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Consultation

Reviewing smart metering costs in the default tariff cap

Publication date:	22 October 2019	**Contact:**	Anna Rossington, Deputy Director
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Response deadline:	19 November 2019, 11pm	**Email:**	RetailPriceRegulation@ofgem.gov.uk

We are consulting on our review of the allowance in default tariff cap for the change in efficient net costs to suppliers of the smart meter rollout since 2017. We would like views from people with an interest in the level of the default tariff cap. We particularly welcome responses from suppliers and consumer groups. We would also welcome responses from other stakeholders and the public.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at **Ofgem.gov.uk/consultations**. If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

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Proposed non-pass-through SMNCC

Table 1: Proposed non-pass-through Smart Metering Net Cost Change (electricity) (£ per account)

Period[1]	Change in efficient smart costs since 2017[2]	Adjustment for definitions of efficiency[3]	Adjustment for Carry Forward[4]	Electricity non-pass-through SMNCC	Single collective rollout profile[5]
Jan 19 – Mar 19	3.54	3.35	0.00	6.89	33%
Apr 19 - Sep 19	3.54	3.35	0.00	6.89	39%
Oct 19 - Mar 20	3.11	3.38	0.00	6.48	46%
Apr 20 - Sep 20	2.68	3.40	-0.96	5.12	54%
Oct 20 - Mar 21	1.80	3.43	-0.97	4.26	60%
Apr 21 - Sep 21	0.93	3.46	-0.98	3.41	66%
Oct 21 - Mar 22	-0.22	3.49	-0.99	2.29	72%
Apr 22 - Sep 22	-1.37	3.52	-1.00	1.16	77%
Oct 22 - Mar 23	-2.56	3.56	-1.01	0.00	82%
Apr 23 - Sep 23	-3.75	3.60	-1.02	-1.17	85%
Oct 23 - Dec 23	-3.75	3.60	-1.02	-1.17	87%

Notes

1. **Cap period.** The default tariff cap may end in December 2020, or it could be extended annually up to the end of 2023. We present non-pass-through SMNCC values for each potential cap period.
2. **Change in efficient smart costs since 2017.** Suppliers' operating costs in 2017, including those related to the smart meter rollout, are already allowed for in the operating cost allowance. The non-pass-through SMNCC allows for the change in the net costs of the smart meter rollout since 2017, excluding industry charges. Negative values denote that the net costs in that year are lower than net costs in 2017.
3. **Adjustment for definitions of efficiency.** We benchmark the non-pass-through costs of the smart meter rollout more generously than we did when setting an efficient benchmark for operating costs. We therefore adjust the SMNCC upwards to account for that difference in approach. The adjustment for an electricity account is £3.25 in 2017 prices.
4. **Adjustment for Carry Forward.** The non-pass-through SMNCC in the first three cap periods provided sufficient money for suppliers installing smart meters to 12.5% of their default tariff customers every six months. Suppliers installed fewer meters resulting in a substantial advanced payment. We reassess that advanced payment using updated cost data and an updated rollout profile. In our assessment we take into account updated unit costs.
5. **Single notional rollout profile.** We set the non-pass-through SMNCC by reference to efficient costs assuming a single rollout profile. We must set the same allowance for all suppliers. Suppliers will have different rollout profiles, so their cost profile will differ from the profile of the allowance. We do not expect suppliers costs to match the allowance in each cap period.
6. **Prices.** Prices are in nominal terms.

Table 2: Proposed non-pass-through Smart Metering Net Cost Change (gas) (£ per account)

Period[1]	Change in efficient smart costs since 2017[2]	Adjustment for definitions of efficiency[3]	Adjustment for Carry Forward[4]	Gas non-pass-through SMNCC	Single collective rollout profile[5]
Jan 19 – Mar 19	4.54	3.24	0.00	7.78	29%
Apr 19 - Sep 19	4.54	3.24	0.00	7.78	36%
Oct 19 - Mar 20	4.38	3.27	0.00	7.64	42%
Apr 20 - Sep 20	4.21	3.29	-1.33	6.18	50%
Oct 20 - Mar 21	3.75	3.32	-1.34	5.73	56%
Apr 21 - Sep 21	3.29	3.35	-1.35	5.28	63%
Oct 21 - Mar 22	2.27	3.38	-1.37	4.28	69%
Apr 22 - Sep 22	1.25	3.41	-1.38	3.28	75%
Oct 22 - Mar 23	0.19	3.45	-1.39	2.25	80%
Apr 23 - Sep 23	-0.86	3.49	-1.41	1.22	84%
Oct 23 - Dec 23	-0.86	3.49	-1.41	1.22	86%

Notes

1. **Cap period.** The default tariff cap may end in December 2020, or it could be extended annually up to the end of 2023. We present non-pass-through SMNCC values for each potential cap period.
2. **Change in efficient smart costs since 2017.** Suppliers' operating costs in 2017, including those related to the smart meter rollout, are already allowed for in the operating cost allowance. The non-pass-through SMNCC allows for the change in the net costs of the smart meter rollout since 2017, excluding industry charges. Negative values denote that the net costs in that year are lower than net costs in 2017.
3. **Adjustment for definitions of efficiency.** We benchmark the non-pass-through costs of the smart meter rollout more generously than we did when setting an efficient benchmark for operating costs. We therefore adjust the SMNCC upwards to account for that difference in approach. The adjustment for gas account is £3.14 in 2017 prices.
4. **Adjustment for Carry Forward.** The non-pass-through SMNCC in the first three cap periods provided sufficient money for suppliers installing smart meters to 12.5% of their default tariff customers every six months. Suppliers installed fewer meters resulting in a substantial advanced payment. We reassess that advanced payment using updated cost data and an updated rollout profile. In our assessment we take into account updated unit costs.
5. **Single notional rollout profile.** We set the non-pass-through SMNCC by reference to efficient costs assuming a single rollout profile. We must set the same allowance for all suppliers. Suppliers will have different rollout profiles, so their cost profile will differ from the profile of the allowance. We do not expect suppliers costs to match the allowance in each cap period.

   Prices. Prices are in nominal terms.

Executive summary

Smart meters

Smart meters will bring net benefits to consumers, businesses and the nation as a whole – worth £6bn up to 2034. They are an important feature for modernising the retail energy market. They help decarbonise the energy sector, enable energy suppliers to offer new products and services to customers, and allow consumers to take control of their energy consumption.

During the rollout, energy suppliers incur costs installing smart meters in their customers' homes. So, we include an allowance in the default tariff cap ("the Cap") for the efficient costs of installing smart meters. This ensures suppliers can install smart meters, and that customers with default tariffs pay a fair price.

When we set the Cap in 2018, we recognised that the pace and costs of the smart meter rollout were uncertain. We proposed to review the smart metering allowance when the picture was clearer. In September 2019, the government published a new cost-benefit analysis, updating its assessment of the net benefits smart meters provide. It also published its proposals for a policy framework for the period 2021 to 2024.

This consultation

The Cap includes allowances for the efficient net cost to suppliers of installing smart meters. We split those costs between three allowances in the Cap:

- the operating cost allowance: set at the efficient level of total operating costs in 2017 (including the net cost in 2017 of smart metering)

- the pass-through Smart Metering Net Cost Change allowance, which allows for the net change in industry charges since 2017 (including DCC and SEGB), and

- the non-pass-through Smart Metering Net Cost Change allowance ("non-pass-through SMNCC"), which allows for the change since 2017 in the efficient net costs to suppliers of the smart meter rollout.

This consultation sets out how we propose to update the non-pass-through SMNCC in the Cap. **Tables 1 and 2** show the non-pass-through SMNCC we propose for gas and electricity tariffs up to the end of 2023.

The updated non-pass-through SMNCC we have proposed is lower than the non-pass-through SMNCC allowance we provided in the first three cap periods. This reflects: the government's new proposals for the smart meter rollout beyond 2020, the latest assessment of installation costs and benefits to suppliers, and the fact that suppliers are installing fewer meters in each six-month cap period than we allowed for in the first three cap periods. Although the net cost to suppliers in each period is lower (because suppliers install fewer meters), we have updated the costs per installation, which partially offsets the impact of a more gradual rollout.

Setting the non-pass-through SMNCC

To set the proposed non-pass-through SMNCC, we consider the change in efficient net costs to suppliers of rolling out smart meters since 2017. To assess efficient non-pass-through smart metering costs, we take the new cost-benefit analysis of the smart meter rollout ("the new CBA") as a starting point. Our review and the new CBA have different purposes, so we make several modifications to the new CBA. For instance, we remove the wider benefits (such as consumers' energy savings) as these do not affect suppliers' net costs. For that reason, the costs in this consultation are not comparable to the CBA.

When setting the non-pass-through SMNCC, we propose two adjustments to our assessment of the change in efficient net costs to suppliers of rolling out smart meters since 2017.

- We propose an adjustment to increase the non-pass-through SMNCC. This adjusts for the less generous assessment of the efficient level of smart metering costs in 2017 included in the operating cost allowance.

- We propose to adjust for advanced payments provided in the first three cap periods. This reduces future non-pass-through SMNCCs in proportion to the money customers have already paid. This ensures customers are not charged twice for costs already allowed for.

Contingency allowance

This consultation presents proposals which, subject to considering stakeholders' responses to this consultation, could be included in the next cap update. However if, as a result of this consultation, we conclude we need to consult on substantial changes to these proposals, we will need a contingency allowance for cap period four (April to September 2020).

Using the current non-pass-through SMNCC model, we propose to set that contingency allowance at £9.50 for electricity and £11.77 for gas (£21.27 in dual fuel terms) and correct for any over allowance in cap period four when we introduce the updated methodology.

1. Introduction

What are we consulting on?

1.1. This consultation sets out how we propose to update the non-pass-through Smart Metering Net Cost Change allowance ("SMNCC") in the default tariff cap ("the Cap"). This consultation does not propose or consider changes to other allowances in the Cap. The levels of those allowances are outside the scope of this review.

1.2. This consultation is not an assessment of the total costs and benefits of the smart meter rollout, which is the responsibility of the Department for Business, Energy and Industrial Strategy (BEIS). We focus only on the net costs to suppliers during the life of the Cap (which could last until the end of 2023). We exclude benefits to consumers (such as energy savings) and the net benefits to suppliers after 2023. Smart meters will bring net benefits to consumers, businesses and the nation as a whole – BEIS estimates these are worth £6bn up to 2034.[1] We also exclude smart meter industry charges from our review as we include these costs in a different allowance.

1.3. This document is split into five chapters:

- **Chapter 1**: this consultation, background, and disclosure arrangements
- **Chapter 2**: key methodological considerations
- **Chapter 3**: our proposed methodology – reviewing efficient costs
- **Chapter 4**: our proposed methodology – setting the SMNCC
- **Chapter 5**: contingency arrangements for cap period four

1.4. We have provided access to the model and data that informs our proposals. Access to the model can still be made by application. Please see our website for details.[2]

1.5. Our proposed changes to the SMNCC would be made in the document "Annex 5 – Methodology for determining the Smart Metering Net Cost Change" referred to in

[1] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019
[2] Ofgem (2019), Reviewing smart metering costs in the default tariff cap: Disclosure arrangements https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-disclosure-arrangements

standard condition 28AD of the electricity and gas supply licences. We present the changes we propose to make to Annex 5 in Appendix 1.

1.6. The consultation constitutes this document and the disclosed models and data. We do not, as a matter of style, ask questions explicitly about each specific aspect of our proposals and methodology. We present our proposals, the reasons and modelling underpinning them, and the issues we have considered. We invite stakeholders to comment on the contents of the consultation, providing their views and evidence as appropriate.

Context and related publications

The default tariff cap ("the Cap")

1.7. We introduced the Cap on 1 January 2019, protecting over 11 million customers on standard variable and default tariffs (which we refer to collectively as "default tariffs").[3]

1.8. The Cap ensures default tariff customers pay a fair price for the energy they consume, reflecting its underlying costs. These underlying costs change over time, so we update the cap every six months to reflect this. We will announce the next cap update by 7 February 2020. This will have effect for the fourth cap period – between 1 April 2020 and 30 September 2020.

1.9. The Cap is temporary. In 2020, we must review whether the conditions are in place for effective competition, and publish a report, including a recommendation on whether the cap should be extended or not. The Secretary of State will then decide whether to extend the cap. If the cap is not removed, this process will be repeated in 2021 and 2022. If the cap is not removed in 2022, it will cease to have effect at the end of 2023.[4]

The smart meter rollout

1.10. Smart meters will bring benefits to consumers, businesses and the nation as a whole – worth £6bn up to 2034. They are an important feature for modernising the retail energy market. They help decarbonise the energy sector, enable energy suppliers to

[3] Ofgem (2018), Default tariff cap: decision – overview. https://www.ofgem.gov.uk/publications-and-updates/default-tariff-cap-decision-overview
[4] Domestic Gas and Electricity (Tariff Cap) Act 2018, Section 7, http://www.legislation.gov.uk/ukpga/2018/21/contents/enacted

offer new products and services to customers, and allow consumers to take control of their energy consumption.

1.11. One of the costs underlying customers' energy bills is the net cost to suppliers of providing smart meters. Overall, suppliers will experience net benefits from rolling out smart meters. However, during the rollout, energy suppliers incur costs installing smart meters in their customers' homes which outweigh the benefits in the initial years. So, we include an allowance in the Cap for the efficient net costs of installing and operating smart meters. This allows suppliers to install smart meters efficiently, and ensures customers with default tariffs are protected; paying a fair price.

1.12. Broadly suppliers' net costs of installing smart meters depend on:

- rollout: the number of meters they have installed
- unit costs: the cost they incur per installation
- fixed costs: the system costs they incur to support smart meters, and
- unit benefits: the savings they generate per meter (compared with supplying a customer with a traditional meter).

1.13. When we introduced the Cap in 2018, we recognised that the pace and net costs of the smart meter rollout were uncertain. We proposed to review the smart metering allowance when the picture was clearer.[5] This consultation presents the results of that review.

1.14. In September 2019, BEIS published:

- **Its consultation on the smart meter policy framework post 2020**.[6] This document consults on a number of proposals to help inform the policy framework

[5] Ofgem (2019), Decision – Default tariff cap – Overview document; para 2.65. https://www.ofgem.gov.uk/system/files/docs/2018/11/decision_-_default_tariff_cap_-_overview_document_0.pdf

[6] BEIS (2019), Smart meter policy framework post 2020. https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020

for energy suppliers to continue installing smart meters after 31 December 2020, when the current rollout duty ends.

- **The new cost-benefit analysis of smart meter rollout ("new CBA")**.[7] This document is the latest assessment of the costs and benefits of the smart meter rollout based on the most up-to-date evidence from the programme.

Smart metering cost allowances in the Cap

1.15. The Cap includes allowances for the efficient net cost to suppliers (taken as a group) of the smart meter rollout. We set separate allowances for default gas tariffs and default electricity tariffs. In each cap period, for each fuel, we split the net cost of the smart meter rollout between two allowances in the Cap.

- **Operating cost allowance**: This allowance covers (in real terms) the efficient level of total operating costs in 2017, including the net costs of rolling out smart meters. We index the allowance over time with inflation.

- **The non-pass-through SMNCC**: In this allowance we include the *change in the efficient net cost of introducing smart meters since 2017* (ie the incremental costs, not already provided for in the operating cost allowance). We update this allowance using the values calculated in the SMNCC model and discussed in this consultation.

Note that we defined our 'efficient' benchmark differently in our assessment for operating costs and our assessment of smart metering costs. In effect, our assessment of operating costs is less generous, so in **Chapter 4 (paragraphs 4.27 to 4.31)** we propose to increase the SMNCC to account for that difference.

1.16. The Cap includes a **pass-through SMNCC** allowance. This is an allowance for changes in industry body charges since 2017 (such as those from the Data Communications Company and Smart Energy GB).[8] We estimate the net change in costs using sources including: the latest charging statements, forecasts, and budgets.[9] In the operating

[7] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019
[8] During our consultation on this review, one stakeholder queried whether industry charges in 2017 were included in the operating cost allowance. We confirm that they are.
[9] We carry out this calculation in the document Annex 5 referred to in the cap licence conditions (standard licence condition 28AD of the gas and electricity supply licences).

cost allowance we include industry body charges at the level incurred in 2017. Together, that proportion of the operating cost allowance and the pass-through SMNCC equals the total industry body charges. The pass-through SMNCC is outside the scope of this review, and we not discuss it in the remainder of this consultation. Please see Figure A7.1 in appendix 7 of our decision on the default tariff cap for graphical representation of the allowances relevant to smart meters.[10]

Related Publications

1.17. The key documents relating to the Cap and BEIS's Smart Meter Implementation Programme are:

- Domestic Gas and Electricity (Tariff Cap) Act 2018, http://www.legislation.gov.uk/ukpga/2018/21/contents/enacted
- The Default Tariff Cap Decision document https://www.ofgem.gov.uk/publications-and-updates/default-tariff-cap-decision-overview
- The Default Tariff Cap Decision document, Appendix 7 – Smart metering costs https://www.ofgem.gov.uk/system/files/docs/2018/11/appendix_7_-_smart_metering_costs.pdf
- Smart meter policy framework post 2020 https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020
- The new smart meter roll-out: cost-benefit analysis 2019: https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019

1.18. We launched the review in April 2019 with a consultation. In June, we published our approach to setting the SMNCC for the third cap period. Over the summer we published a series of response papers setting out our views on responses to the April consultation:

- Reviewing smart metering costs in the default tariff cap ("the April consultation") https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap

[10] Ofgem (2018), Default Tariff Cap: Decision, Appendix 7 – Smart metering costs https://www.ofgem.gov.uk/system/files/docs/2018/11/appendix_7_-_smart_metering_costs.pdf

- SMNCC: Approach to the third cap period for the default tariff cap https://www.ofgem.gov.uk/publications-and-updates/decision-approach-third-cap-period-default-tariff-cap

- Response Papers 1 and 2: https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-response-papers-1-and-2

- Response Paper 3: https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-response-paper-3

- Response Paper 4: https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-response-paper-4

- Disclosure Arrangements https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-disclosure-arrangements

Consultation stages and our approach

Stages

1.19. This consultation will remain open for **four** weeks, closing on **Tuesday 19 November 2019**. Please provide responses by 11pm.

1.20. We intend to announce our decision in mid-December.

This consultation

1.21. This is a substantive consultation. It presents proposals which, subject to considering stakeholders' responses to this consultation, could be implemented. These would be included in the next cap update on 7 February 2020 and take effect on and from 1 April 2020.

1.22. Our proposals have been informed by our current approach to setting the SMNCC, consultation and working papers, and BEIS's recent publication of its new CBA.

1.23. It is possible that we will not implement the proposals set out in this consultation. Due to the formative nature of the consultation and depending on the stakeholder responses we receive, we might make changes to our proposals if that is appropriate. If we change our proposals to the extent that we need to consult on those changes, we expect to present new proposals in the New Year.

Contingency allowance

1.24. If we do not implement the proposals in this consultation, then we propose to set a contingency allowance in order to update the Cap on 7 February 2020. Once the new methodology is confirmed, we propose to adjust for any disparity between the contingency allowance and the efficient costs in cap period four. In Chapter 5, we discuss how we propose to set the contingency allowance.

Disclosure arrangements

1.25. Alongside this consultation we have disclosed:

- **Modelling ("Disclosed Model")**: This includes the full SMNCC model, in the form which has informed the proposals we are consulting on. This is being made available to suppliers, upon application and subject to agreeing confidentiality arrangements.

- **Underlying data ("Disclosed Data")**: This includes underlying data that we have used to calculate inputs in the SMNCC model. This data includes specific information from individual suppliers and is commercially sensitive. This is being made available to suppliers' advisers, upon application and subject to agreeing confidentiality arrangements.

1.26. We have previously consulted on our proposed disclosure arrangements[11] and have taken respondents' views into account when finalising these arrangements.

1.27. We consider that our disclosure arrangements are more than sufficient for the purpose of consultation. We are disclosing the SMNCC model (which is fully executable and in the form we use to inform our proposals) to suppliers themselves, rather than solely to their advisers. We note that suppliers have stated they are best placed to compare the model to their own circumstances and consider the differences.

1.28. The disclosure arrangements enable suppliers to understand our proposals and respond intelligently to them.

[11] https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-disclosure-arrangements

- Stakeholders can understand how we have modelled costs and benefits and make representations on whether the approach is appropriate.

- Stakeholders can replace inputs with their own data to understand and assess whether the model is particularly sensitive to variation in certain variables, and make representations on the impact and likelihood of potential variations.

- Stakeholders can compare their costs and benefits with the model (at an aggregate and granular level) and make representations on those differences and their impact.

- Stakeholders can assess whether the model has weaknesses or computational errors.

1.29. We have also considered suppliers' requests for additional information, so that their advisers can, for example, quality assure the model's underlying data. We have made this information available under appropriate confidentiality arrangements.

How to respond

1.30. We want to hear from anyone interested in this consultation. Please send your response to the person or team named on this document's front page.

1.31. We've asked for your feedback in each of the questions throughout. Please respond to each one as fully as you can.

1.32. We will publish non-confidential responses on our website at www.ofgem.gov.uk/consultations.

Your response, data and confidentiality

1.33. You can ask us to keep your response, or parts of your response, confidential. We'll respect this, subject to obligations to disclose information, for example, under the Freedom of Information Act 2000, the Environmental Information Regulations 2004, statutory directions, court orders, government regulations or where you give us explicit permission to disclose. If you do want us to keep your response confidential, please clearly mark this on your response and explain why.

1.34. If you wish us to keep part of your response confidential, please clearly mark those parts of your response that you do wish to be kept confidential and those that you do not wish to be kept confidential. Please put the confidential material in a separate appendix to your response. If necessary, we'll get in touch with you to discuss which parts of the information in your response should be kept confidential, and which can be published. We might ask for reasons why.

1.35. If the information you give in your response contains personal data under the General Data Protection Regulation 2016/379 (GDPR) and domestic legislation on data protection, the Gas and Electricity Markets Authority will be the data controller for the purposes of GDPR. Ofgem uses the information in responses in performing its statutory functions and in accordance with section 105 of the Utilities Act 2000. Please refer to our Privacy Notice on consultations, see Appendix 2.

1.36. If you wish to respond confidentially, we'll keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We won't link responses to respondents if we publish a summary of responses, and we will evaluate each response on its own merits without undermining your right to confidentiality.

