions.** Such costs should already be included in the model and should not require further adjustments.

3.21. Where comments did not meet the categories described above, we then further considered the comment and whether an adjustment to the assumptions or

[9] Communication services relating to SMETS1 meters. SMETS2 communication services are modelled in Annex 5 to draft licence condition 28AD.

methodology was required. The most widely-cited of supplier comments were as follows:

- Comments about the validity of supplier benefits, and whether these are likely to be realised over the period of the default tariff cap.
- Comments about the evolution of pass-through charges due to DCC, SEGB and SMICoP.
- Comments about charges that suppliers incur directly due to delays in the implementation of the DCC, particularly around additional IT costs due to enrolment and adoption of SMETS1 meters into the DCC.
- Comments about other costs which suppliers believe are likely to change significantly relative to the 2017 baseline, in particular:
    - the costs of early termination charges for dumb meter rentals
    - changes to installation costs as rollout progresses
    - additional costs due to inbound customer enquiries
    - additional costs of marketing and customer engagement.

3.22. In addition, one supplier noted they were currently subject to increased meter asset provider (MAP) rental costs for SMETS1 smart meters which they had gained and that this was an issue for independent suppliers.

3.23. We provide further detail below regarding our responses to these comments, and the outputs of our further analysis. Annex A specifies the changes we have made to the model at a line-item level in order to calculate the SMNCC.

Inclusion of supplier benefits within the model

Microgeneration and switching

3.24. We propose to remove supplier-related benefits from microgeneration costs, and benefits from customer switching from the calculation of the SMNCC in the model. Both of these benefits categories were included in the provisional SMNCC estimates in our May consultation.

3.25. One supplier commented that the benefits of microgeneration assumed suppliers benefitted from the avoided cost of installing export meters for microgeneration customers. In practice, the supplier stated these costs would not be socialised across all customers, but would have been recovered from the relevant customers. Therefore, although suppliers may realise these benefits with some customers, we propose these benefits should not be considered within the SMNCC.

3.26. Suppliers also commented that delays in the rollout of SMETS2 meters means that full benefits from customer switching are unlikely to be realised in the short term.

3.27. We understand concerns raised that full benefits in these two categories may be challenging for efficient suppliers to realise in the timeframe of the default tariff cap. In order to ensure that the model reflects the benefits efficient suppliers are able to

realise from the implementation of smart meters during the lifetime of the default tariff cap, we propose to remove these from the model.

Other benefit categories

3.28. We propose not to make adjustments to other benefit categories of the model.

3.29. Suppliers also commented that other benefit categories within the model may not be realised because they include a high element of fixed costs. These categories include debt handling benefits, benefits of reduced inbound customer enquiries, avoided meter readings and reduced theft.

3.30. Suppliers did not provide evidence that these costs are mainly based on fixed costs. Each of these avoided cost categories are incurred at the level of individual customers; there is no clear prerequisite that a sufficient level of smart meter rollout be achieved before any of these benefits can be realised, and suppliers have not provided evidence to contradict this.

3.31. Some suppliers have provided arguments that *costs* of inbound customer enquiries are incurred on an incremental basis. Our view is that this evidence further supports our position that these *benefit* categories are incurred on an incremental basis.

SEGB, SMICoP and DCC charges

3.32. For the purposes of the default tariff cap, we propose the charges for SEGB, SMICoP, DCC, Alt HAN Co and SECAS should be passed through.

3.33. Our proposed approach to setting a pass-through increment is as follows:

- Using the charging statement/budget from the industry organisations for the baseline period, we would establish the total charges to suppliers for the baseline period.
- The individual pass-through charges would be aggregated to a total cost for electricity per customer, and for gas per customer, for the baseline period. Electricity and gas increments are additive, to provide an increment for a dual fuel customer.
- We would then repeat the above approach for the first period of the cap (using the most recent charging statements/budgets).
- This difference would allow us to calculate the difference against the baseline (expressed in real terms, using the consumer prices index including owner occupiers' housing costs index (CPIH) to update).

3.34. In response to our May consultation and consultations on the draft licence conditions, suppliers raised a number of issues around our proposed treatment of SEGB, SMICoP, DCC charges. We address them in turn below.

Volume of metering points

3.35. We use the volume of metering points in our modelling of both pass-through and non-pass-through elements of the SMNCC. A number of suppliers requested we provide additional detail on the volume of metering points used for the DCC, SEGB and SMICoP charges. We propose to maintain consistency with the other parts of smart metering modelling and use the publicly available metering point volumes as stated on the BEIS website.[10]

SEGB charges

3.36. A number of suppliers questioned whether our approach to SEGB charges would take account of the different levels of charges to fully obligated suppliers when compared to non-obligated suppliers. For SEGB charges, 'fixed costs' are incurred by all suppliers, whilst 'capital costs' are incurred by larger suppliers (fully obligated suppliers).