General feedback

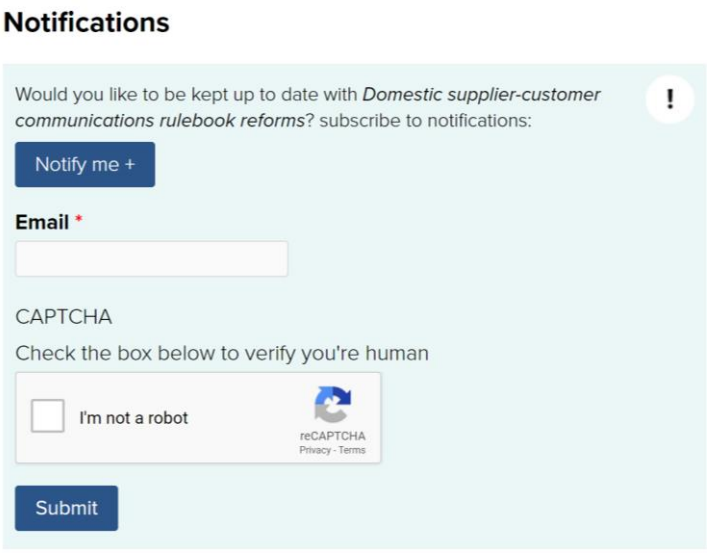
1.37. We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:

1. Do you have any comments about the overall process of this consultation?
2. Do you have any comments about its tone and content?
3. Was it easy to read and understand? Or could it have been better written?
4. Were its conclusions balanced?
5. Did it make reasoned recommendations for improvement?
6. Any further comments?

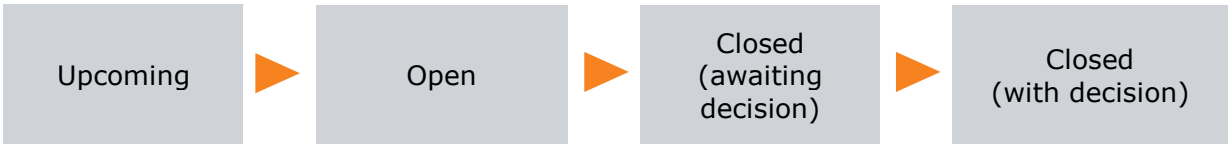
1.38. Please send any general feedback comments to stakeholders@ofgem.gov.uk

How to track the progress of the consultation

1.39. You can track the progress of a consultation from upcoming to decision status using the 'notify me' function on a consultation page when published on our website. Ofgem.gov.uk/consultations.



Once subscribed to the notifications for a particular consultation, you will receive an email to notify you when it has changed status. Our consultation stages are:



2. Methodological considerations

Section summary

In this chapter we explain how we have considered what constitutes an appropriate allowance. We discuss our objective to protect customers, the statutory considerations to which we have regard (including efficient costs) and ensuring that our analysis is sufficient for our purposes.

Question: Do you agree with our methodological considerations?

Note that as a matter of style, we do not ask specific questions at each stage. We expect stakeholders to consider our proposals, reasons for them, and methodology, and provide representations explaining if and why they disagree.

Summary of our proposals

2.1. We propose to set a cap level, and thereby the SMNCC, that protects default tariff customers consistent with the objective of the Domestic Gas and Electricity (Tariff Cap) Act 2018 ("the Act") and consistent with the requirements of the Act to set a single Cap for all suppliers. In doing so, we have regard to the statutory needs set out in Section 1(6) of the Act. These include creating incentives for suppliers to improve their efficiency, and ensuring an efficient supplier's ability to finance its activities.[12]

2.2. In having regard to an efficient supplier's ability to finance its activities, we are not seeking to set a proposed allowance that will necessarily cover suppliers' reported or expected costs. In formulating our proposals we must have regard to efficient costs. Any individual suppliers' reported and/or expected costs may not necessarily be efficient.

2.3. In having regard to an efficient supplier's ability to finance its activities, we are not proposing to set an allowance that will necessarily cover each supplier's efficient costs. Efficient costs can legitimately differ between suppliers (due to their different rollout profiles and differences partially outside of their control, such as their customers' characteristics). As a result, suppliers may have different efficient costs in each cap

[12] Domestic Gas and Electricity (Tariff Cap) Act 2018, http://www.legislation.gov.uk/ukpga/2018/21/contents/enacted

period, over the life of the Cap, and potentially over the life of the smart meter rollout. As required by the Act, we must set a single Cap for all suppliers. We must consequently set the same SMNCC allowance for all suppliers despite suppliers' different efficient costs. It is therefore not possible that the allowance will match each supplier's efficient costs. Bearing in mind the objective of the Act, we would not set the allowance in line with the supplier with the highest efficient costs as this might allow suppliers with lower costs to recover more than their efficient costs at the expense of their customers. Some suppliers may have efficient costs above the allowance. Some suppliers may have efficient costs below the allowance.

2.4. Efficient costs cannot be directly observed in past data or forecasts. Therefore, estimation is an inherent feature of our analysis. Consistent with such assessments, our review of efficient costs contains simplification, generalisation, approximation and assumptions. In developing our proposals, we have taken these factors into account and we consider the analysis sufficient for our purposes. We consider the impact of uncertainty (whether due to the reasons listed here, or other sources) in Chapter 4 (paragraphs 4.27 to 4.31) in order to assess whether an adjustment to the proposed allowance is required (in either direction).

2.5. We have proposed allowances for the remainder of the potential life of the Cap (up to the end of 2023). We recognise that future pace and costs of the rollout are uncertain, so we cannot rule out another review. However, we would place a very high bar on reviewing the allowances proposed in this consultation, as further reviews may undermine incentives for suppliers to improve their efficiency.

Preceding consultation

2.6. In our April consultation, we set out our initial views on what would constitute an appropriate allowance.[13] We discussed three issues:

- protecting customers on default tariffs
- having regard to the statutory needs

[13] Ofgem (2019), Reviewing smart metering costs in the default tariff cap. https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap

- ensuring our estimates of costs are sufficiently robust, noting that any proportionate and practical estimate of efficient costs will include approximation.

Stakeholders' views

2.7. Suppliers recognised that the Act requires the Cap to protect customers. Most of those suppliers suggested that, in order to do this, the allowance must not impede the smart meter rollout. Some were concerned that this was already happening.

2.8. Most suppliers stated that an appropriate smart metering allowance should ensure that suppliers could recover their efficient costs. Where suppliers commented on what constituted an efficient level of costs, they considered their own costs were efficient. Some suppliers recognised that efficient costs varied between suppliers (for instance due to differences in their customer portfolios and/or their progress with the smart meter rollout). On that basis, most suppliers supported our proposal to use a less strict definition of 'efficiency' than we would normally use. We proposed to use 'average' costs, rather than lower quartile or frontier costs. Suppliers acknowledged that it was not possible for us to set one allowance that would reflect each supplier's (efficient) costs. However, some disagreed that we should prioritise protecting customers over allowing a supplier with high efficient costs to recover the proportion of its costs that was above the average level. Some suppliers suggested that we should rely on suppliers' incentives to manage their rollout plans as efficiently as possible within the allowance.

2.9. Most suppliers stated that in order to set an appropriate allowance, our analysis of costs needed to be 'accurate', or (recognising that any analysis of future costs would be inherently uncertain) as accurate and robust as possible. In relation to this, most suppliers reiterated their view that Ofgem must gather all necessary data to ensure its analysis was sufficiently robust.

Considering the Act's objective: protecting customers

2.10. The Act requires us to protect current and future customers on default tariffs. This is the objective of the Act. We consider that our proposals must, and do, achieve this objective.

2.11. In protecting customers, we consider that it is desirable for the allowances relating to smart metering costs to:

- reflect, and not exceed, the efficient costs of rolling out smart meters,[14] and
- support suppliers to roll out smart meters.

2.12. In protecting customers, we have considered how our proposals affect the smart meter rollout. The Act requires us to consider the rollout of smart meters as part of our assessment of whether the Cap should be extended.[15] We consider this does not impose an additional requirement beyond the objective with regards to the setting of the allowance in this case.

2.13. Suppliers must rollout smart meters. To protect customers, it is important they do so efficiently. In our regulatory work on smart metering, we inspect suppliers' smart meter rollout plans and hold them to account. We do not consider it appropriate for a supplier to present the SMNCC in the Cap as an excuse to constrain its plans or ambitions relating to the smart meter rollout (see Chapter 3, paragraphs 3.176 to 3.188).

Having regard to the statutory needs

2.14. In protecting default tariff customers, we must have regard to four matters:

- the need to create incentives for holders of supply licences to improve their efficiency
- the need to set the cap at a level that enables holders of supply licences to compete effectively for domestic supply contracts
- the need to maintain incentives for domestic customers to switch to different domestic supply contracts and
- the need to ensure that holders of supply licences who operate efficiently are able to finance activities authorised by the licence.

[14] Subject to our considerations on the efficient costs of rolling out smart meters in Chapter 3.
[15] Domestic Gas and Electricity (Tariff Cap) Act 2018, section 7(2).

2.15. The Act identifies the four matters set out in section 1(6) as being "needs" and we have proceeded on the basis that each is in principle desirable. However, the Act does not require us to achieve the four statutory needs.[16]

2.16. We have regard to each of the needs. We discuss below how we have regard, in the context of this consultation, to two of those needs.

2.17. In having regard to improving efficiency, we consider that:

- suppliers should roll out smart meters efficiently and seek to improve that efficient level
- suppliers have had varied *reported and expected* costs of rolling out smart meters so far. This (at least in part) is because some suppliers have inefficient costs. We would not expect customers to pay for inefficient approaches, and we expect suppliers to reduce those inefficient costs.
- we are proposing to set allowances several years in advance. It is inherently uncertain what the efficient cost of the rollout in those periods will be
- suppliers should have some incentive to roll out smart meters efficiently, so we do not necessarily need to benchmark the efficient level in line with the lowest costs that suppliers have achieved.

2.18. We are not seeking to set a proposed allowance that will necessarily cover suppliers' *reported or expected* costs. In formulating our proposals we must have regard to *efficient* costs. Any individual supplier's reported and/or expected costs may not necessarily be efficient.

2.19. In having regard to financing the costs of an efficient supplier's licenced activities, we consider that efficient costs can legitimately differ between suppliers. Suppliers' efficient costs could differ from one another, in specific cap periods and over the life of the Cap, for a number of reasons, including:

[16] See for example the interpretation of the statutory wording in: *R (Brown) v SSWP* [2008] EWHC 3158 (Admin); *London Borough of Hackney v Haque* [2017] EWCA Civ 4; *R (Baker & Ors) v Secretary of State for Communities and Local Government* [2008] EWCA Civ 141; *R (Hurley and Moore) v Secretary of State for Business Innovation & Skills* [2012] EWHC 201 (Admin).

- **Different rollout profiles**: Over the life of the rollout, each supplier should roll out smart meters to its customers. However, the profile of those installations differs from supplier to supplier. So in any given period, suppliers could have incurred different costs due to the number of meters they have installed up to that point (see chapter 3, Paragraphs 3.176 to 3.188). .

- **Customer differences**: Some suppliers have suggested that, at least in part, a customer's circumstances affects the efficient costs of providing that customer with a smart meter (for instance, depending on their geographical location, the technical feasibility of installing a smart meter in their home, or their availability for an installation). Customers' average circumstances can vary between suppliers, and are not necessarily within suppliers' control.

2.20. Considering variation between suppliers' efficient costs is challenging because the Act requires that we set one cap level for all suppliers. Inevitably, the allowance cannot reflect *each* supplier's costs. If we set the allowance at the level of the supplier with the highest efficient costs then all other suppliers could charge their customers more than their efficient costs would justify. This would not protect customers. If we set the allowance at the level of the supplier with the lowest efficient costs, then all other suppliers would partially recover their costs of installing smart meters (but not fully recover them). This might reduce their ability to finance their efficient activities. Bearing in mind the objective of the Act, it is therefore inevitable that, whatever our methodology, some suppliers could have efficient costs above the allowances and other suppliers could have efficient costs below the allowances.

2.21. In our decision[17] we stated that we consider an efficient suppliers' ability to finance its activities over different time periods. We have regard to this need in the medium to long-term, rather than focussing on each short-term cap period in isolation.

2.22. In **Chapter 3** we explain how we propose to consider efficient costs (paragraphs 3.28 to 3.35), and that our assessment of efficient net costs is based on a single rollout profile (see Chapter 3, paragraphs 3.169 to 3.188). In those sections we explain how we have regard to variation in efficient costs between different suppliers.

[17] Ofgem (2018), Decision overview, para 4.35 https://www.ofgem.gov.uk/publications-and-updates/default-tariff-cap-decision-overview

Considering approximation and uncertainty

2.23. We have set out our proposals and our analysis of smart metering costs. We consider that analysis to be sufficient for our purpose. We do not expect that analysis will match any supplier's specific circumstances, costs, and revenues. Estimates will vary from results to an extent, due to uncertainty. To some extent, any robust model of costs and benefits is a generalisation and simplification of the costs and benefits that suppliers incur. It must be a generalisation, as suppliers will not necessarily have the same operating structure. It must be a simplification, as too much detail can increase the complexity of the model and the likelihood of error. We aim to construct a clear and reasonable approximation of the cost and benefit categories that affect suppliers' net costs

2.24. The degree of approximation we consider appropriate in any analysis depends on the context. Factors driving the degree of approximation in this analysis include:

- **Forward looking assessments**: the allowances are based on projections of costs, benefits, and rollout in periods that have not occurred yet. This is inevitably more uncertain than backward looking recovery of known costs.
- **Variation**: suppliers take different approaches and incur different costs and benefits at different times. The Cap is not, and cannot be, tailored to each supplier's specific set of circumstances. It can be preferable, if reasonable, to consider a simplified and generalised approach. This allows us to consider the overall trend, even if it does not reflect the specific and complex circumstances of any individual supplier.
- **Variables that are not observable**: Many of the issues we must consider require comparison to benchmarks that cannot be estimated precisely. These include: counterfactuals (such as the cost that suppliers would have incurred without a smart meter programme), efficiency, and intangible benefits (such as increased customer retention). These variables are inherently difficult to measure and require judgement.

2.25. In principle, accuracy is desirable. However, more detailed analysis does not necessarily improve an estimate. In practice, additional detail can add complexity and uncertainty, reducing the clarity and increasing the risk of error in the estimates we produce. In other cases, additional detail may improve an estimate, but only by an

amount that does not justify the additional time and resource required to conduct the analysis.

2.26. Attempting to refine analysis is not the only way, and not necessarily the best way, to consider and take into account uncertainty. In some cases, we consider it more appropriate and practical to simplify analysis, and account for the impact of that approximation and uncertainty in other ways. One is to use conservative assumptions (when considering input values). Another is to adjust the outputs (in either direction) to account for uncertainty in the underlying assumptions. In Chapter 4 (paragraphs 4.27 to 4.31), we review our analysis to consider the collective impact of uncertainty and conservatism in our assumptions, in order to assess whether an adjustment to the proposed SMNCC is required (in either direction).

Considering future reviews

2.27. We have proposed allowances for the remainder of the potential life of the Cap (up to the end of 2023).

2.28. We recognise that the pace and costs of the rollout are uncertain. On that basis, we cannot completely rule out a further review. This uncertainty works in both directions. For instance, suppliers' rollout pace may reduce from its current rates, which would mean they would fall behind the notional rate used to set the SMNCC. Alternatively, some suppliers have suggested that costs per installation may increase in the future as customers toward the end of the rollout profile may be less likely to book an installation than already expected.

2.29. We would place a high bar on reviewing allowances again. Ongoing reviews (for instance, based on updated submissions about suppliers' reported costs[18]) would undermine incentives to maintain and improve the efficiency of the rollout – effectively turning the allowance into a pass-through mechanism for costs. This would undermine the statutory need to improve efficiency, and crucially, would not protect customers.

[18] BEIS does not intend to refresh its CBA.

3. Reviewing efficient net costs

Section summary

In this chapter we explain how we have reviewed the efficient costs of the smart meter rollout, to which we propose to have regard when setting the allowances in the Cap.

Question: Do you agree with our review of efficient costs and its underlying methodology?

Note that as a matter of style, we do not ask specific questions at each stage. We expect stakeholders to consider our proposals, reasons for them, and methodology, and provide representations explaining if and why they disagree.

3.1. We conduct our review of the SMNCC in two steps:

- a review of the efficient net smart metering costs to suppliers of the rollout in each calendar year, which we discuss in this chapter.
- an assessment of the appropriate level to set the SMNCC in each (potential) cap period, which we discuss in Chapter 4.

Summary of our review of efficient smart metering costs

3.2. We have taken the following approach to our review of the efficient net costs to suppliers of the rollout:

- we use the new CBA as a starting point
- we exclude or apportion costs and benefits not relevant to suppliers' costs of serving default tariff customers on credit meters
- we have reviewed cost and benefit categories, and made modifications where this is more appropriate for our purpose (setting the SMNCC),[19] and
- we use a single rollout profile, which will differ from each supplier's progress.

[19] These modifications do not mean that the assumptions in the new CBA are inappropriate for its purpose, which differs from the purpose of our review.

3.3. **Table 3.1** shows a breakdown of cost and benefits in our review for electricity accounts, after modifications, and the change in those net costs. **Table 3.2** shows for the same information for gas accounts. As discussed in Chapter 1 (paragraph 1.2) these net costs exclude net benefits to customers (because we focus on suppliers' net costs only) and exclude costs we allow for in the non-pass-through SMNCC (such as DCC charges).

Table 3.1: Change in net smart metering costs to suppliers per electricity account[1][2]

Cost and benefit categories	2017	2018	2019	2020	2021	2022	2023
In-premise: installation and asset costs (including PRCS)	5.18	6.84	9.09	10.77	11.33	11.97	12.46
Other costs[3]	2.79	3.43	3.66	3.21	3.05	2.99	2.75
Total costs excluding IT	7.97	10.27	12.75	13.98	14.38	14.96	15.21
Total benefits	-1.28	-2.13	-3.11	-4.36	-5.62	-7.18	-8.60
Total net costs excluding IT	**6.69**	**8.14**	**9.64**	**9.61**	**8.76**	**7.78**	**6.61**
Change in total net costs excluding IT	0.00	6.69	8.14	9.64	9.61	8.76	7.78
Change in IT Costs	0.00	0.15	0.17	-0.60	-1.28	-2.24	-2.99
Change in total net costs	**0.00**	**1.60**	**3.12**	**2.32**	**0.79**	**-1.15**	**-3.07**
Single notional rollout[4]	20%	30%	42%	57%	70%	80%	87%

Notes:
(1) Costs and benefits are in 2011 prices, as per the new CBA.
(2) The CBA estimates the solely additional costs for rolling out smart meters (ie costs that supplier occur over and above the costs that would have incurred in a world without the smart meter rollout). Isolating the additional costs of IT investment is particularly challenging. Our analysis is less sensitive to the allocation between counterfactual and additional IT costs, because the total combined costs are included in the operating costs allowance. For that reason we track the change IT costs. See paragraphs 3.90 to 3.106 for a full discussion.
(3) "Other costs" include Operation and maintenance costs, communication hub operating costs and amortised costs (SMETS1), legal and organisational costs, marketing costs, pavement reading inefficiency costs, and disposal.
(4) The rollout profile shows the collective progress of suppliers at year end. See paragraphs 3.176 to 3.188.

Table 3.2: Change in net smart metering cost to suppliers per gas account (1) (2)

Cost and benefit categories	2017	2018	2019	2020	2021	2022	2023
In-premise: installation and asset costs (including PRCS)	5.68	6.99	10.18	12.13	13.24	14.05	14.77
Other costs	2.84	3.49	3.79	3.41	3.33	3.30	3.06
Total costs excluding IT	8.52	10.48	13.97	15.55	16.57	17.35	17.83
Total benefits	-1.15	-1.91	-2.77	-3.92	-5.12	-6.70	-8.18
Total net costs excluding IT	**7.37**	**8.57**	**11.20**	**11.62**	**11.45**	**10.65**	**9.65**
Change in total net costs excluding IT	0.00	1.20	3.83	4.26	4.09	3.28	2.28
Change in IT Costs	0.00	0.15	0.17	-0.60	-1.28	-2.24	-2.99
Change in total net costs	**0.00**	**1.36**	**4.01**	**3.66**	**2.80**	**1.04**	**-0.71**
Single notional rollout(3)	18%	26%	39%	53%	67%	78%	86%

Notes: See notes for Table 3.1.

The new CBA

3.4. In our April consultation[20] and Response Paper 1[21] we proposed to use the new CBA as a starting point for our review. We considered it would provide the most robust assessment of smart metering costs.

3.5. We proposed to modify assumptions in the new CBA where we considered an alternative approach was more appropriate for our purpose. We recognised that the new CBA had a different purpose to our review. The CBA aims to quantify all the costs and benefits to the whole of society that will be realised due to the rollout of smart

[20] Ofgem (2019), Reviewing smart metering costs in the default tariff cap. https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap
[21] Ofgem (2019), Reviewing smart metering costs in the default tariff cap: Response Papers 1 and 2 (https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-response-papers-1-and-2)

meters in Great Britain, covering the period between 2013 and 2034. Our review seeks to estimate a single efficient and reasonable net cost profile for suppliers on average. We will have regard to this when setting an appropriate allowance for the smart meter rollout, potentially up to the end of 2023. Recognising this different purpose, we stated we would not uncritically assume that the new CBA will be appropriate for our purposes when developing the new SMNCC model.

Stakeholders' views

3.6. Stakeholders agreed that we should use the new CBA as a starting point, and no stakeholder suggested we take an alternative approach.

3.7. Suppliers welcomed that we would consider modifications where appropriate. Most emphasised that the new CBA had not been externally validated and consider that it may need modifying. Some suggested areas where they considered modification necessary.

Our consideration

3.8. We propose to use the CBA model as a starting point of our review of costs.

3.9. We consider the CBA to be a well-constructed and high quality analysis of the additional net costs and benefits of the rollout.

- A team of five government analysts spent more than two years developing the 2019 CBA update. The analysis and construction of the model follows the latest best practice as set out in HM Treasury's (HMT) Green Book.[22]
- The CBA is designated a BEIS 'business critical' model. Accordingly, governance and assurance processes have been followed in accordance with best practice, as set out by the MacPherson review and as stipulated in internal BEIS guidance. BEIS's internal modelling integrity team quality assured the CBA model, awarding a final score of 94%, exceeding the minimum requirement for business-critical models and determined that the model was fit for purpose.

[22] MH Treasury (2019, The Green Book: appraisal and evaluation in central government (https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent)

- Its analysis relies on historical data and evidence provided by energy suppliers or collected from other sources available to the Department.
- When forecasting future costs and benefits the CBA necessarily makes assumptions about how those costs and benefits might change over time. These assumptions have been set out and explained in the CBA document.[23]
- The CBA presents a central scenario and considers several sensitivities in its annex.

3.10. We consider that the high standard of the new CBA does not mean that its estimates, on their own, are suitable for our review of efficient costs. In particular:

- **Relevant costs and benefits:** The CBA includes costs and benefits that are not relevant to our review (eg benefits to network companies) and excludes other costs and benefits that are relevant (eg transfers between suppliers and other industry parties).
- **Timing**: The CBA produces a central estimate of the total costs of the rollout for each calendar year up to 2034. The overall conclusions are less sensitive to the profile of those costs and benefits than our analysis. As we ultimately set an allowance in six-monthly intervals, and as our analysis covers a shorter period, we are more sensitive to the expected profile of net costs to suppliers (on average).
- **Uncertainty**: In many cases the CBA estimates costs and benefits that have not occurred yet, or are difficult to estimate robustly. These estimates and forecasts are inherently uncertain. The appropriate treatment and assessment of uncertainty depends on context. As our context (setting the Cap to constrain suppliers' revenues) differs from the CBA, in some cases, we propose to use different assumptions. This difference in our approach to uncertainty reflects our different purpose.
- **Counterfactual and additional costs**: It is crucial that the CBA, to achieve its purpose, distinguishes between counterfactual costs (that would have occurred

[23] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019 Where relevant to this review, the assumptions transferred from the new CBA can be seen in the SMNCC model we have disclosed, which allows the sensitivity of those assumptions to be tested and understood.

without the smart mater programme) and additional costs (which are only incurred due to the rollout). Our review is less sensitive to this issue, as our ultimate aim is to assess the *change* in efficient costs since 2017. We therefore only need to consider counterfactual and additional costs in the period since 2017. The allocation of total operating costs in 2017 between additional costs and counterfactual costs does not, ultimately, affect the level of the Cap (ie the total costs already allowed for are unaffected). Our different sensitivity to this issue, means that in certain cases we can take different analytic approaches to the CBA.

3.11. As noted in Chapter 2 (paragraphs 2.23 to 2.26), we consider that the CBA and our review needs to be sufficiently robust for our purposes, and acknowledge that the estimates will include approximation and uncertainty. In our discussion of our methodology in this chapter, we describe where we consider estimates to be uncertain. In Chapter 4 (paragraphs 4.27 to 4.31) we review these instances of uncertainty in the analysis and consider its combined net impact. Where appropriate, we consider whether to make a holistic adjustment (in either direction) to address that uncertainty.

Isolating relevant costs and benefits

Our approach – considering relevant costs and benefits

3.12. In our review, we seek to include only costs and benefits that affect suppliers. **Table 3.3** shows the cost and benefit categories that we propose to include in the new SMNCC model.

Table 3.3: Cost and benefit categories in our review of smart costs

Cost categories	Benefit categories
In-premise costs • Installation of meters • Asset costs (smart meters, in-home displays) • Premature replacement charges (PRCs)* **Suppliers' IT system costs** • Amortised capital expenditure • Operating expenditure **Other costs** • Operation and maintenance, • Communication hubs (SMETS1) • Disposal • Pavement reading inefficiency • Legal and organisational costs • Marketing beyond SEGB investment*	**Avoided site visits** **Customer switching** **Inbound customer calls** **Debt handling** • More frequent billing • Earlier identification of debt • Reduced bad debt **Reduced theft** **Remote change of tariff**

Source: Ofgem RFI data, 2019. Note: Items with * are those which are not included in the CBA, but which we have included for the purpose of our analysis.

3.13. The new CBA includes costs and benefits that are not relevant to our review. This is because the CBA aims to quantify all the costs and benefits to the whole of society, so it includes the impact on consumers, suppliers, network operators, energy producers and the environment. Many of those issues do not affect the costs an efficient supplier would incur and seek to recover in their tariffs.

3.14. We have not included the costs and benefits that do not affect suppliers, or costs that are recovered in other areas of the Cap (such as DCC costs, which we include in the pass-through SMNCC). The CBA sets out all of the costs and benefits it analyses. Stakeholders should consider their own activities rolling out smart meters and the CBA document to check we have not excluded relevant costs and benefits.[24]

3.15. The new CBA does not include some costs and benefits that are relevant to our review. For instance, the CBA excludes categories where the impact on society nets to zero (examples include theft and losses, and tax). It also excludes categories that do not create additional costs *in the long term* above those that would have occurred anyway. For instance suppliers pay premature replacement charges (PRCs) when they remove some traditional meters, but without smart meters they would have paid these costs through rental charges. We include the PRCs because the timing of concentrating those avoided rental charges in one payment is relevant to our review.

Our approach – considering relevant customer segments

3.16. The new CBA estimates costs for the whole of the market, not just those relevant to the Cap (default tariff customers with credit meters). We propose to exclude the costs and benefits relating to:

- non-domestic customers (ie businesses)
- customers on prepayment meter tariffs, and
- domestic customers on non-default tariffs.

Non-domestic customers

3.17. For most costs and benefits the CBA calculates costs for domestic customers and non-domestic customers separately. We include domestic costs only in our review and

[24] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019

exclude costs relating to non-domestic customers (eg costs relating to advanced meters).

3.18. In some cases, the CBA calculates costs based on the whole supply business (not allocating these costs between domestic and non-domestic segments). In these cases we propose to estimate domestic costs per meter by dividing the total costs by the total number of meters (taking domestic and non-domestic meters together). This means that we assume that the cost per meter is the same for a domestic customer and a non-domestic customer. Given the difference in scale between domestic and some non-domestic customers, this may overstate the costs that we should apportion to domestic customers (as non-domestic customers pay more on average), making our estimate conservative. This issue applies to few categories within the CBA (supplier IT costs, organisational costs, and the benefit from reduced theft), so the impact is relatively limited.

Customers on prepayment meter tariffs

3.19. We propose to exclude customers with prepayment meters from our review. Customers with traditional prepayment meters ("PPM") and non-interoperable smart meters are not in the scope of the default tariff cap; they are protected by the prepayment meter cap ("PPM cap"). These customers make up the overwhelming majority (nearly 100%) of PPM customers (nearly 100% of PPM customers).

3.20. As indicated by some suppliers in response to our April consultation, PPM customers with a default tariff and an interoperable smart meter *are* in scope of the default tariff cap. However, in practice, we allow suppliers to set tariffs for these customers at the level of the PPM cap, not the default tariff cap.[25] This recognises that, currently, there are a negligible number of PPM customers with an interoperable smart meter and avoids creating a financial disincentive to suppliers for providing interoperable smart meters to these customers.

3.21. Next year we propose to introduce a Payment Method Uplift for PPM customers on the Cap. This is because, firstly, interoperable smart meters in prepayment mode should become more prevalent and, secondly, the PPM cap will end in 2020, which could mean that all prepayment meter customers with default tariffs (which is nearly all PPM

[25] Ofgem (2018), Decision overview, para 5.20-5.24
https://www.ofgem.gov.uk/publications-and-updates/default-tariff-cap-decision-overview

customers) would be in scope of the Cap. In that review we would consider the impact of smart costs for prepayment meter customers.

Customers on non-default tariffs

3.22. The Cap applies to customers on default tariffs only. The new CBA does not distinguish between default tariffs and non-default tariffs when assessing costs for customers with credit meters. We expect suppliers to recover the costs of installing smart meters from all of their customers, irrespective of whether they are on a default or non-default tariff; default customers should not pay for everyone.

3.23. To apportion costs and benefits we calculate costs and benefits per meter (ie we divide total costs for credit customers by the total number of credit meters). We make no distinction between default and non-default tariffs. The total cost or benefit for default tariff customers is this value per meter multiplied the number of meters on a default tariff.

3.24. Implicitly, we assume that the costs and benefits per default tariff customer are equivalent to those per non-default tariff customer. This is a simplification, which we consider appropriate. It is possible that costs differ between default and non-default tariff customers. For instance, if default tariff customers are less likely to arrange an installation date (because on average they might less engaged more generally than non-default tariff customers), then this customer group may incur higher costs.

3.25. If there is a difference in costs, which is uncertain, it creates complexity and uncertainty. Suppliers' efficient costs could vary to the extent they have more or fewer default tariff customers than average (the average should be neutral, due to the method of calculation). Installations may be disproportionately weighted toward default tariff customers in future, and may under represent them now. We do not consider it necessary to attempt to estimate or model these complexities. Rather we take them into account in our selection of the efficient benchmark from the range of observed costs and benefits, and our review of uncertainty and approximation in different aspects of the methodology (Chapter 4, paragraphs 4.27 to 4.31).

Default tariff customers without smart meters

3.26. We propose to spread costs and benefits across all default tariff credit customers. We do not propose to distinguish between default tariff customers with smart meters and those without smart meters. One stakeholder disagreed with this approach. They

considered that, in principle, customers should not pay for a service (smart meters) where they have not yet received the benefit of that service; they suggested that only customers with smart meters should pay for the rollout.

3.27. We acknowledge the point. However, all customers should eventually receive a smart meter and benefit from the rollout. The nature of the rollout means that the costs precede the benefits. If suppliers only recover those initial costs from customers with smart meters, then customers may be less likely to have one installed (discouraged by a perceived penalty). This could slow down the rollout and harm customers in the long run.

Setting an 'efficient' benchmark

Considering efficiency

3.28. For our review we must have regard to efficient costs and benefits. However, for any cost or benefit category, it is inherently uncertain what the efficient level is. There are two challenges:

- **Efficiency cannot be directly observed**. Suppliers report their actual costs, but these reported costs may be inefficient. Most suppliers consider their own costs to be efficient, but that is not conclusive.

- **Efficient costs may also vary from supplier to supplier**. This is relevant because in having regard to an efficient supplier's ability to finance its activities, there is no single cost level that we can have regard to, yet we must still set one cap level.

3.29. We can consider efficiency by analysing the range of costs different suppliers incur (or forecast). From the range of observed costs (or benefits), we consider a range of potential benchmarks that we could use to represent an 'efficient' level in the context of the smart meter rollout. For example we could choose from:[26]

- **Lowest costs.** In the absence of evidence to the contrary, we would consider the supplier with the lowest costs to represent the 'efficient frontier' (the costs that competitive companies have shown to be efficient). If competition is not effective,

[26] These options are reference points, but not exhaustive.

then even the lowest observed costs may not be an efficient level (that would be achieved in a competitive environment).

- **Intermediate costs:** When setting the Cap methodology in 2018, we set the operating cost allowance at an intermediate level (£5 below the lower quartile, and 15% above the frontier benchmark in our sample).[27] This approach is more generous than using the efficient frontier. It takes into account that using lowest costs may be inappropriate, for example, if there are concerns about data, or because some suppliers might have higher efficient costs than others.

- **Average costs:** We could benchmark the 'efficient' level at a higher level of costs, such as average costs – whether median costs, a simple average of suppliers, or a weighted average. This approach would substantially reduce our emphasis on suppliers that achieve low costs, and in doing so, we would have less regard to improving efficiency. However, it could help support suppliers' progress with the rollout (if they had high efficient costs or inefficient costs) while still requiring suppliers with above average costs to improve their efficiency.

- **Higher-than-average costs**. On this approach, we would set the 'efficient' level above the observed costs that most customers face. This further reduces the regard we have for improving efficiency and would not protect customers, as they could be charged more than suppliers require on average.

3.30. These considerations do not mean that we define 'efficiency' as 'average' costs (or 'frontier' costs etc). The 'true' level of efficient cost is uncertain and may differ from our benchmark. As discussed in chapter 2 (paragraph 2.17), we must have regard for the need to create incentives for suppliers to improve their efficiency, but, in order to do so, we do not necessarily need to set the benchmark at the lowest possible level. In a competitive environment, suppliers should have some incentives to improve efficiency that do not rely on the where we set our benchmark.

Suppliers' views

3.31. In response to our April consultation, suppliers supported our proposal to use average costs to benchmark efficiency. They referred to the different efficient costs they faced

[27] See Ofgem (2018), Appendix 6 - Operating costs, paragraph 2.31
https://www.ofgem.gov.uk/system/files/docs/2018/11/appendix_6_-_operating_costs.pdf

due their different customer portfolios, and the importance of not reducing funding for the roll out (to protect customers).

3.32. Some suppliers disagreed that setting the efficient level of costs at the average level was conservative, and suggested that we should not consider higher than average costs as inefficient. They reasoned that we should not deny suppliers the ability to recover their efficiently incurred costs, or that we could rely on strong incentives to maximise investor returns (rather than the allowance) to ensure suppliers aimed to be efficient.

Our approach

3.33. We propose to conduct our review on the basis of 'average' costs (see below on how we calculate this in various contexts).

3.34. We have considered the variation between suppliers' costs and its implications for our potential benchmark:

- In principle, we would not expect suppliers' *efficient* asset costs to vary much. Although suppliers take different approaches, we would expect the market to converge on the efficient way of procuring functional assets. These assets are largely homogeneous, as they must meet detailed specifications. As expected, variation between suppliers' *reported* asset costs is limited. This might suggest a strict approach to setting an 'efficient benchmark', such as frontier costs.

- In principle, efficient installation costs could vary to an extent. Approaches are similar, so variations in cost could simply indicate inefficient workforce planning. However, differences in suppliers' customers could mean their achievable productivity differs. *Reported* installation costs do vary significantly. This might suggest that an intermediate benchmark is appropriate to allow for efficient variation.

- Suppliers' different rollout profiles have a significant impact on their efficient costs in a specific period (although not over the life of the smart meter programme). In the short term, a supplier with efficient costs per installation *and* above-average progress with their rollout will have above-average total costs. This is because they have higher amortised costs, or rental charges, for meters they have already installed. If we used a very strict cost benchmark, then the pressure on these suppliers could undermine their willingness to rollout meters,

potentially affecting customers of that supplier. However, increasing the benchmark would ease pressure on those suppliers in the short term, but all customers in the market would pay more than the efficient costs *per meter* require.[28]

3.35. We consider that 'average' costs are to be likely higher than the 'true' efficient levels, but we propose to use 'average' costs as an appropriate benchmark for the purpose of our review of efficient costs. This is because:

- Frontier costs would be inappropriate. There is variation in efficient costs between suppliers (at least due to different rollout profiles, and probably due to customers' circumstances); in that case, setting the benchmark at the lowest cost level would below efficient costs for all but one supplier.

- We consider that an intermediate benchmark (such as lower quartile) may exceed the 'true' efficient level. However, 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. A higher benchmark mitigates this impact to an extent.

- Suppliers have some incentive to improve their efficiency, independently of the allowance we set, so we may be able to choose a more generous benchmark without disregarding incentives to improve efficiency.

- Setting our benchmark above the average level would mean that customers, on average, pay more than suppliers require to finance the rollout (let alone what a truly efficient supplier requires). That would not be appropriate.

Calculating average costs

3.36. For the purpose of our review we propose to have regard to weighted average costs. That does not mean that we always calculate the weighted average from individual data. The new CBA estimates the market-wide impact of smart meters, so its estimates approximate weighted averages, regardless of the underlying methodology.

[28] See discussion rollout profiles in paragraphs 3.176 to 3.188 below

3.37. There are different types of 'average' we have considered (median, simple average, weighted average).

- In using a weighted average we consider, by default, the average impact on customers. A weighted average gives prominence to the largest suppliers, which might not be appropriate for the market as a whole – ie the largest suppliers could bias our benchmark.

- A simple average, or median, would give greater prominence to variations in suppliers' costs. This is better if suppliers with limited market share (or that have installed few smart meters) have identified a more efficient approach.

By default we use weighted average to consider the impact on customers, and we consider our choice of benchmark in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Considering modifications

Our approach

3.38. We propose to modify the calculations in cost and benefit categories in the new CBA where it is more appropriate for our purpose (which differs from the new CBA).

3.39. In our April consultation[29] we proposed to consider modifications, taking the following factors into account:

- **The robustness of the new CBA and its underlying data**: As discussed in paragraph 3.9 above, we consider the new CBA to be a well-constructed and high quality analysis of the additional net costs and benefits of the rollout. We have reviewed whether these assumptions and data suit our purposes and made modification where they do not.

- **Coherence and consistency between assumptions:** Some assumptions stand alone; in principle, we can adjust them without expecting any impact on other costs or benefits. Other assumptions are interrelated; we should expect changes

[29] Ofgem (2019), Reviewing smart metering costs in the default tariff cap. Paragraph 3.15. https://www.ofgem.gov.uk/system/files/docs/2019/04/review_of_smart_metering_costs_in_the_default_tariff_cap.pdf

to have knock-on effects elsewhere in a supplier's costs or benefits. We consider whether isolated modifications improve or reduce the accuracy of our estimates *considering the overall impact,* compared with no adjustment.

- **Sensitivity of total costs to the assumption**: Not all costs, benefits, or assumptions have a significant impact on the SMNCC. We prioritise areas where modifications would have a significant impact on the assessment of net costs.

- **Availability and practicality of an alternative data source:** Some assumptions have an inherent degree of uncertainty (for instance, forecasting how costs will develop in future). While it may be the case that some assumptions are uncertain, that does not necessarily mean an alternative approach would be more certain. Alternative data may not be available, may have different limitations, or it might be impractical or disproportionate to gather new data. In such circumstances, we proposed to consider whether simplified assumptions would be more practical. Where this is the case, we proposed to consider what impact that remaining uncertainty has on estimated costs (which we do in Chapter 4, paragraphs 4.27 to 4.31).

3.40. Below we discuss the modifications we propose. We suggest that stakeholders read the published CBA alongside this consultation. For the avoidance of doubt, where we do not discuss modifications, then we are satisfied that the approach taken in the CBA is sufficient for our purposes.[30]

Considering modifications to cost assumptions

Overview

3.41. In this section we review the cost categories in the CBA and consider whether we need to modify the approach for our review.

Annual efficient cost profile

3.42. For many categories (including the largest cost categories – meter and installation costs) the new CBA includes costs estimates for each year. The CBA calculates these in two steps. First, it starts with a single input value, based on suppliers' historical data

[30] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019

(from the ASRs) and forecasts. This is a time-weighted average across years, with the weighting based on the proportion of meters installed in each year. Second, the CBA model applies cost uplifts to that single input value for each year. This is a reasonable approach for the purpose of the new CBA, which looks at the duration of the smart meter rollout.

3.43. Our requirements differ. We set an allowance every six months, so we are more sensitive to suppliers' cost profile (on average). On that basis, we propose not to use a single time-weighted input to review the efficient costs of the rollout.

3.44. We propose to set an annual efficient cost profile, using separate cost inputs for each year. This largely[31] involves using the same data as the new CBA. However, we propose to apply the relevant cost directly to each year. Using a cost profile better recognises that costs in the early stages of the rollout have been higher than future costs are expected to be.

In-premises costs

3.45. Suppliers incur costs installing smarter in customers' premises. In this section, we consider costs per installation. In any particular period a supplier's total in-premise costs will depend on how many smarts they install, or have installed up to that point. That varies between suppliers, but we must calculate costs using a single rollout, which we discuss below (paragraphs 3.176 to 3.188).

In-premises costs: Installation costs

Installation costs

3.46. Installation costs are one of a supplier's principal costs in the rollout. These cover the costs of training installers, providing tools, installer wages, managing installers in the field, appointment setting, insurance, legal, and other back office support costs. The costs depend on productivity – how many meters a supplier can install a day per worker.[32] Suppliers install some meters themselves ('in-house') and contract for other installations ('third party').

[31] The exception is where data is unavailable for a particular year – in particular at the start of the rollout. We will apply data from the nearest available year, whereas the CBA calculation would just include the time-weighted average.
[32] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019, pages 19-20

3.47. We start by estimating the amount of money suppliers spend per year on installations. We do not immediately recognise these costs in our review. These costs are capitalised and amortised (spread) over the life of the assets being installed (see below). Our review (and the CBA) considers amortised costs.

3.48. For installation capital costs in historical years up to and including 2018, costs are based on suppliers' ASR data. As stated above (paragraph 3.42 to 3.44), we propose to use the capital costs reported each year, not the time-weighted approach used in the CBA.

3.49. The CBA must estimate future installation costs. The starting cost base used by the CBA is a mixture of 2017 and 2018 ASR data. It then necessarily makes assumptions about productivity. For 2019, the CBA forecasts installation productivity using suppliers' rollout plans. For 2020 and beyond, the CBA assumes that productivity will improve – reaching a maximum of five installations per worker per day in 2020 and 2021 (ie 2.5 dual fuel installations). It then reduces, as the number of customers without smart meters decreases and it becomes more challenging for suppliers to reach the final installations.

3.50. Clearly, future productivity is uncertain. The CBA sets out sensitivity tests on this assumption.[33] Its productivity assumptions are based on factors we consider reasonable, such as interventions by the programme to help suppliers increase productivity through sharing good practice as well as evidence from third-party installation companies and data collected as part of the programme's ongoing engagement with energy suppliers.

3.51. We have not modified these assumptions, but consider their impact on the SMNCC in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Considering fixed and variable installation costs

3.52. We have considered the extent to which installation costs are fixed or variable with the number of meters installed. In the long term costs should be variable. If an efficient supplier installs fewer meters, it requires fewer workers. In the short or medium term

[33] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019, page 78

costs may act more like fixed costs, as suppliers may not be able to adjust their plans and costs quickly.

3.53. The new CBA estimates installation costs in future periods by assuming that average in-house installation costs (excluding training costs) move inversely with installer productivity. In effect, this assumes that a supplier's cost base is fixed for a period, and that there are no incremental costs from increasing the number of installations, nor benefits from reducing them.

3.54. We consider the approach reasonable for our purposes. The largest in-house costs, including the number of installers, are likely to be fixed for a period. A reduction in the number of meters installed would therefore reduce productivity and increase unit costs.

3.55. In response to our April consultation, some suppliers stated that they have experienced "stranded" fixed costs – planning for higher installation rates, incurring the costs to meet those plans, and then failing to install those meters (while still incurring the costs). This demonstrates that, to an extent, installation costs in the short to medium term are fixed. We have set the installation costs based on reported productivity and costs, so the review already takes into account the extent to which "stranded" costs reduced productivity in those years.

3.56. It is also possible that suppliers' costs for 2019 were 'stranded' if problems with supplier's planning persisted into 2019. Given the issues suppliers identify largely relate to installing fewer SMETS2 meters than planned (due to issues with DCC in 2018) this impact should have reduced in 2019, and an efficient supplier might have been expected to anticipate those issues continued to affect its plans. Nonetheless we consider the potential impact in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

In-premises: asset costs

3.57. Each year, suppliers install assets in their customers' homes. These include the meters, communication hubs, and in-home displays. They may rent these assets from Meter Asset Providers (MAPs), in which case the supplier will pay fees over the rental period. Alternatively, the supplier may have purchased the assets, and amortise that capital investment over the life of the asset.

3.58. In line with the CBA, we discuss these assets as though they are all purchased and amortised. In practice, this is not the case. As the Cap relates to income and expenditure, we do not seek to allow for the capital costs of assets at the point they are installed, only the amortised costs.

Smart meter asset costs

3.59. The average capital costs of smart meters differ each year. The CBA uses a time-weighted average cost. As stated above, we propose to modify this approach, by using the relevant costs for each year.