3.37. In setting a single default tariff cap that applies to all suppliers, we propose to model SEGB charges for a fully obligated supplier. We note that this would lead to the SMNCC providing a marginal over-provision for non-obligated suppliers.

SMETS2 meter volumes

3.38. We propose to use the rollout profile as described earlier in Chapter 3 to forecast the number of SMETS2 communication hubs in order to determine the communication hub fixed charge element of DCC charges.

3.39. We have used a simplified split of SMETS1 to SMETS2 smart meters, assuming that up to the end of 2018 100% of smart meters will be SMETS1 and from the start of 2019 onwards all newly installed smart meters will be SMETS2. We note that BEIS is currently consulting on moving the SMETS1 end date to 5 December 2018[11] and that the level of SMETS2 meters in the market is currently significantly lower than SMETS1 meters.

Scale of DCC, SEGB and SMICoP charges

3.40. A number of suppliers raised concerns about the inclusion of the SEGB, SMICoP, and DCC charges within the model, with the suggestion being that the latest forecast of DCC charges was higher than the forecasts provided in March 2016 for the BEIS CBA. As described in our May consultation, we have excluded DCC, SEGB and SMICoP charges from the model and created a separate pass-through costs model (Technical Annex 5) for these charges using up-to-date charging statements and budgets. We consider this should resolve suppliers' concerns regarding any underestimation of DCC, SEGB and SMICoP charges.

3.41. A number of suppliers have expressed concern over the volatility of DCC charging statements – both between draft and final versions, and also for mid-period updates.

[10] https://www.gov.uk/government/collections/sub-national-electricity-consumption-data https://www.gov.uk/government/collections/sub-national-gas-consumption-data
[11] https://smartenergycodecompany.co.uk/latest-news/beis-consultation-on-extention-of-smets1-end-date/

Should the concerns be realised, it could be the case that a supplier is over-/under-compensated for up to six months, before the pass through increment is updated. We are minded not to provide a correction mechanism for the following reasons:

- Whilst the change in DCC charges between years has been relatively high, this would be captured through our proposed updating mechanism, and therefore would be reflected in the default tariff cap increment.
- The materiality of the charging changes between DCC draft and final charging statements is relatively low:
    - An increase to industry of £5.6m between draft and final for FY2017/18
    - An increase to industry of £340k between draft and final for FY2018/19.
- The materiality of in year charging statement changes has been low:
    - The most recent in-year update to the charging statement increased the DCC element of the smart metering industry charges by £1.2m (due to the introduction of the DBCH).
    - In the event of a mid-year charging statement update, DCC is required to provide three months' notice before charges are enacted. We would reflect the updated charging statement into the next period of the cap. This potentially leaves suppliers with a maximum of three months of exposure to amended DCC charges.
    - We note that suppliers do not appear to have adjusted standard variable and default tariffs purely as a result of changes to DCC charges.

3.42. Finally, we do not intend to use the indicative charging statements but intend to use the draft charging statement (published in December) to set the SMNCC for default tariff cap periods starting in April, and the final charging statement (published in March) to set the SMNCC for cap periods starting in October.

DCC Explicit Charges

3.43. Two suppliers requested clarification of our approach to DCC Explicit Charges. Whilst these are not, in operation, determined by the number of metering points but instead the number of additional items purchased, we have decided to socialise these costs equally between all suppliers. This is because materiality of the cost is relatively low (when compared to the remainder of DCC charges), and modelling for each supplier is not feasible due to the Act's requirement to have single electricity and gas caps for all suppliers.

Costs associated with the delay of SMETS2 meter deployment - IT costs

3.44. In the supplier IT cost category, we have decided to account for an industry-wide increase in supplier IT costs, which is annuitised beginning in 2019. We have decided not to make any other adjustments to costs related to the delay of SMETS2 deployment.

3.45. In response to our May consultation, suppliers raised concerns that several costs are incurred by suppliers relating to the delay in SMETS2 meter deployment. These costs include the additional costs of enrolment and adoption of SMETS1 meters into the DCC, and incremental costs of SMETS1 meters due to delays in the deployment of SMETS2 meters.

3.46. Our estimate of the additional cost, and the year in which this is incurred, is based on an ongoing consultation by BEIS regarding the enrolment of the first four types of SMETS1 meters in the DCC. The Government Response will be published in due course, at which point the decision whether to enrol these meters will be confirmed, accompanied by updated cost estimates if relevant. For the purposes of the SMNCC, we have used provisional estimates provided by BEIS based on the average cost estimates from supplier responses, covering the whole SMETS1 market. This adjustment to the provisional SMNCC estimate has been included as an additional supplier IT cost within the model.

3.47. Comments from suppliers also raised concern about the costs due to operating separate, parallel IT systems for SMETS1 and SMETS2 meters during the transition period. The model incorporates additional costs due to the deployment of systems relating to SMETS2 meters, but does not assume an offsetting reduction in the IT costs associated with SMETS1 meters. As we expect the cost of SMETS1 meters to be within the 2017 baseline operating costs, we have decided not to make an adjustment.

3.48. Other incremental costs associated with SMETS2 meter delays are already factored into the non-pass through estimate. The model includes different meter cost assumptions for SMETS1 and SMETS2 meters, and assumes SMETS2 meters are not deployed until 2019.

3.49. Costs related to additional SMETS1 meters are therefore accounted for in the model. Furthermore, any additional costs relating to SMETS1 meters in the delay period are not expected following the time the price cap is implemented. Therefore, we are not minded to make further adjustments to account for costs beyond enrolment and adoption costs.

Traditional meter rental termination charges

3.50. We are minded to make adjustments to the model to account for additional costs suppliers face from terminating traditional meter rental agreements early due to smart meter rollout.

3.51. Several suppliers raised concern that the charges associated with traditional meter rental termination are excluded from the model.

3.52. We agree that suppliers could face early termination charges for traditional meters and this should be reflected in the modelling of the SMNCC. As a result, we have updated the model to include the financial impact on suppliers of removing traditional meters

early, and thus incurring additional costs of traditional meter rental termination charges.

3.53. The model initially includes the costs to suppliers of a subset of the proportion of traditional meters, representing the proportion where home area network (HAN) arrangements prevent the installation of a smart meter under normal or alternative arrangements (called "no HAN" meters). These meters are assumed, under the BEIS CBA model, to incur traditional meter costs in the policy scenario which are annuitised over the life of the meter.

3.54. To prevent double counting of costs, we are minded to remove the assumptions on no HAN meters and have included these in the total population of traditional meters in which early termination charges may apply. We have done this by setting the population of no HAN meters at zero.

3.55. The calculation of traditional meter rental termination costs includes the following steps:

- First, we approximate the average age of the pool of existing traditional meters.
- Second, we estimate the number of traditional meters which are displaced prior to the end of their life.
- Third, we calculate the lump sum financial impact within year of early termination charges on these traditional meters.
- Fourth, we apply this number to the overall cost of meter assets and installation.

3.56. The model provides estimates in each year of the following items:

- The number of traditional meters installed by the end of each year.
- The proportion of traditional meters (those installed by the end of 2011) reaching the end of their life in each year.
- New dumb meters being installed in each year.

3.57. We estimate the average age of the traditional meter population by starting with a uniform distribution assumption (assuming the average age is ten years old), and then removing the proportion of legacy meters expiring each year as 20-year-old meters. A new average age is calculated from the remaining pool of traditional meters. The new meters that are installed are assumed to be one-year-old at the end of each year. A new average age is calculated based on the total population.

3.58. The model provides an estimate of the number of traditional meters which are replaced early. The financial impact on the industry is then calculated annually as the counterfactual traditional meter asset or installation cost, scaled by the number of early retiring traditional meters within that year, scaled by the difference between 15 years and the average age of the traditional meter population.

3.59. We recognise that there are different contractual arrangements in place for legacy meters, some of which incur no Premature Replacement Charge (PRC). For the purposes of setting the SMNCC, we have chosen to use 15 years as the upper bound at

the point at which no PRC will be incurred. We consider there may be some instances where the replacement of a traditional meter does not incur a PRC, even if it is replaced before the end of its lifetime (which we have assumed to be 20 years). To account for this, we have assumed that the average age of traditional meters up to which a PRC would be incurred is 15 years. In effect, this assumes a quarter of all traditional meters will not incur a PRC when replaced.

3.60. The financial impact in each year is then added as a lump sum value to the annuitised cost of meter assets or installation to account for the lump sum nature of the termination charges.

Installation costs

3.61. We are minded to make an adjustment to setting the efficient benchmark for installation costs within the SMNCC. We describe this in Chapter 4.

3.62. Suppliers provided evidence that installation costs increased from 2016 to 2017, and commented that these costs are likely to continue rising throughout the rollout programme. As we have used 2017 ASR responses to establish the baseline costs of installation, we have accounted for any changes in costs between 2016 and 2017. The model itself also includes assumptions about how installation costs are likely to grow over time, particularly in years of high rollout, as well as a level of optimism bias for cost uncertainty which we have set at 2.5%.

3.63. For installation costs, bottleneck costs within the model account for potential cost growth during rollout. Bottleneck cost uplifts are assumed to scale upwards for each additional percentage of rollout in any given year which is above a threshold value.

3.64. Given these provisions for cost changes, and the planned review in 2019, we are minded not to make any further adjustments for uncertainty.

3.65. We are minded to make adjustments for anticipated efficiency improvements. Suppliers provide forecasts to Ofgem of the anticipated installations per day, as a measure of rollout productivity, on an annual basis until 2020. Based on the average productivity of the six largest suppliers, we expect to see improvements in productivity between 2017 and 2018. This supplier submitted data suggested an anticipated 40% improvement in productivity between the ASR responses (reported in 2017) and 2018.