3.60. For historical years, we propose to use the annual profile of these costs from the ASR data (rather than the time-weighted input in the CBA) incurred up to 2018 (inclusive).

3.61. For future years, the CBA estimates meter capital costs based on observed trends for traditional metering equipment. It decreases costs by 1% per annum to the end of the rollout, and includes a 5% uplift for optimism bias. Forecast costs are uncertain, but we consider the approach appropriate.

Communications hubs

3.62. Communication hubs send information from a smart meter to suppliers (via other organisations, such as the DCC). The cost of communication hubs for SMETS2 meters are recovered in DCC charges. These are included in the pass-through SMNCC allowance and therefore we do not include them in our review.

3.63. We include the cost of communication hubs for SMETS1 meters in our review (in the "other costs category"). As with the costs above, for historical years, we propose to use annual costs reported in ASRs, rather than then CBA's time-weighted approach.

3.64. There should be few new SMETS1 communication hubs being installed in 2019 and beyond (as SMETS2 meters become standard). As an approximation, we propose to use the asset cost in 2018 for future years.

In-Home Display (IHDs)

3.65. Suppliers install IHDs which display information to customers about their energy use.

3.66. The historical costs of IHDs in the CBA are based on ASR data. As above, we propose to use annual averages from the ASRs, rather than time-weighted average. The CBA

makes a downward adjustment to reflect the fact that several suppliers have purchased IHDs with enhanced functionality above the SMETS specification requirements at an additional cost. We maintain this approach.

3.67. We propose to use the asset cost in 2018 for future years.

3.68. Unlike other asset costs, the CBA expenses the full cost of an IHD in the year of installation, an assumption validated by BEIS with MAPs. We propose to use the same approach.

Amortising in-premises costs

3.69. We amortise relevant in-premise costs (installation costs, meter costs, and communication hub costs) over the life of the meter. We have considered two issues:

- The expected life of the asset: The CBA assumes that all meters are manufactured in accordance with the Smart Metering Equipment Technical Specifications (SMETS)[34] with a lifespan of 15 years.[35] The CBA amortises costs over this period.

- Average amortisation profiles: In response to our April consultation and Response Paper 2, suppliers suggested that a 15-year life did not reflect how they actually recognise these costs (nor reflect their rental agreements with MAPs). We requested data on the length of meter rental agreements to assess the significance of different approaches. In general, suppliers suggested they pay an initial rate over the rental period for the asset, and then pay some form of peppercorn rate (ie a significantly lower charge) following the end of the rental period. Specific approaches differed between suppliers and agreements, but this was the general approach. In general, ten-year rental agreements are most common, but the weighted average is 12 years for electricity and gas SMETS1 meters, 12 years for electricity SMETS2 meters and 13 years for gas SMETS2 meters.

[34] SMETS specifications: https://www.gov.uk/government/consultations/smart-metering-equipment-technical-specifications-second-version
[35] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019, page 17: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831716/smart-meter-roll-out-cost-benefit-analysis-2019.pdf

3.70. We propose to amortise capitalised installation, meter, and communication hub costs over a 12-year period to reflect the weighted average meter rental periods. (We consider that this is a sufficient approximation of the weighted averages calculated above, which are all around 12 years). This better reflects how costs are incurred than spreading costs over the expected life of the meters.[36]

Cost of capital

3.71. The CBA calculates financing costs. These financing costs are included in the asset costs, installation costs and IT costs. The CBA assumes a 6% cost of capital across all market participants, on a real post-tax basis. This is appropriate for the CBA.[37] However, our review must consider a pre-tax cost of capital, given that the SMNCC ultimately needs to provide suppliers with pre-tax revenue. Market participants will need sufficient funding through our allowance to pay tax.

3.72. We propose to maintain the CBA approach, but convert it into real pre-tax terms. We have applied an uplift to the 6% post-tax cost of capital, such that "1 / (1 – t%)", where t is corporation tax rate. The approach is an approximation. We apply the current corporation tax to all years and assume the average market participant is entirely equity-financed, which will not be the case for all market participants (particularly MAPs). We consider the impact on our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

In-premises: Premature Replacement Charges (PRCs)

PRCs for traditional meters

3.73. Suppliers incur a charge for replacing a traditional meter before its costs have been paid off – a Premature Replacement Charge (PRC). The level of the PRC depends on a number of factors including the contract with the meter owner and (in particular) the age of the meter. Generally, the PRC a supplier faces decreases as the meter ages.

3.74. This issue is not relevant to the CBA, which excludes these costs. PRCs represent forgone meter rental costs. In a counterfactual world without smart metering, suppliers

[36] While this difference has an impact on the SMNCC, it is immaterial for the new CBA.
[37] HMT (2018), The Green Book – central government guidance on appraisal and evaluation, paragraph 6.7. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

would have incurred meter rental costs for traditional meters. The timing of those costs are different, but the amount (which the CBA is interested in) is not.

3.75. We included an estimate of PRCs in our analysis last year, using a simplified approach. In response to our April consultation suppliers suggested that we collect data to help us improve our estimate of PRCs. As discussed in Response Paper 2, we collected data on meter asset lives, which helps us to model the relevant costs (bottom-up). We also collected actual PRCs, to consider the costs suppliers have actually paid (top-down).

3.76. We propose to model the PRCs using the distribution of traditional meter asset lives.

- **Age of meters.** We have collected data on the age of traditional meters at the end of 2018. The average age is around 12 years for electricity meters and 13 years for gas; 7-8% of meters were installed between 2016 and 2018 (0-2 years old)[38] and 20-30% are more than 20 years old (ie there is a long tail of old meters. We assume that the distribution remains constant in future years, but ages. We assume no new traditional meters are installed after 2018. This is later than in our previous analysis, which assumed that no new traditional meters were installed from the start of 2016.

- **Random selection.** In principle an efficient supplier would target old meters, as these incur lower (or zero) PRCs. A few suppliers did indicate that they have taken PRCs into account when deciding which meters to target, at least to some extent. However, we do not consider it practical that suppliers can always target the oldest meters, as there are other factors involved when prioritising installations (such as which consumers express interest in a smart meter). We therefore assume conservatively that suppliers have no control of the PRCs incurred – ie that the meters replaced reflect the population of meters.

- **Forgone rent.** We assume that PRCs for traditional meters are due over a 15-year period. We use a linear profile as a simple and reasonable approximation.

3.77. The weighted average PRCs per meter using supplier data on their charges in 2018 is significantly lower than the value we estimate using our modelling for electricity

[38] Despite the advent of the smart meter rollout.

meters, and higher than our estimates for gas. We consider that actual charges may not be a reliable guide:

- **Internal charges:** Some suppliers are also traditional meter owners, and do not charge an internal PRC. This approach ignores the real economic cost to the different sections of the business, one of which is the supply company.

- **Future cap periods:** We are reviewing costs for all future cap periods. So even if we use 2018 charges as a base, we need to make assumptions about how traditional meters will age. This collapses into some version of the bottom up approach.

3.78. We propose to estimate average PRCs using the meter asset life data. We consider these costs may be conservative, given the data on actual average charges, which we take into account in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Table 3.4: Premature Replacement Charges for traditional meters (£ per traditional meter replaced)

	2017	2018	2019	2020	2021	2020	2023
Electricity	20.32	18.64	16.74	14.49	12.32	10.32	8.50
Gas	27.61	26.55	25.08	22.80	20.35	18.07	15.90

Source: Ofgem (2019), RFI premature replacement charges
Notes: Costs are in 2011 prices

PRCs for SMETS1 meters

3.79. In principle, SMETS1 meters should be enrolled with the DCC and would therefore operate for their lifespan. There would be no PRCs for these meters.

3.80. Some suppliers raised concerns that not all SMETS1 meters will be enrolled, as few projects are ever 100% effective. On that basis, suppliers may incur PRCs for SMETS1 meters they are unable to enrol.

3.81. The new CBA model makes provision for the proportion of SMETS1 meters it expects might be replaced by SMETS2 meters. As above, no PRCs are included in the new CBA.

3.82. We propose to include PRCs for SMETS1 meters replaced by SMETS2 meters.

- **Age of meter:** We propose to use the asset cost of SMETS1 meters used in the new CBA, for consistency. These vary by installation years.

- **Random selection**: For the distribution of meter ages, we propose to use the number of SMETS1 meters installed each year and assume the age of a meter does not make it more or less likely to not be enrolled.

- **Foregone rent**: To estimate the charge, we will calculate the rent foregone from the meter's remaining life of the rental agreement.[39] We use a 12-year average rental agreement, in line with the analysis in paragraph 3.76 above.

DCC related costs

3.83. These costs are included in the pass-through SMNCC allowance, so they are not in the scope of this review.

IT system costs

3.84. We expect suppliers to incur additional IT costs related to the smart meter rollout, over and above the expenditure they would have incurred without the smart meter rollout. We recognise three groups of IT system costs (Table 3.5):

- amortised investment in hardware and software, excluding enrolment

- amortised investment in enrolment costs (the costs suppliers are expected to incur to enrol SMETS1 meters in the DCC)

- ongoing operating expenditure.

Table 3.5: IT **smart meter** system **amortised costs and operating expenditure**

	2017	2018	2019	2020	2021	2020	2023
Software and hardware - amortised (£m)	204	216	206	178	144	103	70
Enrolment and adoption - amortised (£m)	0	0	30	30	39	39	39
IT operating costs (£m)	87	85	75	60	46	33	23
Total IT costs	291	301	311	268	230	175	132

Source: Ofgem RFI (2019) and CBA. Note: Prices in 2011 prices terms. For software and hardware we scale up suppliers' reported capital expenditure each year by their collective market share of domestic meter points. Enrolment and adoption is based on the CBA, unmodified.

[39] As discussed in paragraphs 3.57 and 3.58, we treat the remaining amortised costs and the remaining efficient rental charges as equivalent.

Amortising IT investment

3.85. The SMNCC sets an allowance for tariffs, so we must consider revenue and expenses. This means we need to consider the amortised costs of capital investment in hardware and software, and in enrolment costs.

3.86. We propose to amortise IT costs over five years, starting in the year after the capital expenditure occurred.

3.87. The CBA amortises all IT capital investment over five years. We consider this a reasonable and conservative generalisation.

- We take as a starting point, that suppliers should amortise capitalised costs over the duration of an asset's economic life. The principle is that the cost of the asset and the revenue generated from that asset should be compared over the same period. The CBA expects suppliers to use these assets (on average) for longer than five years. In practice, it is common to amortise an asset over a period that is shorter than its actual life. Suppliers cannot be certain about how long an asset will last (particularly a new technology). Accounting standards are deliberately conservative with respect to estimating asset lives. For that reason it is common for companies to use an asset after they have fully amortised the capital investment. Amortising an asset over a period that is shorter than its life squashes the capital costs into the early stages of the asset's life, disproportionately increasing the amortised cost for those years.

- We also consider that it is desirable to reflect the amortisation periods that suppliers (on average) use. The CBA amortises over five years[40] 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 individuals will inevitably vary.

3.88. The CBA amortises costs from the first day of the year they are capitalised. We propose to modify this approach, amortising costs from the first day of the year *after* the capital expenditure.

[40] Previous CBAs amortised over a longer period.

- We take as a starting point that a supplier should start to amortise costs when an asset comes into use. Broadly, a supplier may start using an asset immediately, or after a development period (where capital costs are incurred, but not amortised until later when development finishes). In the first case amortisation is immediate. In the latter case there is lag between incurring capital additions and the cost being amortised. Suppliers have both types of expenditure so, on average, amortisation will slightly lag capital additions.

- The average lag will vary from supplier to supplier, depending on their specific mix of assets, their approach to managing IT, and their accounting policies. Our assumption necessarily produces a generalised cost profile, around which suppliers will vary. The profile may not match each or any suppliers' costs and each supplier's average lag will differ to various extents. We do not consider it necessary or proportionate to audit each asset case by case to establish the average lag for each supplier in each year.

3.89. Our proposed approach to amortisation is a simplified and general approach; individual suppliers will have different policies. Taking together the amortisation period and the recognition date, we consider the combined effect appropriate to account for average IT costs. We take into account its conservativism in our review of uncertainty in Chapter 4 (paragraphs 4.27 to 4.31).

Amortising capital investment in hardware and software, excluding enrolment

3.90. The CBA explains that it bases IT capital investment in hardware and software by large suppliers on a 2010 RFI. In response to our April consultation, suppliers suggested that we collect recent data on their reported IT investments, to compare with the costs in the CBA. Table 3.6 shows the annual IT capital investment suppliers reported in our RFI, broken down between smart mater related costs and non-smart meter related costs.

3.91. Suppliers also submitted forecasts of future investment. On average, the forecasts show a 33% reduction in capital investment each year from 2018. This is a simplified average of suppliers' submissions.

Table 3.6: Suppliers' reported capital investment in hardware and software, excluding enrolment (£ per account)

Costs	2010	2011	2012	2013	2014	2015	2016	2017	2018
Smart IT	0.88	0.77	2.07	2.85	3.69	3.54	3.90	3.09	2.20
Non-Smart IT	7.78	6.38	7.28	5.72	4.51	3.04	1.28	2.16	3.47
Total IT	8.65	7.15	9.35	8.57	8.20	6.58	5.17	5.25	5.66
Smart%	10%	11%	22%	33%	45%	54%	75%	59%	39%
Non-smart%	90%	89%	78%	67%	55%	46%	25%	41%	61%

Source: Ofgem RFI data, 2019
Notes: Prices are in nominal. The numbers above are only a subset of the IT costs in the SMNCC - they include supplier hardware and software capex (excluding enrolment). The SMNCC includes additional IT costs (eg supplier operational expenditure, DCC adaptor services and enrolment).

3.92. IT hardware and software upgrades are a common aspect of any business, so the CBA must isolate the additional investment due solely to the rollout (ie the costs incurred over and above the costs that would have been incurred anyway). For example, whether or not the smart meter rollout had happened suppliers would have to replace or upgrade their billing systems. Due to the smart rollout, a supplier may upgrade their billing system earlier than planned, or add more functionality than it would have done otherwise. In those circumstances, the reported cost of those IT upgrades is not purely the additional cost of smart meters, it is a mixture of additional expenditure and costs that would have been incurred without the smart meter rollout.

3.93. It is inherently difficult to isolate additional investment on IT from the counterfactual investment that would have happened anyway.

- Table 3.6 shows the investment that suppliers allocate to smart meters has increased during the rollout, as would be expected.

- Table 3.6 also shows that *total* IT investment reported by suppliers has declined between 2010 and 2017.

3.94. Even allowing for the cyclical nature of IT investment, it seems unlikely that the *reported* investment in smart metering is solely additional expenditure. If the costs that suppliers *report* for smart meters were purely additional that would mean that, absent the smart programme, their costs would have reduced by around 75% between 2010 and 2017 (ie suppliers, collectively would invest only one quarter of the amount they invested at the beginning of the decade).

3.95. This difficulty isolating the additional expenditure is not a criticism of suppliers for the data they have provided. We recognise that suppliers have submitted data which reflects their business activities. Rather, it is an inherent challenge of considering counterfactual costs. This is a key reason why the CBA uses the source that it does. It has a more reliable estimate of additional investment.

3.96. Compared with the CBA, our review is not as exposed to the allocation of IT costs between counterfactual and additional expenditure. The operating cost allowance already includes an efficient allowance for suppliers' operating costs in 2017. On that basis, it is irrelevant what proportion of those costs in 2017 is allocated to the smart meter rollout and what proportion is not. The total costs included in the operating cost allowance would remain the same. On that basis, we do not include an estimate of the absolute additional IT costs in **Table 3.1** and **Table 3.2** above.[41]

3.97. For our purposes, we are interested in the *trend* in additional amortised costs related to smart meters, not the absolute level of expense.

- Table 3.7 shows our estimate of the absolute amortised hardware and software costs using suppliers' reported capital investment and the amortisation approach we propose above (paragraph 3.85 to 3.89). These amortised costs are affected by the difficultly in distinguishing between reported costs and purely additional costs.

- Table 3.8 shows the *trend* since 2017, in the amortised costs that suppliers report for smart meters, for non-smart meter related systems and for total costs.

3.98. The trend in *reported* smart metering costs would only be appropriate if it reflected the trend in genuinely *additional* costs. We consider the trend in *reported* smart metering IT costs likely overstates the trend in *additional* amortised IT costs related to smart. This is because the pattern of smart meter related and non-smart meter related capital investment shown in Table 3.6 above suggests that the increase in reported smart costs (at least in part) reflects an increasing proportion of counterfactual costs that have been (mis)allocated as additional smart meter related costs.

[41] The SMNCC model uses average reported IT costs in its calculations, but only to calculate the trend in amortised costs since 2017 for the purpose of setting the SMNCC.

Table 3.7: Amortised hardware and software IT costs, excluding enrolment (£ per account)

Amortised costs	2015	2016	2017	2018	2019	2020	2021	2022	2023
Smart	2.49	3.12	3.87	4.10	3.94	3.42	2.81	2.03	1.40
Non-Smart	7.62	6.45	5.22	4.00	3.47	3.38	3.76	4.62	5.31
Total	10.10	9.57	9.09	8.10	7.41	6.80	6.57	6.65	6.71
Smart%	25%	33%	43%	51%	53%	50%	43%	31%	21%
Non-smart%	75%	67%	57%	49%	47%	50%	57%	69%	79%

Source: Ofgem RFI data, 2019
Notes: Prices are in nominal. We hold future (post 2018) total IT capex constant. The numbers above are only a subset of the IT costs in the SMNCC - they include supplier hardware and software capex (excluding enrolment). The SMNCC includes additional IT costs (eg supplier operational expenditure, DCC adaptor services and enrolment). Amortised using a consistent approach with the SMNCC model.

Table 3.8: Trends in amortised hardware and software IT costs (excluding enrolment) since 2017 (£ per account)

Amortised costs	2017	2018	2019	2020	2021	2022	2023
Smart	0.00	0.24	0.07	-0.45	-1.06	-1.84	-2.47
Non-Smart	0.00	-1.22	-1.75	-1.84	-1.46	-0.60	0.09
Total	0.00	-0.99	-1.68	-2.29	-2.52	-2.44	-2.38
Difference between smart and total	0.00	1.22	1.75	1.84	1.46	0.60	-0.09

Source: Ofgem RFI data, 2019
Notes: Prices are in nominal. The numbers above are only a subset of the IT costs in the SMNCC - they include supplier hardware and software capex (excluding enrolment). The SMNCC includes additional IT costs (eg supplier operational expenditure, DCC adaptor services and enrolment).

3.99. Rather than the trend in reported smart costs, we have considered using the trend in total IT costs since 2017 as a proxy for the trend in additional smart costs. This approach would require an assumption that counterfactual costs are stable over time, so that all of the changes in *total* costs reflect the real changes in solely additional IT costs related to smart meters. That would mean the reported reduction in non-smart meter related costs reported in Table 3.7 is, in fact, an increasing re-allocation of counterfactual costs as additional smart meter related costs.

3.100. While counterfactual IT costs may be stable in the long run, in short periods (such as the one we are analysing), investment is cyclical. Given the high investment in 2010 to 2012, it is possible that investment would increase again in the early 2020s. We consider it possible that counterfactual costs genuinely reduced (to some extent) between the early part of the decade and 2017.

3.101. We expect that the true trend in solely additional IT costs is between the trend in *reported* IT costs allocated to smart meters and the trend in *total* IT costs, but it is uncertain exactly where the true trend lies. We have considered picking a point in

between these two trends (eg exactly half way between). We have also considered freezing costs in 2018 and 2019 at the level reported for smart meter related costs in 2017 (neutralising the increases) and then reducing the SMNCC in line with the trend in reported smart meter related costs from 2020. These approaches would better protect customers and reduce overestimating suppliers' costs.

3.102. None of these approaches will match the true trend in additional costs, which is inherently difficult to determine. Rather than adjust the input assumptions, we propose to use the data on IT costs that suppliers have allocated to smart meters and consider the impact of that conservatism when reviewing the output (potentially adjusting the SMNCC in our review of uncertainty – Chapter 4, paragraphs 4.27 to 4.31). Our allowance may be up to £3 or £4 per dual fuel account higher than in should be (depending on the year, see **Table 3.8**).

Amortising DCC enrolment and adoption costs

3.103. The CBA also provides additional funding for the costs suppliers are expected to incur to enrol SMETS1 meters in the DCC.[42]

3.104. We propose to use the capital costs in the CBA, and amortise them using the approach we discuss above. The amortised period starts in 2019, which is when supplier began enrolling SMETS1 meter with the DCC.

IT operating costs

3.105. For modelling large suppliers' IT operational expenditure, the CBA uses an industry standard figure of 15% of total IT capital expenditure to estimate initial operational expenditure for smart metering IT, except where more specific evidence has been available. The CBA reduces the proportion of investment it expenses gradually to 5% in 2030. This is in line with best practice IT application and infrastructure management where on-going performance improvement is a key feature of contracts and has been observed in IT systems of comparable scale and complexity.

3.106. We modify the approach because we have used a different source for capital, which has a longer profile of capital investment than the CBA. In each year we include 15%

[42] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019, pages 28-29: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831716/smart-meter-roll-out-cost-benefit-analysis-2019.pdf

of the Net Book Value of the capital investment. We do not taper the proportion (which reduces to 5% by 2030 in the CBA), in part because we already account for devaluing assets. By taking the net book value, rather than total capital expenditure in year, we decrease the decline in operating expenditure from 2017. This reduces the impact on the SMNCC, so it is a conservative approach, which we note in Chapter 4, paragraphs 4.27 to 4.31)

Other costs

Operations and Maintenance

3.107. The CBA assumes an annual operations and maintenance cost for smart meters of 2.5% of the meter purchase cost. These costs are associated with replacing equipment if found to be faulty. This assumption is based on information collected from MAPs. We propose to maintain the approach.

Legal and organisational costs

3.108. Suppliers incur a variety of legal, institutional and organisational set-up costs for the smart meter rollout. The CBA assumes these costs relate to setting up the smart meter programme between 2013 and 2017. These costs are not incurred after 2017 in the new CBA, except for a small amount of industry governance costs. Therefore these costs reduce the SMNCC, which recognises *changes since 2017*.

3.109. In response to our April consultation, suppliers requested that we collect data on legal and organisational costs.

3.110. Consider the RFI data we collected, we have considered three options: using the assumption in the CBA, flat-lining costs at the 2017 level (meaning no reduction in the SMNCC), and replacing the CBA assumption with recent data from suppliers.

3.111. In their RFI responses, suppliers have not drawn a distinction between set up costs and ongoing costs. This is a risk for the CBA, which must have a robust understanding of counterfactual and additional costs. For our purposes, the SMNCC is less exposed to the counterfactual as costs in 2017 (whether allocated to counterfactual or additional costs) are already accounted for in the operating cost allowance.

3.112. The RFI data suggests a slight reduction in costs since 2017 (reducing the SMNCC), including reducing costs for four of the largest six suppliers, and flat costs for one other.[43]

3.113. We propose to freeze legal and organisational costs at the 2017 level stated in the new CBA. From 2018 onwards this is higher than the costs in the new CBA, and is higher than the declining trend in suppliers' data. However, due to uncertainty around these costs in future (and that the post-2020 framework may differ from current arrangements) we consider this a reasonable and prudent approach to these costs. We take this into account in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Pavement reading inefficiency

3.114. See avoided site visits below (paragraphs 3.144 to 3.148)

Marketing costs

3.115. The cost of marketing the smart meter rollout (including the charges for the services provided by the SEGB) is already accounted for in the pass-through SMNCC. SEGB is the body running the nation-wide marketing campaign for smart meters and is funded by suppliers. Therefore these costs are outside the scope of this review.

3.116. Appointment setting costs (including the cost of direct mail to customers) is already included in installation costs, based on suppliers' ASR submissions. Therefore, we do not seek to consider these costs again, which would double count costs.

3.117. The CBA does not include additional marketing costs – other than SEGB marketing costs and appoint setting. In response to a number of our consultations, suppliers argued that they incur marketing costs, in addition to those covered by SEGB costs or not already considered in their ASR data on appointment setting costs. They requested that we gather additional information to assess the reasonableness of the CBA approach.

[43] As the operating cost allowance already contains suppliers' efficient costs (including smart costs), we are interested in the trend in these costs, and we are less sensitive to whether reported level truly reflect additional costs or includes some of the counterfactual costs.

3.118. We issued an RFI and collected data on:

- Reported marketing costs, related to smart meters: suppliers provided data on the costs they incur marketing smart meters, excluding SEGB charges and appointment setting costs (which we already include in installation costs).

- Counterfactual marketing costs: we asked suppliers to estimate the marketing costs they would have incurred without the rollout. For instance, if smart meter information is included in a campaign that would have occurred anyway.

- The benefit of marketing: The benefits of marketing are inherently difficult to quantify accurately, but clearly there are benefits to the company from marketing. We asked suppliers to estimate the benefit they derive from smart meter marketing, and describe how they assess the benefits of marketing generally.

3.119. Suppliers report that they incur costs marketing smart meters, although these costs are relatively modest (Table 3.9, next page). The costs largely relate to direct communication with customers to encourage them to get a smart meter.[44]

3.120. The benefits of smart meter related marketing are difficult to quantify. Suppliers usually expect the benefits of their marketing activity to exceed its costs. Some suppliers considered that they could estimate the benefits of smart-related marketing credibly; others did not. Where suppliers estimated the benefits, they tended to be somewhat less than level of benefits they target for other advertising. Others felt that there were no financial benefits.

3.121. An efficient supplier would derive some benefits from its marketing. However, in the context of smart meters, it is credible that the financial benefits may be lower than would be expected of normal marketing. The benefits of direct communication with current customers may not include brand awareness and the benefit of acquiring new customers that a standard marketing campaign might have. The primary benefit is encouraging customers to get a smart meter. Other benefits, such as increased customer retention and loyalty from direct communication, are much more challenging to establish (certainly the benefit to a supplier with *efficient and effective* marketing is

[44] To avoid double counting, suppliers excluded costs for activities they include in appointment setting costs.

more challenging to establish). However, we consider it possible that the financial benefits do not exceed the efficient costs of these marketing activities.

3.122. We propose to restrict benefits so that they do not exceed costs (ie the net *financial* benefit is zero at most). We have considered by how much to restrict assumed benefits between 0% of costs and 100% of costs (ie where the net cost of marketing is zero). In line with suppliers' representations we propose to include no spill-over benefits from smart meter marketing (Table 3.9).

3.123. We consider this position may overstate true costs (because some or most suppliers will in fact enjoy financial benefits). We note that this uncertainty is not conservative; it would *reduce* the SMNCC compared to including benefits at 50% or 100% of costs, which we considered. That is because the costs suppliers report peaked in 2017. As the operating cost allowance is based on total operating costs in 2017 (including smart metering costs), the level of marketing costs has no impact on the cap level. However, because suppliers report a reduction in these costs in 2018, that decline would reduce the level of the SMNCC. If we assumed that there are no additional marketing costs at all (as the CBA does), or that level of additional costs is unchanged from 2017 levels (which are already included in the operating cost allowance) then there the SMNCC would be higher.

3.124. For marketing costs beyond 2018, we propose to freeze the 2018 in real terms. Costs should reduce as the rollout proceeds (as suppliers need to engage fewer people), however each remaining customer may be harder to engage. On that basis, we hold the costs fixed, rather than reduce them. This approach may overstate costs, so is conservative.

3.125. In our review of uncertainty with consider the impact of our treatment of marketing costs on the SMNCC (Chapter 4, paragraphs 4.27 to 4.31).

Table 3.9: Analysis of marketing cost data provided by suppliers

Aggregate	2014	2015	2016	2017	2018
Reported marketing costs (£m)	4.0	6.01	16.4	31.5	22.6
Assumed financial benefits (% of costs)	0%	0%	0%	0%	0%
Net cost (£m)	4.0	6.0	16.4	31.5	22.6

Source: Ofgem RFI (2019)
Notes: Prices are nominal. We scale costs to market level using the domestic meter points of the suppliers included in the sample to the total domestic meter points for each year.

Optimism bias

3.126. When calculating costs for meter assets, IT systems (capital and operating costs), installation, and IHDs, the CBA model adjusts for optimism bias. The use of optimism bias is in line with HMT guidance.[45] Optimism bias reflects that cost projections may turn out to be under-estimates (eg due to unforeseen circumstances). The CBA accounts for optimism bias at 5% (except for supplier IT costs, where it is set at 10%).

3.127. The CBA uses a single time-weighted assessment of costs, which we have modified (see earlier in this chapter). Therefore, its approach to optimism bias does not suit our review.

3.128. We propose to not apply optimism bias to historical costs. Applying optimism bias would straightforwardly overstate costs that have already occurred.

3.129. We propose to apply optimism bias to forecast data only. This is the most appropriate approach, because it reflects the purpose of optimism bias.

3.130. The IT cost data in the CBA was from 2010. A higher optimism bias figure was therefore appropriate in this area (than for the other areas where costs were based on more recent ASR submissions) – this reflected the greater scope for unforeseen circumstances over a longer period of time. Given we using more recent IT cost data, we consider it appropriate to apply the same 5% optimism bias to forecast costs as in other areas. For all other costs, we propose to use 5% in line with the CBA.

Meter recertification

3.131. The CBA model includes a recertification assumption. It extends the life of 20% of traditional meters in 2016 in the policy scenario only. This assumption delays when these traditional meters should be replaced. It covers the case where a traditional meter was due for replacement, but a supplier was unable to fit a smart meter for temporary reasons (eg HAN issues). In this circumstance, it would have been more efficient for a supplier to extend the life of the existing traditional meter, rather than installing a new traditional meter (which would need to be replaced with a smart meter within a few years). One stakeholder queried this assumption.

[45] HM Treasury. https://www.gov.uk/government/publications/green-book-supplementary-guidance-optimism-bias

3.132. We propose to use the meter recertification assumption in the new CBA. The rationale is reasonable. It is also practicable. The CBA assumes traditional meters have an even age distribution and expire after 20 years. In contrast, the meter age data we collected to calculate PRCs shows that traditional meters can remain in service much longer than this. The potential for extending a meter's life by five years beyond a 20-year assumed life therefore seems reasonable.

Considering modifications to suppliers' benefits

Overview

3.133. Smart meters save suppliers money in some areas. In this section we review the benefit categories in the CBA and consider whether we need to modify the approach for our review. We present the categories in the same order as the CBA document.

Avoided site visits

3.134. Suppliers will avoid the cost of sending meter reading operatives to properties in order to read traditional meters. The savings to suppliers from avoided site visits is material; it is the largest benefit in the new CBA.

3.135. To estimate the savings from avoided meter readings, we must estimate the number of visits per year that suppliers would have carried out if they had not installed a smart meter.

The number of avoided visits

3.136. The CBA assumes that installing a smart meter allows a supplier to avoid 1.7 site visits for meter readings per year (on average). Although suppliers will no longer need to take manual meter readings, they will still need to visit sites to perform safety inspections on smart meters. Currently these visits are usually performed together. For most meters (ie those not considered to be high risk), these visits will be required once every five years.

3.137. The ASRs provide robust and up-to-date information on the current average meter reading frequency for customers with traditional meters (1.4 per year).[46] This is an

[46] ASR question 3.1 asks suppliers for the volume of cyclic meter read visits. The ASR general guidance

unduly conservative assumption for estimating the savings from avoided site visits. Over the last few years, the frequency of visits to traditional meters has reduced significantly. The CBA suggests that suppliers have been able to make fewer site visits since Ofgem removed SLC12 obligation,[47] enabling the move to less frequent but risk-based inspections. The smart meter rollout was a critical factor in the removal of the SLC12 obligation.[48]

3.138. An alternative would be to use the reported frequency of site visits from before the smart meter rollout (2.0 per year). This is an unduly aggressive approach. It would assume that the reduction in site visits, and the removal of SLC12, was solely due to the advent of smart meters. While smart meters were a critical reason for the removal of SLC12, they were not the only reason. We judge that this assumption would overstate the counterfactual, given there have been other developments over time (eg growth in customers submitting their own readings online).

3.139. The new CBA takes a simple average of the two data points (the current and pre-rollout site visit frequencies), apportioning half of the observed reduction to smart meters and allocating half to non-smart meter related trends (1.7 per year). This is a judgement and inherently contains uncertainty.

3.140. We consider the assumption in the new CBA reasonable and do not propose to modify it. We do not consider there are more credible and robust alternatives. We consider the approximation and uncertainty of this assumption in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

The costs of an avoided site visit

3.141. The CBA calculates the average cost of a site visit from suppliers' ASR data on the volume and total costs of current visits. It divides the total costs by the total number of meters to estimate the cost per meter. The average cost is £2.15 per meter (values form the CBA are in 2011 prices).[49]

notes that this question is one where suppliers should only provide data in relation to domestic customers with traditional meters.

[47] This was a requirement to carry out a safety inspection every two years.

[48] https://www.ofgem.gov.uk/ofgem-publications/97556/reformingsuppliersmeterinspectionobligationsfinalproposals-pdf

[49] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019, Table 9:

3.142. On that basis, the estimated benefit of avoiding a dual fuel site visit is twice the value of avoiding a visit to a site with a single meter. This is unlikely but does not affect the accuracy of the CBA. The total costs are accurate (before dividing them by meters). The CBA is concerned with total costs.

3.143. We have considered whether this assumption requires modification. We consider the approach sufficient and do not propose to modify it.

- In principle, we consider that the cost for reading a meter at a single fuel site will be more than half the cost of reading meters at a dual fuel site. (For example, an installer will incur fixed costs of travelling between sites, whether they are going to visit a dual fuel or a single fuel site). However, the total costs are accurate. In dividing by all meters, the costs of a dual fuel visit are slightly overstated and the costs a single fuel site visit are understated. Combined, these effects offset.

- There may be an issue for suppliers with a different proportion of single fuel and dual fuel accounts from average. This means that some suppliers will realise greater benefits than average, and others will realise fewer benefits than average. We take this into account in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Site visit efficiency

3.144. The CBA assumes that the benefit of avoided visits is partially offset by increasing inefficiency ("pavement reading inefficiency"). As more traditional meters are replaced with smart meters, the remaining traditional meters will be further apart, taking more time (and cost) to read. The CBA accounts for this increasing inefficiency by applying an uplift to traditional meter reading costs (capped at twice the value of a site visit).

3.145. The CBA does not adjust the costs of future regular safety inspections for pavement reading inefficiency, although it uses the same starting cost as for a traditional meter reading.

3.146. In principle, the efficiency of safety inspections should not change. At a point when all customers have smart meters, all meters will still need safety inspections. For a

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831716/smart-meter-roll-out-cost-benefit-analysis-2019.pdf

supplier, the distance between its smart meters would be the same as the distance between its traditional meters before the rollout. However, given the long time-interval between safety inspections (five years), it may be more challenging for suppliers to plan their visits in a similarly efficient manner. Suppliers' future plans are obviously uncertain. At least at first, we would expect a wide variety of approaches, some of which may be very efficient and others quite inefficient.

3.147. We have considered whether it would be appropriate to modify the approach so it is more generous, such as including a proportion of the efficiency adjustment the CBA uses for meter readings.

3.148. We propose to apply the same efficiency adjustment to safety visits that the CBA applies to meter readings. This assumes that during the life of the Cap, suppliers will be unable to rearrange safety visits so that they can be performed as efficiently as they currently are. This is a conservative assumption, as an efficient supplier should have some ability to rearrange its schedules. We consider this in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Customer switching

3.149. The CBA includes the benefit to suppliers from reduced costs of handling the customer switching process. Automated meter readings and DCC functions (from 2022) reduce suppliers' current administrative activities and costs.

3.150. We have considered to what extent customer switching benefits would accrue in the early phases of the rollout. During that time, few smart meters were interoperable (meaning that most meters would stop providing automated meter readings if a customer switched supplier). The assumptions in the CBA take this into account. The size of the benefit grows over time. At present, the benefit comes from smart meters providing automated meter readings, thus avoiding the cost to suppliers of obtaining a meter reading when a customer switches. For instance, the losing supplier knows the closing meter reading, reducing administration costs when closing the account and reducing difficulties in the switching process. Even though the gaining supplier may not be able to read the meter remotely itself (if the meter is not interoperable), it should still benefit from receiving (via industry data flows) the closing read taken by the previous supplier. We consider that it is appropriate to assume that smart meters will deliver some benefits to customer switching at present, while recognising that they will deliver higher benefits in future.

3.151. On that basis, we propose not to modify the new CBA assumptions.

Inbound customer calls

3.152. Smart meters provide suppliers with accurate billing information. This should reduce the need for customers to contact their suppliers to discuss errors.

3.153. At this stage of the rollout, it is uncertain how costs per call for customers with smart meter will evolve over time. The CBA therefore uses a combination of current data from suppliers and assumptions about future trends.[50]

- **Volume of calls**: The CBA assumes that customers with a smart meter will call less often, in line with the trends in ASR data (about 60% fewer calls than customers with traditional meters).

- **Cost per call**: Based on suppliers' ASR data, the new CBA assumes a higher average cost per call in the first year after installation for a smart meter customer than for a customer with a traditional meter. In subsequent years, the CBA assumes that costs per call are the same for customers with smart meters and customers with traditional meters. The CBA calculates the average benefit across years, whereas we propose to apply these benefits separately, so that there is a profile.

- **Lower fixed costs:** The CBA assumes overheads represent 15% of overall customer call costs for traditional meters (based on BEIS industry knowledge). It assumes that they decline alongside the costs of inbound inquiries, although more slowly (reflecting that these are overheads).

3.154. We consider the CBA assumptions reasonable simplifications that will contain a degree of uncertainty. The CBA has increased the costs per call in the first year (compared to subsequent years), to reflect more complex calls following installation and less familiarity with the issues raised. As staff become more familiar with smart meters, in future this increase in costs may not be as great or may not last a full year. However,

[50] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. Page 44. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831716/smart-meter-roll-out-cost-benefit-analysis-2019.pdf

it is also possible smart meter customers may have fewer 'simple' calls, which would offset that impact to some extent.

3.155. While, in principle, it is possible that differences in customers' characteristics (between current smart customers and future smart customers) could have an effect on future costs, in practice this cannot be determined robustly. We consider the approach reasonable, and take account of the simplification in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Debt Handling

More Frequent Billing

3.156. The CBA identifies a series of benefits to suppliers that relate to managing debt. Smart meters provide suppliers with more frequent, accurate consumption information. This allows them to reduce the costs of handling bad debt and payment in arrears (administrative costs and financing costs, such as working capital).

Reduced debt management costs

3.157. One of the benefits in the new CBA is a reduction in debt management costs. Firstly, reducing debt reduces working capital requirements. Since the provision of this working capital is not free (it could be utilised elsewhere and therefore carries opportunity costs), reductions in working capital requirements equate to an operational cost saving to suppliers. Secondly, reducing the administrative burden of managing debt should decrease suppliers' operational costs. The CBA assumes the number and complexity of suppliers' debt management actions to decrease roughly in line with the total debt held (excluding overheads and fixed costs).[51]

3.158. We have considered the possibility that customers who create debt management costs are more likely to get a smart meter later, lagging these benefits. In principle, we consider this effect possible. In practice, we consider the impact highly uncertain. The analysis required to control for customer characteristics is highly complex and unlikely to produce robust definitive results. We do not consider the complexity such analysis would add is warranted, as survey data on the characteristics of current smart meter

[51] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. Page 46-47.

customers does not suggest results would be conclusive.[52] We note the uncertainty in Chapter 4 (paragraphs 4.27 to 4.31).

Less debt

3.159. The CBA does not include all relevant benefits to suppliers. It excludes the reduction in bad debt (debt write-off) from its analysis. It does this because it is a transfer from consumers to suppliers, so it not relevant for the purpose of a CBA. In principle, reducing the amount of debt that suppliers write off is clearly a benefit to suppliers that we should recognise in our review of efficient costs.[53]

3.160. In practice, we are not satisfied that we can estimate the average write-off reduction benefit robustly and proportionately. The CBA estimates the reduction in bad debt to be worth up to £60m per year, but this is only illustrative. We collected data on debt in 2018 for the analysis of the payment method uplift allowance in the cap, but we do not have a source for the impact of smart meters on bad debt. As the rollout does not have a long track record, we do not consider that early indications would be conclusive or reliable. It is possible that the reduction in payment in arrears (estimated at two weeks of sales) could be a useful proxy, but the relationship between write-off and arrears may not be close.

3.161. On that basis we do not propose to include the benefit of reduced bad debt, but we consider this conservatism in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Reduced theft and avoided losses

3.162. By providing suppliers with more information about consumption, smart meters can help them detect and resolve energy theft.

3.163. The CBA excludes most of the benefit to suppliers of reduced theft. This reduction is a transfer between different groups (from those currently committing theft to suppliers), and is therefore outside the scope of the CBA. The CBA only includes a reduction in the costs to suppliers of dealing with theft. In principle, our review should include the full

[52] Ofgem (2019), Consumer Engagement Survey 2018. https://www.ofgem.gov.uk/publications-and-updates/consumer-engagement-survey-2018
[53] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. Page 47. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831716/smart-meter-roll-out-cost-benefit-analysis-2019.pdf

benefit. Excluding it overstates the net cost of smart metering to suppliers (ie understates benefits).

3.164. Inherently, levels of theft are difficult to quantify. To modify the CBA assumptions for our purposes, we would need to (robustly) identify both the current value of theft, and the size of reduction we could expect as a result of smart metering. The CBA indicates that industry suggests smart meters could reduce theft by as much as 20-33%.[54] This is not a robust estimate, but may be indicative. The Allocation of Unidentified Gas Expert ("AUGE"), 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.[55]

3.165. We do not propose to recognise the benefit to suppliers of reduced theft. This is due to the practical difficulties of developing a robust estimate. This is a conservative assumption, and will understate benefits. We consider the impact of this in our review of uncertainty (Chapter 4, paragraphs 4.27 to 4.31).

Remote Change of Tariff

3.166. For traditional meters, suppliers must visit a customer to switch them from a single rate tariff to a multiple rate tariff (eg standard to Economy 7) or vice versa. For smart meters, suppliers can do this remotely, saving them money.

3.167. In principle this is a benefit which we should include. Some suppliers have suggested that they have deprioritised the installation of smart meters for complex metering arrangements (such as this). If that applied in this case, it may delay this benefit.

3.168. We do not propose to modify the CBA's assumed benefit. Excluding the benefit is wrong in principle, and will overstate costs, particularly in later cap periods. Economy 7 is by far the most common multi-rate tariff, and some suppliers currently offer smart tariffs for Economy 7 customers (although not all suppliers currently offer smart meters with Economy 7). The materiality of this benefit is low, however we note the

[54] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019, page 37. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831716/smart-meter-roll-out-cost-benefit-analysis-2019.pdf

[55] (paragraph 7.9.5) https://gasgov-mst-files.s3.eu-west-1.amazonaws.com/s3fs-public/ggf/book/2019-03/Final%20AUGS%20for%202019_20%20v1.0.pdf

uncertainty in our review of uncertainty and approximation (Chapter 4, paragraphs 4.27 to 4.31).

A single notional rollout profile

Rollout progress

3.169. Many of the costs and benefits in our review depend on the rate at which a supplier installs smart meters. The more smart meters a supplier installs, the greater the installation and asset costs it will incur and the greater the benefits it will receive. For our review, we need a rollout profile in order to understand how net costs evolve over time and have regard to this.

3.170. We propose to use the rollout profile in the CBA, unmodified.[56,57]

Table 3.10. CBA rollout collective rollout by year end (% of accounts)

Cost and benefit categories	2017	2018	2019	2020	2021	2022	2023
Electricity	20%	30%	42%	57%	70%	80%	87%
Gas	18%	26%	39%	53%	67%	78%	86%

Source: BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019.

3.171. We have considered the impact of failed installations, and the government's proposal to allow a 15% tolerance when setting rollout targets. A supplier will have failed installations. Even efficient suppliers will incur costs which do not ultimately lead to a successful smart meter installation. The new CBA already takes this issue into account. It uses actual ASR data on installation costs as the starting point for projecting future costs. The ASR data reflects the costs of any failed installations (dividing total costs by successful installations).

[56] The published CBA explains the sources and rationale for this profile. BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019, page 13: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831716/smart-meter-roll-out-cost-benefit-analysis-2019.pdf

[57] The rollout profile and range of projections around it is discussed in BEIS (2019), Smart meter policy framework post 2020 consultation - Annex 4: Analytical Evidence https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/830528/smart-meter-policy-framework-post-2020-consultation-annex-4.pdf

3.172. We have considered the possibility of the rollout profile used within the CBA analysis not matching the rate of installations that suppliers will actually realise. Suppliers could collectively under or over achieve compared to this benchmark and a range of factors will influence the ultimate performance level that is achieved. To date suppliers have not matched pace with our assumptions for the first three cap periods, and in chapter 4 we discuss the difficulty that allowing for installations in advance has caused. We do not intend to review the SMNCC again, so there is a risk that we set the SMNCC too high if the CBA rollout profile is ahead of suppliers' collective progress, and too low if it is behind.[58] However, we propose to use the rollout profile in the new CBA, as it remains the most reliable forward projection of the pace of the rollout. We consider the impact in our review of uncertainty in Chapter 4 (paragraphs 4.27 to 4.31).

3.173. We propose to treat the rollout profile as a single and notional profile.

- We use a single rollout profile because we must set one allowance for all suppliers. We must set the same allowance for each supplier, regardless of how many smart meters they have installed.[59] This means that, whatever profile we use, we cannot match our single rollout profile in our review to the specific and various profiles of each supplier. We do not assume that each supplier will follow this profile in practice.