3.66. We propose to make an adjustment to the installation costs within the model to account for the gains in installation productivity between 2017 and 2018. These forecasts are consistent with suppliers' expectations that rollout will progress significantly over this year.

3.67. We apply a 40% adjustment to the proportion of the six largest suppliers' insourced (i.e. supplier field force which has not been outsourced to a third party installer) variable installation costs for single fuel installations. This includes costs associated with installer wages and vans (fuel, maintenance, etc), and accounts for approximately 66% of the total reported cost of an insourced single fuel installation.

3.68. The total adjustment calculates the updated estimate of a single fuel insourced installation cost to be 79.7% of the 2017 ASR reported cost.

3.69. We apply this to the ASR costs for insourced single fuel installation to account for productivity improvements between when survey data was completed and the implementation of the cap.

Costs of inbound customer enquiries

3.70. We have decided not to make an adjustment to the model to account for any increases in inbound customer contacts due to smart meter rollout.

3.71. Some suppliers provided evidence that inbound customer enquiries increased in the three months prior to smart meter installation, as well as in the immediate nine months afterwards.

3.72. Our understanding is that the costs of inbound customer enquiries prior to smart meter installation are accounted for through the appointment setting costs suppliers provided as part of the installation cost of a smart meter in ASR responses. Therefore, these costs should already be reflected within the SMNCC estimates.

3.73. The increase in inbound customer contacts after smart meter installation do not appear to be significantly higher than suppliers' reported baseline levels of customer contact. We have not seen any evidence through responses which suggests that these costs would necessarily be efficiently incurred. Our understanding from discussions with BEIS is that possible drivers of increased inbound customer contacts following a smart meter installation may be driven by other factors, such as customers enquiring about billing errors discovered through the installation of the smart meter and are therefore not directly relevant for the SMNCC.

Marketing costs

3.74. We have decided not to make an adjustment to account for incremental marketing costs due to smart meter rollout.

3.75. Some suppliers raised concerns that customer engagement and marketing costs outside of SEGB charges are understated in the model. Suppliers also noted that customer engagement would become more difficult in later periods of the rollout, as in early periods, more engaged customers would be targeted first.

3.76. We believe the costs of customer engagement have been sufficiently considered in the default tariff cap. First, SEGB charges are treated as a pass-through cost item, and therefore as SEGB plays an increased role in industry-wide engagement of customers, the direct impact of this on suppliers is mitigated.

3.77. We also believe that supplier-specific marketing costs for customer engagement have already been included within the 2017 baseline of operating costs.

3.78. Costs related to the direct engagement of customers preparing for a smart meter installation are accounted for through the ASR responses, which includes appointment-setting costs within its estimate of installation costs.

3.79. Lastly, we do not agree that it is possible to separate marketing costs into smart meter and non-smart meter related activities. As the smart meter rollout progresses, we expect suppliers may engage with and compete for customers on the merits of their

smart meter capabilities. We expect that as supplier marketing campaigns are coordinated at a business-wide level, the boundaries of what constitutes smart-related or non-smart-related marketing is increasingly ambiguous. It is also possible that a displacement of general marketing cost may occur due to the smart metering rollout, but that the marketing costs would have remained broadly similar in the counterfactual of no rollout.

Other changes to the non-pass through element of SMNCC

3.80. The model accounts for cost uncertainty through the application of an optimism bias, which applies to all smart meter assets, IHDs, and installation costs. In the current BEIS SMIP CBA model this is set to 5% and covers the entire period of the rollout. Given our use of updated cost and rollout profile data, the reduced uncertainty in cost evolution due to half the rollout period having passed and the scheduled review for 2019, we have reduced this optimism bias from 5% to 2.5%.

4. Establishing the efficient cost of smart metering

We set out our proposed approach to non-efficiency costs variations and the appropriate level of cost efficiency to apply to the SMNCC. Our approach is to consider the efficient benchmark for smart metering costs in the round, based on an average efficient level. This reflects that there may be some variations and uncertainties in cost estimates some of which may offset each other. As such, we think it is reasonable, based on the evidence presented, to consider all these issues together.

Efficient Cost

Proposed decision

4.1. We propose to set the SMNCC based on the average of the six largest energy suppliers' modelled costs, as provided as part of the 2017 ASR to BEIS.

What we consulted on

4.2. In our May consultation, we consulted on the approach to determining efficient smart meter costs. We discussed three options for setting an efficient benchmark for these costs based on the:

- average costs of the largest six suppliers;
- costs of the supplier representative of the lower quartile of the largest six suppliers; and
- costs of the most efficient, or frontier of the largest six suppliers.