- In treating the profile as 'notional' we use the profile to set a reasonable 'pace' for the allowance, but individual suppliers, and suppliers on average, may differ from the rollout profile in the model. This is not an error. Some may run ahead of the notional profile. Others may run behind the notional profile. It is up to those suppliers to manage the timing difference between the SMNCC profile (a common funding profile) and their own unique cost profiles.

Meter types

3.174. We propose to maintain the CBA treatment of different meter types. The CBA smart meter rollout profile includes three distinct types of smart meter: SMETS1 meters, SMETS2 meters and advanced meters in the non-domestic sector (the latter is outside

[58] BEIS (2019), Smart Meter Statistics in Great Britain: Quarterly Report to end June 2019, Figure 4. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/827813/2019_Q2_Smart_Meters_Statistics_Report.pdf
[59] Domestic Gas and Electricity (Tariff Cap) Act 2018, Section 7, http://www.legislation.gov.uk/ukpga/2018/21/contents/enacted

the scope of this review). Up to the end of 2018, the CBA uses actual installation numbers. In line with the SMETS1 end-date, it assumes that all smart meter installations will be SMETS2 from March 2019 onwards.

3.175. The split between SMETS1 and SMETS2 meters matters for our review because SMETS2 communications hub costs are recovered through DCC charges (which we include in the pass-through SMNCC, not the non-pass-through SMNCC – the subject of this consultation). Misalignment between the two SMNCC allowances could mean we underfund or overfund suppliers for SMETS2 meters. At the end of 2018, the number of SMETS2 meters in the CBA is slightly lower than the number assumed in the pass-through SMNCC calculations, so there is a degree of overfunding. Suppliers will have been slightly overfunded in the first three cap periods, but this should not be a problem going forward so we have not adjusted the approach.

Considering rollout profile

3.176. As discussed in Chapter 2 (paragraph 2.19) we consider that efficient costs can legitimately differ between suppliers. One reason for variation in efficient costs is the difference in suppliers' various rollout profiles. Over the life of the rollout, each supplier should rollout smart meters to its customers. However, the profile of those installations differs from supplier to supplier.

3.177. Each supplier's efficient cost in that period will depend on the number of smart meters that they are installing, and how many they have previously installed (as costs capitalised in previous periods will be amortised in the current period). Some suppliers installed significant numbers of meters in the early years of the rollout. As a result, they pay for more meters now, but have comparatively fewer meters left to install. Other suppliers will mainly install meters in the later years of the rollout. They may have lower costs now (due to lower amortised costs or rental payment), but have more left to do.

3.178. On that basis, in any single six-month cap period the proportion of meters two suppliers install and/or pay for could differ considerably. So, it is not possible for our single cost assessment to reflect the efficient costs of each individual supplier. This mismatch will occur whatever approach we take.

3.179. Over the life of the Cap (not the life of the smart meter programme) it is also possible that efficient costs vary between suppliers. When the Cap began, collectively suppliers had rolled out meters to about 30% of customers on average. But each individual

supplier had made different progress. The Cap will end no later than 2023. On that basis, during the life of the Cap each supplier may install a different proportion of meters and their associated costs will inevitably differ from each other and from our allowance.

3.180. As discussed in Chapter 2 (paragraph 2.20), considering variation between suppliers' efficient costs is challenging because the Act requires that we set one cap level for all suppliers. Inevitably, the allowance cannot reflect each supplier's costs. Bearing in mind the objective of the Act, it is therefore inevitable that, whatever our methodology, some suppliers could have efficient costs above the allowances and other suppliers could have efficient costs below the allowances. On that basis, we assess we propose to consider the CBA profile, which remains the most reliable forward projection of the pace of the rollout for suppliers collectively (ie weighted average).

Suppliers' views

3.181. In response to our April consultation and Response Papers, suppliers broadly made three points:

- that we should not 'disregard' suppliers with high, or higher than average costs.
- that timing differences do not offset each other. In Response Paper 3, we had suggested that because all suppliers should rollout smart meters to their customers then suppliers that made early progress would have less to do in later stages of the rollout and that suppliers that made slow progress in early stages would need to catch up later. One supplier suggested that its early progress would not reduce its costs in the latter stages.
- that suppliers should treat the allowance, in effect, as a budget envelope aiming to roll out smart meters as efficiently possible within that constraint.

Our consideration – higher than average costs

3.182. As we discussed above (in paragraph 3.28 to 3.35) our objective is to set a single allowance that protects customers, and in doing so have regard to efficient costs (which vary between different suppliers). On that basis we choose to have regard to average costs, mitigating some of the impact on suppliers with above average costs. Setting the allowance at the level of the supplier with the highest costs would mean

that on average customers pay more than suppliers require. This would fail to protect customers.

Our consideration – timing differences

3.183. Timing differences between when suppliers incur efficient costs will not offset during the life of the Cap. We consider that:

- Over the life of the programme, suppliers all have the same task to do – roll out smart meters to their customers. Even if they do it at different times, their total costs should be similar. The timing differences should net out over time.

- During the life of the Cap, costs will not net out.[60] Suppliers pay for smart meters over approximately 12 years (see paragraph 3.70). So, initially, a supplier that as installed more meters than its competitors will have higher costs, because it pays for more meters (even if each meter is efficiently installed). It will finish paying for these meters earlier than its competitors, but that will be after the life of the Cap.

- At the end of the Cap, suppliers will have different advantages and disadvantages depending on their different profiles. At the end of the cap periods, suppliers with faster-than-average progress will have an advantage (benefits will flow through sooner, as their costs of installation will finish earlier than for competitors) which allows them make higher profits (or price more competitively) in future. Suppliers with slower-than-average progress by the end of the cap periods will be at a disadvantage (with more costs still to left to incur than average). However, these suppliers should have a surplus balance of SMNCC allowances already collected because their efficient costs were lower than average.

3.184. We expect individual suppliers to manage the timing difference between their specific cost profile and the profile of the SMNCC. This is similar to how a competitive market would work. In a competitive market, a supplier with higher than average efficient costs due to its faster than average rollout profile would not be able to pass these

[60] One supplier asked if we had made an error, by assuming that there is no ongoing net cost to a smart meter (compared with a traditional meter). In its experience (in the early stages of the rollout), the ongoing net costs exceed the benefits. We have not made this assumption. The CBA, on which we base our review, is an assessment of the net and additional costs of the smart meter rollout. In this chapter we have gone through each cost and benefit category to consider the annual ongoing net cost to suppliers.

excess costs on its customers, as the market price would be set by suppliers with lower costs. However, that supplier would complete its rollout sooner, reducing its costs relative to other suppliers, and either make profits or set new lower competitive price to gain market share.

Our consideration – 'budgets'

3.185. In our regulatory work on smart metering, we inspect suppliers' smart meter rollout plans and hold them to account. We do not consider it appropriate for a supplier to present the SMNCC in the Cap as an excuse to constrain its plans or ambitions relating to the smart meter rollout.

3.186. We include allowances for the smart meter rollout specifically and only for that purpose. It is not acceptable for a supplier to allocate this money to other (inefficient) areas of their business and then cut back their smart meter rollout to manage their business-wide profitability.

3.187. We set the allowance with regard to efficient net costs per installation and a specific rollout profile. Suppliers should not consider the allowance independently of those factors. For instance, suppliers with inefficient costs per installation should improve their efficiency. They should not reduce the number of meters they intend to install. A supplier that has installed more smart meters than average would not necessarily be inefficient, nor necessarily disadvantaged. We expect suppliers to roll out smart meters, and to manage the inevitable timing differences between the single allowance profile that applies to all suppliers and their own unique cost profile.

Considerations – summary

3.188. Notwithstanding these considerations, the Act requires that we set a single allowance and that we protect customers. For the reasons discussed in Chapter 2, this is an inherent challenge of the Cap. Our assessment of net costs cannot match each supplier's individual cost profile, and setting the costs higher than the average profile would fail to protect customers.

4. Setting the allowance

Section summary

In this chapter we assess the appropriate level to set the SMNCC in each (potential) cap period.

Question: Do you agree with how we propose to set the SMNCC and its underlying methodology?

Note that as a matter of style, we do not ask specific questions at each stage. We expect stakeholders to consider our proposals, reasons for them, and methodology, and provide representations explaining if and why they disagree.

4.1. We conduct our review in two steps:

- a review of the efficient net costs to suppliers in each calendar year of the rollout, which we discuss in Chapter 3.
- an assessment of the appropriate level to set the SMNCC in each (potential) cap period, which we discuss in this chapter.

Summary of proposals

4.2. To the set the SMNCC, we propose the following approach:

- we allocate our estimate of efficient smart metering rollout costs between operating costs and the SMNCC (this includes considering the change in efficient smart metering costs since 2017, an adjustment for the impact of the less generous definition 'efficient benchmark' we used to assess total operating costs in 2017, and considering whether an additional adjustment is required to account for the combined impact of uncertainty)
- we convert our annual SMNCCs into six monthly cap periods, and
- we consider the impact of carry forward balances.

4.3. **Tables 4.1** and **4.2** show the SMNCC we propose for each cap period, and the significance of factors above.

Table 4.1: Proposed non-pass through Smart Meter Net Cost Change (electricity) (£ per account)

Period(1)	Change in efficient smart costs since 2017(2)	Adjustment for definitions of efficiency(3)	Adjustment for Carry Forward(4)	Electricity non-pass-through SMNCC	Single collective rollout profile(5)
Jan 19 – Mar 19	3.54	3.35	0.00	6.89	33%
Apr 19 - Sep 19	3.54	3.35	0.00	6.89	39%
Oct 19 - Mar 20	3.11	3.38	0.00	6.48	46%
Apr 20 - Sep 20	2.68	3.40	-0.96	5.12	54%
Oct 20 - Mar 21	1.80	3.43	-0.97	4.26	60%
Apr 21 - Sep 21	0.93	3.46	-0.98	3.41	66%
Oct 21 - Mar 22	-0.22	3.49	-0.99	2.29	72%
Apr 22 - Sep 22	-1.37	3.52	-1.00	1.16	77%
Oct 22 - Mar 23	-2.56	3.56	-1.01	0.00	82%
Apr 23 - Sep 23	-3.75	3.60	-1.02	-1.17	85%
Oct 23 - Dec 23	-3.75	3.60	-1.02	-1.17	87%

Notes

(1) **Cap period.** The default tariff cap may end in December 2020, or it could be extended annually up to the end of 2023. We present non-pass-through SMNCC values for each potential cap period.

(2) **Change in efficient smart costs since 2017.** Suppliers' operating costs in 2017, including those related to the smart meter rollout, are already allowed for in the operating cost allowance. The non-pass-through SMNCC allows for the change in the net costs of the smart meter rollout since 2017, excluding industry charges. Negative values denote that the net costs in that year are lower than net costs in 2017.

(3) **Adjustment for definitions of efficiency.** We benchmark the non-pass-through costs of the smart meter rollout more generously than we did when setting an efficient benchmark for operating costs. We therefore adjust the SMNCC upwards to account for that difference in approach. The adjustment for an electricity account is £3.25 in 2017 prices, and 3.14 for gas.

(4) **Adjustment for Carry Forward.** The non-pass-through SMNCC in the first three cap periods provided sufficient money for suppliers installing smart meters to 12.5% of their default tariff customers every six months. Suppliers installed fewer meters resulting in a substantial advanced payment. We reassess that advanced payment using updated cost data and an updated rollout profile. In our assessment we take into account updated unit costs.

(5) **Single notional rollout profile.** We set the non-pass-through SMNCC by reference to efficient costs assuming a single rollout profile. We must set the same allowance for all suppliers. Suppliers will have different rollout profiles, so their cost profile will differ from the profile of the allowance. We do not expect suppliers' costs to match the allowance in each cap period.

(6) **Prices.** Prices are in nominal terms

Table 4.2: Proposed non-pass through Smart Meter Net Cost Change (gas)

Period[1]	Change in efficient smart costs since 2017[2]	Adjustment for definitions of efficiency[3]	Adjustment for Carry Forward[4]	Gas non-pass through SMNCC	Single collective rollout profile[5]
Jan 19 – Mar 19	4.54	3.24	0.00	7.78	29%
Apr 19 - Sep 19	4.54	3.24	0.00	7.78	36%
Oct 19 - Mar 20	4.38	3.27	0.00	7.64	42%
Apr 20 - Sep 20	4.21	3.29	-1.33	6.18	50%
Oct 20 - Mar 21	3.75	3.32	-1.34	5.73	56%
Apr 21 - Sep 21	3.29	3.35	-1.35	5.28	63%
Oct 21 - Mar 22	2.27	3.38	-1.37	4.28	69%
Apr 22 - Sep 22	1.25	3.41	-1.38	3.28	75%
Oct 22 - Mar 23	0.19	3.45	-1.39	2.25	80%
Apr 23 - Sep 23	-0.86	3.49	-1.41	1.22	84%
Oct 23 - Dec 23	-0.86	3.49	-1.41	1.22	86%

Notes: see Table 4.1

Allocation between operating costs and the SMNCC

The operating cost allowance

4.4. The operating cost allowance in the Cap already allows for the efficient level of *total* operating costs in 2017 (£167 for a dual fuel account in 2017 prices); those total costs include the net cost of rolling out smart meters in that year.[61] If we were confident that our assessment of the efficient net costs of the smart meter rollout in 2017 was fully included the operating cost allowance, then the SMNCC would only need to account for the change in efficient costs since 2017.

4.5. However, we set the operating cost allowance using a less generous definition of 'efficiency' compared with our review of smart metering rollout costs. This 'stricter' definition means that the proportion of the operating costs allowance that relates to the smart meter rollout maybe the less than our assessment of efficient smart metering costs in that year. If that is the case, then we should include an adjustment to increase the SMNCC to account for the difference in efficient benchmarks.

[61] Ofgem (2018), Default tariff cap: decision – overview: Appendix 6 – Operating costs, Table A6.2. https://www.ofgem.gov.uk/publications-and-updates/default-tariff-cap-decision-overview

The SMNCC

4.6. We propose set the SMNCC (in any given year) considering three factors:

- The change in efficient smart metering costs since 2017, according to our assessment in Chapter 3.
- An adjustment factor, to account for the impact of using different definitions of 'efficient benchmark' in our assessments of total operating costs in 2017 and our review of smart metering costs in 2017.
- An adjustment factor to account for the impact of uncertainty in our cost assessment and adjustments. Various inputs and assumption create uncertainty that could overstate or understate our assessment of efficient smart metering costs. We consider the net impact of these uncertainties to judge whether an adjustment is required.

Calculating the change in efficient smart metering costs since 2017

4.7. Calculating the change in efficient smart metering costs since 2017 is straightforward. To track the change, we propose to take the difference between the estimate of efficient smart metering costs for 2017 and the relevant year, based on our review of costs in Chapter 3, Table 3.1 and Table 3.2). Table 4.3 shows the change in efficient costs since 2017 for electricity and gas accounts respectively.

Table 4.3: the change in efficient smart metering costs, since 2017 (£ per account)

	2017	2018	2019	2020	2021	2022	2023
Electricity	0.00	1.79	3.54	2.68	0.93	-1.37	-3.75
Gas	0.00	1.51	4.54	4.21	3.29	1.25	-0.86
Implied dual fuel	0.00	3.30	8.08	6.89	4.22	-0.12	-4.61

Notes: Prices in nominal, these will not match with Table 3.1 and 3.2 which are in 2011 prices.

Adjusting for different 'efficient' benchmark definitions

Overview

4.8. The amount included in the operating cost allowance that relates to smart metering is likely to be less than the amount we assessed as the efficient smart metering costs for 2017. So we propose to increase the SMNCC to have regard to that difference.

4.9. The estimates differ because our operating cost analysis and this smart review define 'efficient benchmark' in different ways. As discussed in Chapter 3 (paragraph 3.35), we benchmark to average costs when reviewing smart metering costs. For the operating cost allowance we set the efficient benchmark at a level slightly below lower quartile costs.[62] Essentially, our operating cost benchmark is less generous than we considered appropriate *for smart metering costs*, so we should 'top up' the SMNCC.

4.10. We propose to make that adjustment to the SMNCC, taking the following steps:

- we calculate a 'stricter' estimate of efficient smart metering costs in 2017, which assesses smart metering costs in 2017 using a similar definition of 'efficiency' to the one we adopted when analysing total operating costs,[63] and
- we compare that 'stricter' estimate for 2017 with our assessment of efficient smart metering using the methodology detailed in Chapter 3, and adjust the SMNCC for each year by the difference between the two assessments.

4.11. We consider the adjustment factor in two parts:

- smart metering net costs, excluding IT costs and
- smart metering IT costs.

Considering the adjustment for net smart metering costs, excluding IT costs

4.12. We construct a 'stricter' assessment of efficient smart metering net costs excluding IT costs using the SMNCC model that supports our review of smart metering costs. For the key inputs, we take the following approach.

- **Average rollout profile**: We use the average rollout profile up to the end of 2017 (not the lower quartile of progress). The rollout profile is not a matter of

[62] Ofgem (2019), Default tariff cap: decision – overview: Appendix 6 – Operating costs, https://www.ofgem.gov.uk/system/files/docs/2018/11/appendix_6_-_operating_costs.pdf
[63] The analysis is not the same as the analysis for operating costs. Our intention is not to replicate the calculations; it is to assess smart metering costs in 2107 using a standard of 'efficiency' that is comparable in spirit to the 'stricter' standard that we used to analyse total operating costs.

efficiency. Lower quartile progress would simply mean that a supplier had installed fewer meters by the end of 2017.

- **Separate lower quartile benchmarks for installation and asset costs.** We calculate the lower quartile for each cost category within installation and asset costs separately. This means that we allow different suppliers to set the lower quartile benchmark for each category. This risks setting an unrealistically low set of benchmarks, as we may cherry-pick low costs that no single supplier could achieve at the same time. In our total operating cost analysis we compared suppliers' total costs to avoid cherry-picking.[64] This aspect of our 'stricter' assessment of smart metering costs is conservative, because it biases the lower quartile assessment downwards, which increases the upward adjustment to the SMNCC.

- **Average benefits.** 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. That makes it unlikely their total operating costs would be efficient in our analysis of costs in 2017.

4.13. Table 4.4 compares the difference between our standard assessment of efficient smart metering costs and the 'stricter assessment'. It suggests that we should increase the SMNCC by £0.84 for electricity and £0.74 for gas (£1.59 dual fuel). The 'stricter' assessment implies that £6.51 of the electricity operating cost allowance applies to smart metering costs excluding IT costs, and £7.36 for gas.

4.14. To sense-check this adjustment we also used the SMNCC model with supplier specific input data for installation and asset costs from the ASR data and each supplier's actual

[64] We also benchmark the total additional costs of serving standard credit costs, having proposed to benchmark each cost category separately (in the statutory consultation on the default tariff cap methodology for the Payment Method Uplift). We changed our approach in response to suppliers' feedback separate benchmark would bias the costs assessment downwards. Here, we benchmark smart metering costs separately to have a conservative effect on the SMNCC. We are open to benchmarking total costs, and will consider whether suppliers' representations to this consultation are consistent with their previous views on operating costs and additional costs of serving standard credit customers. Ofgem (2018), Default Tariff Cap: Decision Appendix 8 – Payment method uplift https://www.ofgem.gov.uk/system/files/docs/2018/11/appendix_8_-_payment_method_uplift.pdf

rollout profile up to and including 2017. This allows us to estimate the impact that installation and asset cost might have had on the selection of the operating cost benchmark itself, and whether suppliers near the lower quartile had smart metering costs that could have distorted the selection of the benchmark.[65] The two suppliers nearest the benchmark have similar total operating costs after excluding the smart meter costs to each other, and to our benchmark after excluding our standard assessment of efficient costs. They have not distorted the benchmark. If we stripped out their estimated smart metering costs (excluding IT costs) and replaced them with our *standard* assessment of efficient smart metering costs (excluding IT costs), then the operating cost benchmark would be equivalent. On that basis our adjustment is conservative by around £1 to £2.

4.15. This sense-check suggests that our proposed adjustment for the different definitions of efficiency is conservative with respect to smart metering costs excluding IT. However, as there is inherent uncertainty in estimating the solely additional costs for individual suppliers and unnecessary difficulty in isolating the costs forensically, we do not propose to reduce or remove the adjustment factor, but we consider this in our review of uncertainty (paragraphs 4.27 to 4.31) below.

Table 4.4: adjustment factor for the difference in definitions of 'efficient' benchmark, excluding IT costs (£ per account)

	Standard assessment	Stricter Assessment(1)	Adjustment factor, excluding IT costs
Electricity	7.35	6.51	0.84
Gas	8.10	7.36	0.74
Dual fuel	**15.45**	**13.87**	1.59

Note:

(1) Effectively this estimates the proportion of the operating costs allowance that may relate to smart meters, excluding IT costs.
(2) Prices are in 2017 prices.

[65] In our decision we benchmarked suppliers' total operating costs. An alternative approach would have been to benchmark suppliers' operating costs excluding their solely additional smart metering costs. We decided that solely additional smart metering costs could not be reliably and robustly removed from suppliers' total operating costs, so we took a different approach. This sense-check allows us to approximate the alternative approach to assess uncertain in the benchmark. Note that the operating costs benchmark is *not* a specific supplier (ie there is no implication that other suppliers should adopt the approach of another). We set operating cost benchmark considering the costs and circumstances of the range of suppliers in the sample. See Default tariff cap: decision – overview: Appendix 6 – Operating costs, paragraph 3.17.

Considering the adjustment for net smart metering IT costs

4.16. In Chapter 3 (paragraphs 3.90 to 3.102), we did not isolate solely additional smart metering IT costs from the counterfactual IT costs that would have occurred without the smart meter rollout. That was because we are interested in the trend in additional smart metering IT costs since 2017, not the absolute level of those additional costs in 2017.

4.17. Despite our focus on the trend in solely additional smart metering IT costs, for the adjustment factor for different definitions of efficient benchmark we still consider whether the operating cost allowance has sufficient regard for an efficient supplier's additional smart metering IT costs in 2017. If there were substantial differences between each supplier's additional smart metering IT costs per account in 2017, then our operating cost allowance maybe too strict and understate the efficient level of costs for 2017. In that case, we should consider an adjustment, increasing the SMNCC.

4.18. We have considered the impact individual suppliers' smart metering IT costs may have had on our benchmark in the same way we described for smart metering costs excluding IT costs in paragraph 4.14. We have estimated the smart metering IT costs for suppliers near the lower quartile total operating costs in 2017, to assess the risk that those suppliers had smart metering IT costs that distorted our selection of the operating costs benchmark (ie set it lower than it would have been, because they had disproportionately low smart metering costs).