4.3. We asked for comments on the proposed methodology for calculating the efficient cost of rolling out a smart meter, indicating a preference with supporting rationale, on the efficiency option (average cost approach, pure frontier cost approach, lower quartile approach).

Stakeholder feedback

4.4. The majority of suppliers responding proposed using an average cost for the largest six suppliers to determine the efficient cost of rolling out a smart meter. One small supplier suggested that the cost to smaller suppliers is likely to be significantly higher than for the large suppliers, as such, using the frontier or lower quartile will be a difficult target for these suppliers to achieve and likely under recover the costs involved in rollout. As a result, they supported the average as it incentivises higher cost suppliers to improve efficiency to achieve the average.

4.5. One supplier suggested an upper quartile cost approach would be more appropriate.

4.6. Suppliers cited the uncertainty of the rollout as the rationale for adopting an average cost efficiency approach for the SMNCC. Suppliers also referenced concerns with our proposed approach to modelling as a reason to not adopt a frontier or lower quartile cost approach.

Rationale for proposed decision

4.7. In our May consultation we described the analysis we had undertaken so far to assess whether non-efficiency variations existed across suppliers for smart metering and whether we need to apply a specific correction. At the time we concluded that the evidence was not sufficiently conclusive to adopt a specific non-variation adjustment.

4.8. Since our May consultation we have undertaken a supplier-specific impact analysis, using suppliers' ASR responses, to gain a greater understanding of the variation between suppliers' rollout profiles and a number of key smart metering costs:

- Asset
- Installation cost
- IHD
- Communications hub.

4.9. The analysis appears to show the following trends:

- There is limited variation across the majority of major cost items (asset, IHD and communications hub).
- There is significant variation on how suppliers report installation costs in the ASR which we do not believe is solely the result of differing cost assumptions.
- Suppliers' rollout profiles have a significant impact on how their net cost profiles compare against the SMNCC.

4.10. As a result, we have concluded that:

- whether suppliers would be positively or negatively impacted under different efficiency approaches (frontier, lower quartile and average) is significantly impacted by a supplier's rollout profile; and
- variation in installation cost is a significant factor in whether suppliers would be positively or negatively impacted under different efficiency approaches, and does not appear to be linked to supplier scale or rollout maturity.

4.11. Using frontier or lower quartile costs scenarios could mean that an efficient supplier with a markedly different rollout profile from the profile we propose to use to calculate the SMNCC would be negatively or positively impacted, despite having a more efficient cost profile.

4.12. Reported variations in installation cost could be explained, as suggested by some suppliers, as being due to rising installation costs, particularly outsourced installation costs, with suppliers experiencing different costs depending on when contracts are agreed with outsourced installers.

4.13. We consider that for smart metering, a different approach to efficiency is justified from other parts of the default tariff cap. We are particularly concerned that an efficient supplier that intended to rollout a higher percentage of smart meters than the

modelled profile could be negatively impacted in year under a frontier or lower quartile approach.

4.14. We therefore propose to set the SMNCC based on the average of the six largest suppliers' smart metering costs. We propose to use the six largest suppliers' costs because the quality of the available data is higher and some other suppliers are following different rollout approaches which may mean their costs are less appropriate to use.

4.15. As stated in Chapter 2, we are assuming that smart meter costs and benefits are included in suppliers' operating costs for the setting of the baseline. In Appendix 6 - Operating costs, we describe the approach and justification for our proposal to set the efficient benchmark for operating costs by adjusting the costs of the lower quartile company to account for customer base variation. It is assumed that the efficiency savings in the benchmark can be achieved without reducing the business as usual smart costs.

4.16. Because the proposed efficient benchmark for operating costs is deliberately set on a different basis to that of the smart costs benchmark for future years (where the smart costs and benefits are calculated on an average basis, as described above in section 4.1), we need to make an adjustment for this difference in respective periods of the cap when calculating the non-pass through element of the SMNCC. This ensures that the SMNCC correctly reflects the incremental smart metering cost uplift for an average cost efficiency from the lower quartile efficiency baseline.

4.17. We have assessed the 2017 ASR smart metering costs and rollout numbers of the lowest overall operating cost supplier of the six largest suppliers, whose operating costs are also at the lower quartile overall. We have found that this supplier also has approximately lower quartile smart metering costs, while having a rollout profile that is broadly representative.

Variation in suppliers' smart metering costs

Proposed decision

4.18. We propose to not include any specific treatments for non-efficiency variations as part of the SMNCC. We have considered in the round the views on potential non-efficiency variations put forward by stakeholders. We do not propose to consider individual treatments, but instead – as described above - we intend to adopt an average efficiency approach that should account for any unidentified cost differences between suppliers.

What we consulted on

4.19. In our May consultation, we noted we had analysed the following potential non-efficiency variations:

- **Supplier scale** - whether there are any significant differences between the six largest suppliers and other large suppliers which would require a non-efficiency variation to be included in the SMNCC. We did not assess small suppliers as we have access to limited information on small supplier smart metering costs and benefits through the model and ASR.