4.19. First, we estimated the smart metering IT costs we might expect the six largest suppliers to have expensed in 2017 *on a like-for-like basis*. To do this we used the SMNCC model, the RFI data they provided on their IT smart metering capital expenditure between 2010 and 2018, and the amortisation policy we proposed in Chapter 3 (paragraphs 3.85 to 3.89).

4.20. 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). If we assumed suppliers' reported smart metering IT costs were solely additional, then the data suggests with should *reduce* the SMNCC, not increase it. If we remove each supplier's estimated smart metering IT costs from their total operating costs in 2017, and replace those costs with the weighted average smart metering IT costs, then that the total costs would be £4 below the operating costs allowance (ie one of the suppliers with high reported smart metering IT costs would set the lower quartile for total operating costs, excluding smart metering IT costs).

4.21. We do not propose to adjust the SMNCC downwards. Although suppliers have sought to isolate IT expenditure that is solely related to smart meters, this emphasises the difficultly in isolating solely additional costs. We are concerned that assuming the *reported* data is solely additional could lead to an understatement in the allowance, because it likely includes counterfactual IT costs.

4.22. We estimate that three other suppliers in our total operating costs sample have similar smart metering IT costs in 2017 to each other, between £5 and £6 per dual fuel customer. Two of these suppliers are those closest to the lower quartile in our total operating costs benchmark analysis. Given the similarity between the cost levels (for both the estimated smart metering IT costs and the total operating costs of these two suppliers), the difference between the suppliers does not have a significant impact on the total operating cost benchmark. That would suggest no adjustment is necessary.

4.23. However, there is a risk either of these supplier's *actual* smart metering IT costs (amortised and operational costs) in 2017 differ from our estimate (which is based on their reported smart metering IT capital expenditure, but uses our proposed amortisation approach for a like-for-like comparison). Suppliers start to amortise expenditure when an asset is completed (or in others words, when they start using the IT systems), so their specific costs in 2017 will be sensitive to the timing of specific projects. On that basis, using a five-year amortisation period, starting the year after the investment, may not give a sufficient approximation of the suppliers' actual smart metering IT expenses in 2017.

4.24. If *both* suppliers had lower smart metering IT costs in 2017 than we estimate, then we should increase the SMNCC by that amount. On that basis, the maximum risk is that the operating cost benchmark understates costs by around £5. This would happen if neither supplier closest to the lower quartile total operating costs had smart metering IT costs in 2017 (ie they did not complete and use any of the smart meter related IT systems they invested in between 2012 and 2016 until after 2018). If neither supplier incurred any smart metering costs, then the operating costs benchmark would increase by £5 (in dual fuel terms).

4.25. Recognising the inherent difficulty in distinguishing solely additional costs and counterfactual IT costs. We propose set the adjustment factor for different definition of efficient benchmarks, with respect to smart metering IT costs at £4.81. We consider this conservative given that:

- this assumes no additional smart metering IT costs are included in the operating cost allowance at all, despite suppliers installing smart meters in a significant proportion of their customer homes by that point

- we already take a conservative approach when estimating the trend in additional IT costs since 2017 (see Chapter 3 paragraphs 3.102)

- if the data for each supplier does show solely additional costs then we should *reduce* the SMNCC, not increase it.

However, we do not propose to adjust for that conservatism here. We consider its impact alongside other areas of uncertainty below (paragraphs 4.27 to 4.31).

4.26. Table 4.5 shows the proposed adjustment factor the differences in definition of 'efficient' benchmark. The adjustment factor is set in 2017 prices, and we adjust it by inflation for subsequent years.[66]

Table 4.5: Adjustment factor for different in definitions of 'efficient' benchmark (£ per account)

	Excluding IT costs	IT costs	Combined
Electricity	0.85	2.40	3.25
Gas	0.74	2.40	3.14
Dual fuel	**1.59**	**4.81**	**6.39**

Note:

(1) Totals may not sum due to rounding.
(2) Prices in 2017 prices.

Consideration of uncertainty

4.27. Throughout our review of efficient smart metering costs we have noted where our estimates are subject to uncertainty. It is important to consider these instances together, and not in isolation. It is possible that each assumption could seem reasonable on its own (for instance, including a degree of prudence), but when taken

[66] HM Treasury (2019), Table 19 GDP deflator 19
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793632/data-tables-1-19.xlsx

together the combined effect of that prudence in each assumption may set the allowance unrealistically high, which would not protect customers. The opposite case (where the combined judgements are unreasonably aggressive) is also a possibility.

4.28. In either case we could seek to adjust our estimates. One approach would be to revisit each or some costs assumptions to refine them. The other approach would be to adjust the SMNCC itself (in either direction to offset the combined impact). The adjustment could be different in each year, as the cost profile of assumptions and the combined impact of uncertainty differs over time.

4.29. We consider that the net effect of our assumptions is conservative (ie the change in true efficient costs is likely to be lower than our assessment). This suggests we should reduce the SMNCC. However, considering that assessment of uncertainty can never be precise (or there would be no uncertainty in the first place) and that some otherwise efficient suppliers will have high costs due to their rollout profiles) we propose to not make an adjustment for uncertainty.[67]

4.30. We consider the following areas conservative.

- Choice of efficient benchmark: We adopt a more conservative benchmark in our review of efficient costs than would normally be the case. This has regard to suppliers that have made above-average progress with their rollout (Chapter 3, paragraphs 3.28 to 3.35).

- Isolating additional IT costs, from counterfactual costs. We have taken account for the trend in reported IT costs related to smart metering, which likely overstates the trend in purely additional IT costs related to smart metering. We have also assessed the trend in total IT costs, which may better reflect the trend in truly additional IT costs (if we assume that counterfactual IT costs remain relatively constant over time). On that basis, the SMNCC may be up to £3 or £4 per dual fuel account higher than in should be (depending on the year, see Table 3.8). We have not modified this assumption, but consider that is conservative,

[67] For the avoidance of doubt, this approach mitigates the issue to some extent, but it does not necessarily mean that suppliers with early progress will be completely covered by the allowance in each cap period.

and that the true costs are likely to be between the two assessments (Chapter 3, paragraphs 3.90 and 3.102).

- IT costs amortisation period. We amortise IT assets over five years. This is slightly less than the average approach and likely less than the true economic life of the assets, which would increase the allowance disproportionately. (Chapter 3, paragraphs 3.85 to 3.89).

- Smart metering IT operating expenditure. We adjust the CBA to estimate operating costs. We model operating expenditure at 15% of net book value. We do not taper the proportion (which reduces from 15% to 5% by 2030 in the CBA), in part because we already account for devaluing assets. By taking the net book value, rather than total capital expenditure in year, we decrease the decline in operating expenditure from 2017. This reduces the impact on the SMNCC, so it is a conservative approach (see Chapter 3, paragraphs 3.105 to 3.106)

- Rollout profile. Suppliers' installation rate may decline, meaning they may install fewer meters than we allow for (as happened in the first three cap periods). We do not intend to review the SMNCC again, so there is a risk that we set the SMNCC too high (Chapter 3, paragraphs 3.169 to 3.173).[68]

- Legal and organisational costs. We have frozen legal and organisational costs at the 2017 level given suppliers' data, rather than reduce them in line with the CBA. Suppliers' RFI data suggests these costs will reduce, but the extent varies and these costs are uncertain. We take a conservative approach, keeping the costs flat. We consider it particularly conservative to assume that these costs will be flat over the full potential length of the Cap (ie right through to 2023) (Chapter 3, paragraphs 3.108 to 3.113).

- Premature Replacement Charges. We have set PRCs based on modelled costs. The modelled costs exceed the actual charges suppliers paid in 2018. Actual payments are likely understated due to internal transfers. (Chapter 3, paragraphs 3.73 to 3.78).

[68] Suppliers' progress has been declining since late-2017, up to the end of June 2019. BEIS (2019), Smart Meter Statistics in Great Britain: Quarterly Report to end June 2019, Figure 4. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/827813/2019_Q2_Smart_Meters_Statistics_Report.pdf

- Safety visit efficiency. We propose to apply the same pavement reading inefficiency adjustment to safety visits that the CBA applies to meter readings. Although the distance between a supplier's smart meters at the end of the rollout would be the same as the distance between its traditional meters before the rollout, we consider it unlikely that during the transition period an efficient supplier would maintain the same level efficiency that it currently has. (Chapter 3, paragraphs 3.144 to 3.148).

- Less debt. We cannot robustly estimate the impact of reduced debt write off, which clearly benefits suppliers. The CBA considers this may save suppliers up to £60m a year. (Chapter 3, paragraphs 3.159 to 3.161).

- Reduced theft. We cannot robustly estimate the benefit from reduced theft, which clearly benefits suppliers. In line with the CBA, we only include the social benefit from reduced theft (equivalent to a 10% reduction), rather than the full reduction in theft (which the CBA notes could be as much as 20-33%) (Chapter 3, paragraphs 3.162 to 3.165).

- Adjustment for the different definition of 'efficient benchmark'. The analysis earlier in this chapter suggests that our adjustment to account for the proportion of smart metering costs in the operating cost allowance could be overstated by £3 to £5 (this chapter, 4.14-4.15 and 4.20-4.25).

- Non-domestic customers. We allocate costs shared by domestic and non-domestic customers by meters, which will overstate domestic costs. (Chapter 3, paragraphs 3.17 to 3.18).

4.31. We consider that the areas of conservatism have a greater impact than the following assumptions, which are less conservative.

- Future installation costs. For 2020 and beyond, the CBA assumes that productivity will improve and reduce installation costs. We have not modified this input assumption, but we note that suppliers have indicated that they will find it challenging to improve their efficiency and that some of the costs for 2019 may have been 'stranded' if they have installed fewer meters than they had foreseen (Chapter 3, paragraphs 3.49 to 3.56).

- Avoided site visits. The new CBA has adjusted its estimate of avoided site visits compared to past CBAs. The judgement remains inherently uncertain, but we

consider it appropriate and have not adjusted it in our model. (Chapter 3, paragraphs 3.136 to 3.140).

- Inbound customer calls. In line with the CBA, we assume that the cost of calls from customers with a smart meter returns to the costs level of a customer with a traditional meter (as staff become more familiar with issues, and legacy problems are resolved). It is also possible that smart customers have persistently more complicated calls as the smart meters remove the need for 'simple' calls. (Chapter 3, paragraphs 3.152 and 3.154).

- Differences in customers. It is possible that customers that disproportionately create debt management costs will be less likely to get a smart meter early in the rollout. This could delay benefits. Similar issues arise for inbound customer calls, non-default customers, and when multi-register customers adopt a smart meter (Chapter 3, paragraphs 3.22 to 3.25; 3.143; 3.155; 3.158).

- Marketing costs. In line with representations, we have not recognised financial benefits from marketing, only the reported costs. On average, these costs peaked in 2017.By not recognising any financial benefits we reduce the SMNCC in 2018 by more than if we recognised benefits. We then freeze marketing costs at 2018 levels, which should be increasingly conservative, as there will be fewer customers to contact. (Chapter 3, paragraphs 3.115 to 3.125).

- Remote change of tariff: we include this minor benefit, which some suppliers suggest they have deprioritised (Chapter 3, paragraph 3.166 to 3.168).

4.32. **Table 4.6** shows the breakdown of the three issues considered and their impact on the proposed SMNCC for each calendar year, before allocating into cap periods and considering advanced payments carried forward.

Table 4.6: Proposed SMNCC for calendar years, before considering advanced payment (£ per dual fuel account)

	2017	2018	2019	2020	2021	2022	2023
Change in efficient costs	0.00	3.30	8.08	6.89	4.22	-0.12	-4.61
Adjustment for different definitions of 'efficient' benchmark	6.39	6.49	6.59	6.70	6.81	6.94	7.09
Adjustment for uncertainty	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**6.39**	**9.79**	**14.67**	**13.59**	**11.03**	**6.81**	**2.48**

Note:

(1) prices in nominal

Allocation into cap periods

Our approach

4.33. The cap periods are six months in length. We express each cap level in annualised terms. There are three types of cap period.

- **Summer cap periods** (from 1 April to 31 September): We propose to set the SMNCC in line with our assessment of efficient smart metering rollout cost for that year. So the SMNCC in summer 2020 would match the annual assessment for 2020. Summer 2021 (if the cap is extended) will reflect the assessment for 2021, and so on and so forth.

- **Standard winter cap periods** (from 1 October to 31 March in following year). We propose to set the SMNCC by taking a simple average of the two relevant annual assessments above. So the winter cap in 2020/21 would be an average of the 2020 and 2021 level.

- **Short winter cap period** (from 1 October 2023 to 31 December 2023). The Cap could be extended to the end of 2023, but not further. If we are required to update the cap level for the final possible cap period, we propose to use the annual assessment for 2023 only. The first cap period (1 January 2019 to 31 March 2019) was also a short winter cap period.

4.34. We have proposed an SMNCC level for all potential cap periods. This does not indicate that we have formed a judgement on whether or not we expect the Cap to be extended. Only that, if the Cap is extended, then an SMNCC allowance will be required.

As discussed in **Chapter 2 (paragraphs 2.27 to 2.29),** we do not propose to review the SMNCC again, so we need to provide allowances in this review to cover the full potential life of the Cap.

4.35. **Table 4.7** shows how we calculate the SMNCC for each cap period using the annual cost assessments**.** Note than the Cap could end on 31 December during the fifth, seventh, or ninth cap periods. At the point we set the Cap level for those periods the Secretary of State will not have published her decision on whether to extend the cap or not. We propose to set the level as though the cap will continue (rather than making adjustments and correcting for them if the cap is extended). This issue is relatively limited, given that we set the cap level on an annualised basis.

Table 4.7: Allocating our assessment into cap periods (£ per account)

Cap period	Method	Electricity	Gas
First cap period (January – March 2019)	2019 assessment	6.89	7.78
Second cap period (April – September 2019)	2019 assessment	6.89	7.78
Third cap period (October 2019 – March 2020)	Average of 2019 and 2020 assessments	6.48	7.64
Fourth cap period (April – September 2020)	2020 assessment	6.08	7.51
Fifth cap period (October 2020 – March 2021)	Average of 2020 and 2021 assessments	5.24	7.07
Sixth cap period (April – September 2021)	2021 assessment	4.39	6.64
Seventh cap period (October 2021 – March 2022)	Average of 2021 and 2022 assessments	3.27	5.65
Eighth cap period (April – September 2022)	2022 assessment	2.16	4.66
Ninth cap period (October 2022 – March 2023)	Average of 2022 and 2023 assessments	1.01	3.64
Tenth cap period (April – September 2023)	2023 assessment	-0.15	2.63
Eleventh cap period (October – December 2023)	2023 assessment	-0.15	2.63

Note: Prices are in nominal terms. The Cap could end on 31 December during the fifth, seventh, or ninth cap periods.

Consideration of carry forward balances

Overview

4.36. In our April consultation and Response Paper 3 we said that we would consider whether or not to adjust the SMNCC in cap period four and beyond for advance payments.

4.37. We consider three issues:

- The value of advanced payments in the first three cap periods. We calculate that collectively customers paid £86m more than suppliers' efficient smart metering costs in the first three cap periods.

- What proportion of this advance payment to take into account when setting the SMNCC in future cap periods. We could recognise all of the advanced payment, which offsets some of the payments customers should pay in future. Alternatively, we could recognise only a proportion of it – taking into account mitigating circumstances of some or all suppliers.

- How to spread any advanced payment we recognise over remaining cap periods. We could adjust the number of cap periods we spread the carry forward balance over. Either offsetting the advanced payment in cap period four on its own, or any number of periods up to the potential end of the cap in 2023.

4.38. We propose to recognise 100% of the advance payment to protect customers from paying twice for rollout that has already been allowed for. We propose to spread the advance payment across all potential cap periods up to the end of 2023.

Valuing the advanced payment

Timing differences between suppliers' costs and the SMNCC

4.39. In the first three caps periods, the SMNCC has provided £309 million,[69] which is £86 million more than our proposed assessment of the efficient costs in those periods (£21m for electricity and £28m for gas accounts). Given that the largest suppliers have

[69] To calculate the value, we multiplied the allowance by the number of capped customers, holding the number of capped customers fixed in each of the three periods. Note that the allowance provides funding for the net costs that are additional to the net costs already incurred by suppliers up to (and including) 2017.

priced their default tariffs in line with the Cap, this suggests that customers have paid more than suppliers' collective (or average) efficient smart metering costs required (Table 4.8 and Table 4.9).

Table 4.8: Advanced payment in the first three cap periods and balances carried forward (electricity accounts)

	Cap 1	Cap 2	Cap 3
SMNCC allowance (TDCV, £ per annum)	9.02	9.02	9.26
New assessment (TDCV, £ per annum)	6.89	6.89	6.48
Difference (TDCV, £ per annum)	-2.13	-2.13	-2.78
Electricity accounts (m)	12.8	13.1	13.1
Advanced payment in cap period (£m)	7.1	13.4	19.0
Carry forward balance (£m)	7.1	20.5	39.5
Rollout allowed for (%)	+6.75%	+12.5%	+12.5%
Rollout in updated model (%)	+3.0%	+6.1%	+6.8%

Table 4.9: Advanced payment in the first three cap periods and balances carried forward (gas accounts)

Fuel	Cap 1	Cap 2	Cap 3
SMNCC allowance (TDCV, £ per annum)	10.70	10.70	11.24
New assessment (TDCV, £ per annum)	7.78	7.78	7.64
Difference (TDCV, £ per annum)	-2.92	-2.92	-3.60
Electricity accounts (m)	10.5	10.7	10.7
Advanced payment in cap period (£m)	8.8	13.1	22.2
Carry forward balance (£m)	8.8	21.9	44.1
Rollout allowed for (%)	+6.75%	+12.5%	+12.5%
Rollout in updated model (%)	+3.1%	+6.2%	+6.7%

Note: the operating cost allowance is the same pre and post review, so when considering the carry forward we do not need to consider the proportion of efficient smart metering costs included in that allowance.

4.40. We set the allowances in the first three cap periods on the assumption that they provide sufficient allowance for 25% of the roll per year (12.5% in each six-month cap period). That level of those allowances was not independent of the rollout rate underpinning it.

4.41. The difference between the meters allowed for in the cap and the meters suppliers actually install matters. If two suppliers charge customers the full allowance in full, and one installs smart meters, while the other installs no or very few smart meters then the distinction is significant. The latter supplier should not receive more money later, when it installs the meters.

4.42. As discussed in Chapter 3 (paragraphs 3.176 to 3.188), it is an inherent challenge when setting the SMNCC is that supplier's rollout profiles vary. Suppliers set default tariffs in line with the Cap, resulting in a single revenue profile for all suppliers. Their costs profiles will differ depending when and how many smart meters they have installed. We consider it is up to each supplier to manage the difference between that revenue profile and its own specific cost profile.

4.43. The same principle applies when comparing the SMNCC with suppliers' collective (or average) progress. If suppliers collectively had installed meters at a faster rate than we had allowed for, then we would be expected to still take those additional meters into account at a later date, providing allowance for them in arrears. Suppliers would not expect a 'correction' that disregards the costs of the meters they have installed, but not yet been paid for. Similarly, if suppliers had collectively fallen behind the underlying rollout rate, we should not provide funding twice for meters that have already been considered and allowed for. To do so, would not protect customers and would disregard incentives to be efficient on a per meter basis.

4.44. This issue is not only about the rollout rate. In the April consultation and Response Paper 3, we also noted that the SMNCC in the first three cap periods likely undervalued the efficient cost per smart meter.[70] On that basis, unless we correct the assessment of efficient costs in the first three cap periods, our valuation of suppliers' advance payments would be too high. We proposed to calculate the collective (or average) advance payment by comparing the SMNCC actually provided with an updated calculation of the efficient costs in the first three cap periods, using our new assessment. This approach would ensure that we assess suppliers' efficient costs and the impact on default tariff customers using a consistent set of assumptions.

[70] Ofgem (2019), Reviewing smart metering costs in the default tariff cap: Response Paper 3, https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-response-paper-3

Considering suppliers' views

4.45. Replying to Response Paper 3, some suppliers considered that there was no carry forward balance surplus for us to consider (no advanced payment). There were broadly four reasons put forward:

- Allowances not collected. One supplier suggested that the impact on suppliers' revenue cannot be demonstrated, so the relationship with the costs of installing fewer smart meters than provided for cannot be demonstrated.

- Inadequate allowance. Several suppliers argued that the SMNCC in the first three cap periods had been too low. This implied there would be a carry forward deficit (delayed payments), not a surplus due to advanced payments. Some reasoned that although installing fewer meters would reduce costs, costs per meter had increased or been stranded and benefits had been delayed. They reasoned a robust reassessment of costs, including the impact of fewer meters and higher costs per meter, would show their true position.

- Allowances already invested. Some suppliers argued that they (or other suppliers) had already fed the SMNCC into current investments, so any surplus would not be available to 'top up' investment in later cap periods.

- Variation in circumstances. Some suppliers argued that, even if suppliers *on average* had received an advance payment, they had not received one. Reasons included greater than average progress with the rollout (increasing their efficient costs in those periods above the average level) and growing customer bases.

Considering collection

4.46. Nearly all default tariff customers were served by suppliers that set prices at the maximum allowed level for the first three cap periods. We include the allowance in the cap solely for the purpose of the smart meter rollout. On that basis, we consider that suppliers collected the full revenue allowed by the SMNCC in the first three cap periods.

Considering adequacy

4.47. We agree that any assessment of advanced payments needs to consider the impact of increased costs per meter, delayed benefits, and any other relevant factor. We cannot just consider the impact of suppliers installing fewer meters than required.

4.48. On that basis we have compared the allowances that were collected in the first three cap periods to the efficient costs as assessed in our review, which takes these issues into account (as discussed in **Chapter 3**). This comparison ensures that the advanced payment is not overstated by any outdated assumptions.

Considering investment

4.49. We do not consider it is necessarily a problem if suppliers have already invested (or committed to investment of) the SMNCCs provided in the first three cap periods.

- If suppliers have *efficiently* invested advance payments on a per meter basis, then they should have greater than average progress with their rollout. In **Chapter 3** (paragraphs 3.183 to 3.184), we discuss the inevitability of some suppliers being in this position, and the advantages and disadvantages of having a cost profile that runs ahead of the allowance. We do not consider that all suppliers can be in an above average position.

- If suppliers have *inefficiently* invested advance payments on a per meter basis, then that is not a relevant consideration. We expect suppliers to roll out smart meters efficiently.

- If suppliers have invested advance payments in activities that are not related to the rollout, then we do not consider that a relevant factor. We include the SMNCC for the sole purpose of the smart meter rollout.

Considering variation

4.50. In Chapter 2 (paragraph 2.19 to 2.22) we explain that inevitably, the allowance cannot reflect each supplier's costs. We have proposed to have regard to average costs. Bearing in mind the objective of the Act, it is therefore inevitable that, whatever our methodology, some suppliers could have efficient costs above the allowances and other suppliers could have efficient costs below the allowances. On that basis we have

calculated the market wide (or average on per meter basis) advance payment carried forward.