- **Rollout maturity** - suppliers are all at different stages of their smart meter rollout. We considered whether the level of maturity (percentage of customers with a smart meter) has an impact on suppliers' cost base over the lifetime of the default tariff cap.

4.20. For both these potential non-efficiency variations we assessed whether there was a trend in:

- **Asset cost** – are large suppliers able to access cheaper deals with MAPs due to their greater scale and larger order volumes?
- **Installation costs** – does the greater customer density of the six largest suppliers drive additional installation efficiencies? Can larger suppliers access lower cost deals from third party installers?

4.21. Following analysis, we considered that on both supplier scale and rollout maturity there was not a strong trend on asset cost and installation. As a result, we were minded to not include any non-efficiency variations in the SMNCC. We invited suppliers to comment on whether they agreed with our judgments; in particular, our choice of data and model, identification of relevant costs and benefits, and approach to variation.

Stakeholder feedback

4.22. A number of respondents identified the following non-efficiency cost variations that we should further consider:

- Rollout maturity/strategy
- Suppliers with more engaged customers (positive cost impact / negative impact)
- Accounting approach
- Supplier scale
- Geographic distribution.

4.23. We discuss these variations in turn below. In each case, we do not consider there is a strong rationale for a specific non-efficiency variation. Our approach to consider such issues in the round, through adopting an average efficiency benchmark, reflects the potential for these kinds of potential variations, notwithstanding the lack of evidence provided in response to the policy consultation.

Rollout maturity/strategy

4.24. Several suppliers suggested that there should be a link between rollout maturity and the cost of installation, the assumption being that suppliers which are further along in their rollout will have more expensive installation costs as it becomes increasingly difficult to engage with more difficult to reach customers.

4.25. We agree with the hypothetical rationale that suppliers are likely to target - in large numbers - the most difficult customers with the most technically demanding installations towards the later part of their rollout. We can envisage why this may drive

costs up. We also note that suppliers should be getting more efficient at rolling out smart meters which may have the opposite effect.

4.26. However, the assumption that suppliers further along in their rollout have more expensive per installation costs is not clearly shown in the ASR data. We also note that suppliers that are further along in their rollout have fewer meters to install than suppliers who are less advanced in their rollout. On a per installation basis this may mean that a supplier which is further along in its rollout has relatively more smart metering increment on a per installation-to-be-completed basis.

Suppliers with more engaged customers (positive cost impact / negative impact)

4.27. One supplier noted that suppliers who are gaining new customers are likely to benefit from having a more engaged customer base and therefore reduced costs of installation (including costs of agreeing the appointment).

4.28. Conversely, another supplier indicated that the opposite may be true, as suppliers who are gaining new customers can be exposed to higher MAP charges as the gaining supplier. In addition, many of the impacted suppliers (small suppliers) are likely to be at a very early stage of rollout, limiting the evidence.

4.29. Given the contrary positions along with the early stage of small supplier rollout we do not consider there is a strong rationale for a specific non-efficiency variation for engaged customers.

Accounting approach

4.30. A number of suppliers suggested that Ofgem should consider accounting approach as a non-efficiency cost variation, the rationale being that if a class of suppliers is using a different form of accounting treatment for major costs (for example, taking costs within year rather than capitalising across several years) then such suppliers would incur comparatively greater costs within the period of the default tariff cap.

4.31. In our modelling we assume that major costs (eg meter asset, installation, system changes and communication hubs) are capitalised over a 15-year period. IHD costs are assumed to fall within year.

4.32. No additional evidence was provided by suppliers to prove their accounting approach was materially different from the assumptions in the model. As such, we propose not to adopt a specific non-efficiency variation for accounting approach.

Supplier scale

4.33. A number of suppliers referenced that larger suppliers should be able to achieve better deals for assets and installation costs as they have significantly higher volume than small suppliers. Unfortunately, no new evidence was submitted to prove that a link exists and the ASR data does not show a strong link between size and cost efficiency.

4.34. We note that small suppliers may also benefit from some of the additional costs the larger suppliers may have incurred (such as development, testing and trialling of new SMETS1 and SMETS2 meters).

Geographic distribution

4.35. One supplier noted that geographic distribution of customer base could be a non-efficiency cost variation. The supplier noted that where a supplier has a strong legacy base, tightly distributed in particular areas, it may adopt a different field force approach than where it has more sparsely distributed customers. The supplier also referenced housing density and type of housing as potential non-efficiency cost variations.

4.36. From the available evidence, it is not clear if non-efficiency variations impact rollout costs. As such, we proposed not to adopt a specific non-efficiency variation for geographic distribution.

Rationale for proposed decision

4.37. We appreciate suppliers identifying potential non-efficiency variations. In many cases we can see why there may be a hypothetical case that these could impact suppliers. However, we note that little evidence was brought forward to support the hypothetical arguments.

4.38. Because of the limited evidence as to the existence and/or size of the suggested non-efficiency cost variations, we do not propose to implement any non-efficiency variation adjustments to the SMNCC for the specific cases raised by stakeholders. Instead we have considered these arguments in the round and intend to adopt an average efficiency approach for smart metering costs that should account for any unidentified cost differences between suppliers. This also takes account of the fact that certain potential variations might put upward cost pressure on any one type of supplier, while others might put downward cost pressure on this type of supplier.

5. Next Steps

In this chapter, we outline our next steps in relation to the disclosure of models and underlying data used to determine the SMNCC.

5.1. As part of our policy development process, we have received information and/or data from a number of parties to inform the development of the SMNCC.

5.2. In light of the sensitive and confidential nature of the underlying smart metering data relating to the model, we consider it necessary to disclose the model and underlying data through the establishment of a disclosure room. This will be accessible to a limited number of approved external legal and/or economic advisers of the relevant parties.

5.3. The disclosure room will include the information and data underlying the model.

5.4. Further information on the arrangements for the disclosure room and the data to be disclosed will be set out in the legal undertakings that all parties intending to take part in the disclosure room are required to sign.

5.5. As part of this default tariff cap statutory consultation we have also published an annex to draft licence condition 28AD, Annex 5 - Smart metering net cost change methodology, which includes the pass-through charge calculations along with the calculation of the SMNCC.

5.6. This approach recognises and addresses responses from the majority of suppliers following our May consultation that they felt unable to reconcile the SMNCC estimates provided, based on their own cost data. Suppliers asked for further transparency on the underlying calculation of the SMNCC, including both pass-through and non-pass-through elements, for each year. They also requested to be able to view the model in order to understand what is driving any discrepancies.

6. Annex A – Assumptions log for calculating the SMNCC

6.1. Below is a summary of the changes which we have made to the model during our analysis, in order to provide an estimate of the "non-pass-through" element of the SMNCC for the purposes of the default tariff cap. These changes are not listed in any particular order.

Table A7.4 - Changes made to the model during process of calculating the SMNCC

Category	Cost/Benefit item	Modification	Rationale
Network-related benefits	All items	Removed from analysis	These are not considered relevant in assessing net costs to suppliers as they should already be reflected within Distribution Network Operator (DNO) charges.
Generation-related benefits	All items	Removed from analysis	These are not considered relevant in assessing net costs to suppliers.
Consumer benefits	Energy-saving benefit	Removed from analysis	These are not considered relevant in assessing net costs to suppliers.
Business benefits	Avoided prepayment meter (PPM) Change of Supplier premium	Removed from analysis	These are not considered relevant in assessing the net costs to suppliers as these benefits derive from serving PPM consumers which are not part of the default tariff cap.
Other costs	Energy costs (energy consumed from meter readings)	Removed from analysis	As the benefit of reduced network losses (considered within network-related benefits) were also removed from the analysis due to the likelihood that these are incurred on a pass-through basis, the same considerations apply to energy consumed by smart meters.
Carbon and air quality benefits	All items	Removed from analysis	These are not considered relevant in assessing net costs to suppliers.
Other costs	Marketing – SEGB costs	Removed from analysis	These costs are separately included in the SMNCC as pass-through charges.
Suppliers' and other participants' system costs	Industry capex and Industry opex costs	Removed from analysis	These refer to DNOs and other industry participants and are not direct costs to suppliers. As such they are not considered relevant in assessing net costs to suppliers.
In premise costs	Meters and IHDs, Installation of meters costs	Recalculated based on credit customer costs and metering points only	The per meter cost is calculated based on costs incurred and forecast for domestic credit customers, and estimated on a per meter basis for domestic credit metering points only.

Category	Cost/Benefit item	Modification	Rationale
In premise costs	Meters and IHDs, Installation of meters costs	Updated values based on 2017 ASR data from six largest suppliers	The cost of meter assets, installation, and IHD costs have been updated based on the most recent ASR costs data from the six largest energy suppliers. Dual fuel installation efficiency estimates within the model have been updated using the same ASR survey data.
In premise costs	Meters and IHDs costs – meter asset costs	Adjusted to account for different costs of SMETS1 and SMETS2 meters	The 2017 ASR survey provides different costs for SMETS1 vs. SMETS2 meters. Analysis adjusted to take account the different costs of different meters according to when each meter type is expected to be rolled out.
In premise costs	Meters and IHDs costs – meter asset costs	Adjusted downwards to account for Alt HAN cost reduction in 2020	DCC charges are included in the SMNCC as pass-through charges. The modelled cost of meters is adjusted downwards to account for the Alt HAN costs for SMETS1 and SMETS2 meter assets which are now expected to be recovered via the DCC.
In premise costs	Installation of meters costs – meter installation costs	Adjusted downwards to account for alt-HAN cost reduction in 2020	The modelled cost of meters is adjusted downwards to account for the Alt-HAN costs for SMETS1 and SMETS2 meter installation costs which are now expected to be recovered via the DCC. DCC charges are included in the SMNCC as pass-through charges.
In premise costs	Communications equipment in premise – Comms hub opex for SMETS1 meters	Adjusted downwards to account for costs being incurred through DCC.	DCC charges are included in the SMNCC as pass-through charges. The modelled cost of meters is adjusted downwards to account for the SMETS1 opex costs for communications equipment which are now expected to be incurred through the DCC from 2019 onwards. These have been reduced in 2019 and removed from 2020 onwards.
In premise costs	Communications equipment in premise – Comms hub capex for SMETS2 meters, Comms hub opex for SMETS2 meters	Removed from analysis.	DCC charges are included in the SMNCC as pass-through charges. As these costs are anticipated to be incurred through DCC charges, these have been removed from the model.
In premise costs	Communications equipment in premise	Updated values based on 2017 ASR data from six largest suppliers	These costs have been updated based on the most recent ASR costs data from the six largest energy suppliers.

Category	Cost/Benefit item	Modification	Rationale
In premise costs	Operation and maintenance of meters –PKI certificate costs for SMETS2 meters	Removed from analysis	DCC charges are included in the SMNCC as pass-through charges. As these costs are anticipated to be incurred through DCC charges, these have been removed from this analysis.
In premise costs	Operation and maintenance of meters – public key infrastructure (PKI) certificate costs for SMETS1 meters	Reduced in analysis from 2019 onwards	DCC charges are included in the SMNCC as pass-through charges. It has been assumed that a portion of these are migrated onto DCC charges from 2019, and then entirely migrated in 2020, these have been reduced in 2019, and are removed from 2020 onwards.
General modelling assumptions	Rollout profile	Updated rollout for credit and PPM domestic meters from 2016 to 2017 based on actual supplier progress, 2018 based on supplier forecasts, and 2019 to 2020 based on a straight line projection.	We use actual rollout and recent forecasts, and set a 2020 target which aligns to a notional trajectory towards the EU target for installing electricity meters by end 2020, which for 2019 would be close to the most ambitious rollout forecast of the six largest energy suppliers. This is to prevent the level of the SMNCC from disadvantaging energy suppliers who are making progress above the industry average or dis-incentivising suppliers from fulfilling their licence obligations.
General modelling assumptions	SMETS1/SMETS2 rollout split	Updated percentage of rollout in 2018/2019 to approximate the current expected SMETS1/SMETS2 installation split in both years.	This is based on a currently ongoing consultation issued by BEIS regarding an extension of the SMETS1 rollout period.
General modelling assumptions	Optimism bias	Reduced for all Smart meters, meter installations, and IHD capex.	Optimism bias accounts for cost uncertainty over a forecasted period. As the period of uncertainty is reduced due to the use of updated cost data within the model based on 2017 ASR responses, the level of optimism bias is reduced to reflect greater certainty in costs.
Suppliers' and other participants' system costs	Supplier capex – supplier IT costs	Increased in analysis in 2019	To account for additional information collected by BEIS on the IT and business change costs related to SMETS1 enrolment and adoption, Ofgem have increased the value of supplier IT costs within the model in 2019.

Category	Cost/Benefit item	Modification	Rationale
Business benefits	Customer switching	Removed from analysis	Based on stakeholder comments about customer switching benefits being lower than estimated due to delays in interoperability of meters, Ofgem have removed this category from the analysis.
Consumer benefit	Microgeneration (business-related)	Removed from analysis	Based on stakeholder comments about how costs for counterfactual export meters (and therefore, the benefits to suppliers) are unlikely to have been socialised across metering points, Ofgem have removed this category from the analysis.
In premise costs	Meters and IHDs, Installation of meters costs	Increased to account for traditional meter early termination charges	In response to stakeholder comments, both meter asset and installation costs now include a portion of the lump sum value of traditional meter costs (for meters and installation) due to early termination of rental agreements.
General modelling assumptions	Proportion of metering points where HAN arrangements prevent installation of a smart meter	Reduced to zero for all years.	These metering points are estimated to incur ongoing traditional meter costs in the analysis. In order to avoid double counting the costs of these meters, these are removed from the analysis and form part of the population of meters which face early rental termination charges.
In premise costs	Installation of meters	Baseline level of installation costs reduced.	Based on projections of the differences in levels of supplier productivity between 2017 and 2018, using 2018 Ofgem data, we have adjusted the baseline level of insource installation costs downwards in the analysis to account for expected improvements in installation productivity between 2017 and 2018. Productivity in 2019 and 2020 is assumed to be maintained at the same level as in 2018.

Source: Ofgem