4.51. We consider below the extent to which variation in circumstances and costs (for instance, suppliers with growing portfolios or strong rollout progress) should be considered as mitigating factors when considering what proportion of the collective advanced payment we should recognise.

Considering how to take the advanced payment into account

Our approach

4.52. We propose to recognise all of the advanced payment. We consider this protects customers from paying a second time for money that has already been allowed for.

4.53. We have considered three options:

- recognising all of the advanced payment (100%)
- recognising none of the advanced payment (0%), in effect writing off the advanced payment
- recognised a proportion of the advanced payment, (such as 50%), to account for mitigating circumstances.

4.54. Our considerations are set out below, including stakeholders' representations on this issue so far. These representations include mitigating circumstance for some or all suppliers, which we have considered. Disregarding any proportion of the collective advance payment means charging customers twice, reducing the protection they receive. We consider this a high bar for other consideration to mitigate. Based on current representations, we have not considered mitigating circumstances sufficient. Nonetheless, we will consider responses to the consultation carefully and could write off a proportion of the advanced payment (such as 50%) if we consider representations demonstrate that it would be more appropriate.

Considering adjustment in principle

Correction mechanisms

4.55. Some suppliers considered the carry forward a correction mechanism. They highlighted this was something we had dismissed previously when considering the broader default tariff cap methodology. They considered it unreasonable, in their opinion, to allow a correction mechanism in one part of the Cap whilst refusing to consider it in other parts.

4.56. We do not consider reducing the lag between the profile of the allowance and suppliers' weighted average (or collective) cost profile to be a correction mechanism. Even so, in principle, we consider that it is reasonable to assess issues in context and not to take a uniform approach to reviews or corrections.

- In general, we remain opposed to mechanisms that correct for forecast errors for the reasons stated in our decision.[71] We considered that in the long run, non-systematic forecast errors should net out. In most cases, attempting to adjust errors may distort the cap more than not attempting to make adjustments.

- In the case of smart meter costs we do not consider that general case to apply. Unlike other cost components, the smart meter rollout is not an instance where in the long run, non-systematic forecast errors in costs per meter would net out. We consider that the long run impact of potential errors could be significant.

4.57. Some suppliers suggested that there are other exceptional cases where we should consider making corrections. They offered the impact of mutualised costs and the PPM cap as examples. In the case of the PPM cap, the CMA has made its decision.[72] We consider the approach to mutualisation is currently appropriate and will keep this under close attention during the coming winter period when payments are due. For the reasons stated in Chapter 2 (paragraphs 2.27 to 2.29) reviewing methodologies

[71] Ofgem (2018) Decision overview: https://www.ofgem.gov.uk/system/files/docs/2018/11/decision_-_default_tariff_cap_-_overview_document_0.pdf

[72] Several suppliers suggested that we adjust the SMNCC to account for past or current inadequacy of the PPM cap with respect to smart metering costs. The CMA had made its decision and PPM customers are not in the scope of our review of the smart metering costs that apply to customers protected by the default tariff cap.

creates challenges. We place a 'high bar' on revising our approach (which, in the case of smart metering costs, has been met).

The direction of potential adjustments

4.58. Some suppliers considered that we should make corrections to the SMNCC in future cap years to adjust for the level in the first three cap periods. All of those suppliers considered that the rollout had thus far been underfunded, and that any adjustment would lead to an increase in the SMNCC in future cap periods.

4.59. We agree that if our assessment of costs had suggested that the first three cap periods had led to deferred payments, rather than advanced payments, then we should have regard to those. Based on the analysis of efficient costs, we estimate there is an advanced payment and, on the same principle, we should have regard to this.[73]

4.60. Many suppliers said that we should not adjust the SMNCC downwards. In principle, we do not consider the direction of the adjustment is relevant. To the extent that we should distinguish between the directions of potential adjustments, the objective of the Act is to protect customers. It would be counter to that objective if we ruled out downward adjustments.

4.61. However, suppliers did raise practical reasons that suggested if we reduced the SMNCC, then we should not necessarily have regard to the entire advanced payment. We consider these circumstances below.

Considering uncertainty

4.62. Some suppliers suggested that any assessment of the advanced payment would itself be subject to uncertainty. On that basis we should be cautious about reducing the SMNCC below the level we assess to be as efficient in future cap periods.

4.63. We have taken this issue into account, and do not consider it a reason to disregard any proportion of the collective advanced payment. We calculate the advanced payment using our updated assessment of efficient costs. We consider the combined impact of

[73] Some suppliers said their estimate of the level of underfunding (or overfunding) was hampered, as they did not know what proportion of the operating cost allowance relates to smart meter. This issue is discussed above.

uncertainty on this assessment in paragraphs 4.27 to 4.31 above, and conclude it conservative, and could be overstated. We should also note that the assessment uses the CBA rollout profile, not suppliers' actual installation in 2019.[74]

Considering variation in suppliers' circumstances

4.64. Some suppliers argued that considering the carry forward was unfair on the basis that it assumed that suppliers have a stable customer base, so that advance payments in the first three cap periods would be offset by any change to the SMNCC in future periods. They argued that this approach disadvantages suppliers that are growing rapidly, as they will receive less money in future, which could not be offset, as the advanced payments for those customers were received by their previous suppliers. They argued that this favours large energy suppliers (who, generally, are losing default tariff customers) over challenger suppliers (who, generally, are gaining customers).

4.65. Other suppliers argued that suppliers that had made early progress would be at an disadvantage. In Response Paper 3 we had explained that, as each supplier had the same task to do – rollout out meters to all of its customers – then suppliers with early progress and high costs in the near term, would have less to do and lower costs than their competitors later in the rollout. Over the life of the rollout, the difference between different rollout profiles should net out over time. Some suppliers argued that (as this stage) this was not their experience, as smart meters had ongoing net costs.

4.66. In **Chapter 3** (paragraph 3.35) we proposed to consider the average case when having regard to suppliers' costs and customers' protection. On average, the market has a relatively stable customer base and, by definition, it has made average progress in its rollout. On that basis, neither of these issues would be a concern when regarding the advance payment. It is an inherent consequence of setting one allowance for all customers, that the variation in different suppliers' circumstances cannot be fully taken into account. However, we have considered the extent to which that approach may have unintended and negative consequences for the protection of consumers.

[74] Data on the first six months of 2019 shows that suppliers installed fewer meters, so the advanced payment is conservative. BEIS (2019), Smart Meter Statistics in Great Britain: Quarterly Report to end June 2019, Figure 4. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/827813/2019_Q2_Smart_Meters_Statistics_Report.pdf

4.67. Rapidly growing suppliers do not appear to be a strong concern. Generally, these suppliers price their tariffs below the Cap, and they have very few default tariff customers (as in most circumstances suppliers grow by attracting customers that actively choose to switch their account).[75] However, some suppliers are growing very rapidly and we cannot be certain what their pricing strategy up to 2023 will be, or how their customer mix will develop. Consolidation may also happen if some suppliers leave the market. It is possible that this issue could affect more cases in future. We note that currently, fast-growing suppliers have not raised these concerns with us directly (as opposed to larger stable suppliers making the point on their behalf). Nonetheless, we acknowledge the potential risk.

4.68. In isolation, we accept that this proposal may appear to favour large suppliers that are losing default tariff customers. However, losing customers brings its own challenges and considered in the round, we do not consider this concern is a strong one, or that it undermines protection for customers.

4.69. Suppliers' efficient costs can vary, particularly due to their rollout profile. Initially, suppliers that have made early progress will have higher net costs than suppliers that have made less than average progress with their rollout. As discussed in Chapter 3 (3.181 to 3.188):

- We have considered this challenge in choosing to set the efficient benchmark at average costs, rather than a less generous level.
- We consider that suppliers that have invested during the life of the Cap will have advantages going forward compared to their competitors.
- We expect supplier to manage the timing difference between the single allowance profile and their unique cost profile.
- In any case, we must protect customers, so we have regard to the average case.

Considering the impact on customers

4.70. As discussed in Chapter 2 (paragraph 2.10 to 2.13). The objective of the Act is to protect customers. Consumers have been charged for meters that have not yet been

[75] Suppliers can also grow inorganically, gaining customers by purchasing other suppliers.

installed, but suppliers will, at some point, install those meters. Clearly it would not protect customers to charge customers twice, which writing off the carry forward, in part or in full, would do.

4.71. This consideration creates a high bar when considering other mitigating factors.

Considering the impact on rollout

4.72. Some suppliers argued that we should not consider adjusting for advance payments as in doing so we could harm the success of the continuing smart meter rollout (because supplier would reduce their plans to roll out smart meters), which in turn could undermine protection for future customers.

4.73. One supplier considered that the allowance contradicts and undermines Ofgem's annual milestone process. In its view, it argued it would aim to achieve as many smart installations as possible within the allowance, operating as efficiently as possible. The implication appears to be that this might mean that they install fewer meters than planned, to fit within the allowance.

4.74. Suppliers might reduce their rollout plans if they considered that the efficient costs of the rollout had not been allowed for. We have the assessed the advanced payment with respect to an assessment of the efficient costs in the first three cap periods, so we have taken this issue into account.

4.75. Suppliers might reduce their rollout because their costs are inefficient. This would not be appropriate.

4.76. Either way, as discussed in Chapter 3 (paragraphs 3.183 to 3.187), we expect individual suppliers to manage the timing difference between their specific cost profile and the profile of the SMNCC. This is similar to how a competitive market would work, and we do not consider it appropriate for a supplier to present the SMNCC in the Cap as an excuse to constrain its plans or ambitions relating to the smart meter rollout.

4.77. We appreciate that it is possible that this necessarily difficult aspect of the Cap could affect customers either way – if suppliers rightly or wrongly constrain their rollout, or customers are overcharged – and we take this into account. However, the advanced payment is a known and demonstrable increase in customer bills, which has not (yet) been justified by the installation of the smart meters the payments related to. The risk that some suppliers may in future delay installing the smart meters those advanced

payments relate to, is neither certain, nor would it be justified. Weighing those risks, we consider charging customer twice is a high bar that other mitigating concerns have not overcome.

Considering what period to spread the advanced payment over

4.78. We propose to spread the carry forward over all of the potential cap periods up to the end of 2023. If the cap is not extended into 2021, 2022, or 2023, then the advanced payment will be partially unrecovered. We acknowledge the risk and consider the reduced volatility in the SMNCC is preferable.

4.79. We have considered offsetting the advance payment carried forward:

- immediately (in cap period four)
- over the maximum potential life of the cap (up to the end of 2023), or
- a number of cap periods in between.

4.80. The advantage of offsetting the advanced payment immediately, is that the effect of changing customer bases is substantially reduced. For the reason above we have not weighed this advantage heavily. The disadvantage is that we would create a substantial short-term reduction in the Cap and the then a substantial increase in the next cap period. This creates artificial volatility in prices and substantially distorts the comparison with competitively set tariffs.

4.81. The advantage of spreading the advanced payment the maximum potential life of the Cap is that it makes the least disruption to SMNCC in each cap period. The quantum is small enough that it would not meaningfully effect comparison with competitively set tariffs. The disadvantage is that if the Cap ends early, customers will have been overcharged. However, the Cap would only end before 2023 if conditions for effective competition were in place, which would be a benefit to customers, so we are satisfied this is an acceptable risk to take.

4.82. **Table 4.10** shows our proposed adjustment. The adjustment is stated in annualised 2019 prices.

Table 4.10: Calculating the carry forward adjustment for future cap periods.

	Electricity	Gas
Carry forward (£m)	39.5	44.1
Proportion to recognise	100%	100%
Accounts (m)	13.1	10.7
Total amount to carry forward per account (£)	3.02	4.15
Adjustment per account (£)	0.96	1.32

Notes: Prices in 2019 terms (Cap period 3)

5. Contingency allowance

In this chapter, we explain how we propose to set a contingency allowance for cap period four, in the event that we cannot use the new methodology we are consulting on.

Questions

Q. Do you agree with our proposals for setting a contingency allowance?

Note that as a matter of style, we do not ask specific questions at each stage. We expect stakeholders to consider our proposals, reasons for them, and methodology, and provide representations explaining if and why they disagree.

Summary of our proposals

Implementable proposals

5.1. If, subject to the consultation responses, we consider that our new methodology is appropriate, then we propose to use it to update the Cap from cap period four onwards. We will publish the new cap level for cap period four in February 2020.

5.2. This consultation is at a formative stage, so we may revise our proposals if necessary. If, as a result of this consultation, we need to make substantial revisions to our proposals, then in February we will not update the cap with our proposed methodology.

5.3. In that event, we would revise our proposed methodology and consult on it in the New Year (or earlier, if appropriate). We would expect to use that revised methodology, subject to consultation, to update the Cap from cap period five onwards.

Contingency allowance

5.4. If we do not use our proposed methodology in the next cap update, then we need a contingency allowance for cap period four. In that event, we propose to set the SMNCC

in cap period four using the current SMNCC model. This is the approach we took for cap period three.[76]

5.5. We propose to retrospectively assess the sufficiency of the contingency allowance in cap period four using the revised methodology (once it is finalised). We propose to have regard to the difference between the contingency allowance and the efficient costs when setting future allowances. This would ensure that we protect customers (preventing them from being overcharged) and that we have regard to efficient costs, as the SMNCC will better reflect costs over the life of the Cap.

5.6. Table 5.1 shows the proposed contingency allowance for cap period four.

Table 5.1: the non-pass-through SMNCC in cap period four (£ per account)

Costs	Contingency allowance
Electricity	9.50
Gas	11.77
Implied dual fuel	21.27

Note: This table shows the SMNCC only. It does not show the proportion of the operating cost allowance associated with smart costs

Implementable proposals

Suppliers' views

5.7. In Response Paper 1, we explained that we would consult on proposals at a formative stage. We considered that it was likely, but not guaranteed, that we would be able to implement those proposals without further consultation and the delay that would entail. However, we assured stakeholders that we would consider responses to the consultation, make changes to our proposals if required, and consult on revised proposals if substantial changes were required.[77]

5.8. Suppliers agreed that should present proposals that we could implement in time for the next cap update, and one supplier considered this should be our priority. Suppliers recognised that we must consult on our proposals with an "open mind", such that if we

[76] Ofgem(2019), Default tariff cap: approach to the third cap period, https://www.ofgem.gov.uk/publications-and-updates/default-tariff-cap-approach-third-cap-period
[77] Ofgem(2019), Response Paper 1: https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-response-papers-1-and-2

needed to consult on substantial revisions, then we should not implement our proposals in cap period four.

5.9. Suppliers emphasised that we needed to give sufficient time for a full and fair consultation on our proposals. One supplier considered that this was not possible to do in time for cap period four. It recommended that we set cap period four using contingency arrangements and implement the new methodology in cap period five.

5.10. One supplier understood that unless changes to our proposals are significant there may be no requirement to re-consult, and it requested that, in that event, Ofgem disclose any revisions to the model.

Our consideration

5.11. We are providing a 28 day consultation, which provides sufficient time for stakeholders to understand our proposals, the reasons for them, and respond intelligently. BEIS published its post-2020 policy framework and new CBA in mid-September, so stakeholders have had time to consider these ahead of this consultation.[78]

5.12. Following the consultation, we may need to make revisions and consult on a new methodology. We have proposed a contingency allowance for cap period four and will implement that if required. However, we see no reason to prejudge that decision before consulting on the new methodology.

Contingency allowance

Options considered

5.13. In Response Paper 1, we considered four approaches if we were unable to implement our proposed SMNCC in time for cap period four.

- We could provide no SMNCC allowance.[79] This is the default position, as no allowance is currently provided for.

[78] BEIS (2019), Smart meter roll-out: cost-benefit analysis 2019. https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019

[79] Note that in this circumstance, we would not include an SMNCC allowance, but the proportion of smart costs that is included in the operating cost allowance would remain.

- We could build a new model, independently of the new CBA. This option is unnecessary. The new CBA has now been published.

- We could adjust the current SMNCC model for known errors. We did not consider this option viable. We could not use a contingency approach that adjusted all errors accurately. If it was clear how to adjust the model, then we would not require a contingency allowance at all; the consultation on a new methodology would have already been successful. We may be able to adjust some assumptions where the update is clear and obvious (for instance, we could change the rollout rate to reflect suppliers' actual progress, and update some costs with recent data). We did not propose this option because assumptions interact in complex ways and could understate the efficient costs.

- We could use the current SMNCC model to set the cap four allowance in cash terms. This was our preferred option. While we recognised that underlying assumptions in the current model are outdated in places, so we proposed to ignore them for the purpose of setting cap period four, as reassess the efficient costs for cap period four when the new and revised SMNCC model is complete.

Suppliers' views

5.14. Where they commented on the options raised previously, suppliers were opposed to:

- setting no SMNCC allowance in cap period four. Most suppliers considered this option as self-evidently inappropriate, as efficient costs would be incurred during cap period four (which would likely be higher than the 2017 level of costs, included in the operating cost allowance)

- building a new model independently of the new CBA. Most suppliers considered this inefficient and unnecessary as the new CBA would be published at some point (and, in fact, it is now available).

5.15. One supplier considered that we should use a contingency allowance that adjusted the current SMNCC model for known errors and shortfalls. This supplier's view was underpinned by its assumption that a contingency allowance set using the current SMNCC model would underestimate efficient costs for cap period four.

5.16. Most suppliers did not support a contingency plan that adjusted the current SMNCC model for known errors. For instance, one supplier suggested that such an approach

could bias in favour of straightforward adjustments (such as reducing the rollout rate), which could risk understating the true costs (as we suggested in April consultation and Response Paper 1).

5.17. Nearly all suppliers supported using the current SMNCC model to set the contingency allowance. One supplier requested that we disclose the current model, if we proposed using it to set a contingency arrangement, and reserved its judgement on an appropriate contingency plan until it had access to the underlying assumptions.

5.18. Suppliers had various views on adjusting for differences between the contingency allowance and a retrospective assessment of the efficient costs in cap period four using the new SMNCC model (once finalised).

- Some suppliers supported this approach. They considered that differences between the current allowance and the any updated assessment of efficient costs in cap period four (and the first three cap periods) should be taken into account when setting the allowances in future periods. This was based on their assumption that there was a shortfall between the allowances set using the current model and the actual efficient costs.

- Most suppliers rejected an adjustment. They did not consider the circumstance where the adjustment increased future allowances to account for a shortfall.

- One supplier stated that it would treat the contingency allowance as being certain and seek to use it in an efficient manner.

Our considerations

Accuracy of the contingency allowance

5.19. Whatever approach we take, we cannot ensure a contingency arrangement that accurately reflects the efficient costs in cap period four. This is because, in any circumstance that we need a contingency allowance, the efficient costs of cap period four would be uncertain. For the avoidance of doubt, in this context, 'efficient costs' is the level of costs that our new methodology (once it is finalised) would assess retrospectively for cap period four. The extent of that uncertainty would entirely depend on the number and nature of revisions required.

5.20. Using the current SMNCC model would not set an accurate contingency allowance. We already know that the underlying assumptions are inaccurate, hence this consultation on a new, more accurate, methodology.

- Rollout: The current model accelerates the rollout ahead of suppliers' actual progress. The current model provides an allowance for suppliers to install smart meters in 12.5% of their customers' homes every six months; on average suppliers actually install smart meters at roughly half that pace. This inflates the SMNCC in the short term (a single cap period), but in the long term it means that the allowances will 'run out' too early unless we disregard the underlying assumptions. The models assumes that the allowance provides for 74% rollout by October 2020.

- Costs per meter: The current model also undervalues the efficient cost per smart meter. This means that, over the life of the rollout, the current model undervalues efficient costs. If we maintained this underlying assumption we would not have regard to efficient costs.

5.21. In combination, these inaccurate assumptions mean that the current SMNCC model sets a cash level for cap period four that is likely to be more than sufficient (ie the allowance likely exceeds the efficient cost that a new methodology would estimate for cap period four). This is because, although the model undervalues the cost of the rollout over its life, it concentrates those costs into the early years of the rollout, which has been slower than expected.

5.22. Given the inaccuracy of the assumptions in the current SMNCC model, we propose to disregard them, and only consider the cash allowance. On that basis, we have not disclosed the current model. Suppliers can fully understand the contingency allowance and assess the impact of it using the cash level.[80]

Accounting for 'inaccuracy' in the contingency allowance

5.23. We consider that, in principle, we can take into account any difference between the contingency allowance and the efficient cost. As discussed in **Chapter 4**, this

[80] Ofgem(2019), Smart metering review in the default tariff cap: disclosure arrangements, https://www.ofgem.gov.uk/publications-and-updates/reviewing-smart-metering-costs-default-tariff-cap-disclosure-arrangements

difference is effectively an advanced payment when the allowance exceeds efficient costs (and it is a deferred payment when the allowance is lower than the efficient costs). As one supplier suggested, if there is a shortfall in the contingency allowance (and/or in the first three cap periods) we should take that into account when setting the SMNCC in future periods. The same principle applies if the SMNCC has provided funding in advance of the average efficient cost profile.

5.24. On that basis, we propose to adjust the SMNCC in cap period five (and subsequent cap periods, if appropriate), to ensure that a contingency allowance does not undermine protection for customers.

5.25. We note that some suppliers intend to treat the contingency allowance as certain. Supplier should roll out smart meters efficiently, and depending on their specific profile, their costs in cap period for may differ from our assessment using a single rollout profile. As we discuss in Chapter 3 (paragraphs 3.183 to 3.188), it is inevitable that individual suppliers will have to manage the difference between their unique cost profile and the profile of the allowance.

Appendices

Index

Appendix 1 – Proposed changes to Annex 5 of SLC28AD

1.1. We propose to make the changes to the SMNCC (as set out in this consultation) in the document 'Annex 5 – Methodology for determining the Smart Metering Net Cost Change' referred to in standard condition 28AD of the electricity and gas supply licences.

1.2. Within that document, we propose to make changes to sheet '2a Non pass-through costs', cells K7:R8.

1.3. The values we propose to insert are set out in the table below. These are the output values from the model we have disclosed.

Table A1: Values to insert into annex 5 of SLC28AD

Cap period	Electricity	Gas
Fourth cap period	5.12	6.18
Fifth cap period	4.26	5.73
Sixth cap period	3.41	5.28
Seventh cap period	2.29	4.28
Eighth cap period	1.16	3.28
Ninth cap period	0.00	2.25
Tenth cap period	-1.17	1.22
Eleventh cap period	-1.17	1.22

Notes:
All values are £/customer, nominal.
The table in annex 5 has electricity and gas rows (rather than columns). We present it in this format for readability.

Appendix 2 – Privacy notice on consultations

Personal data

The following explains your rights and gives you the information you are entitled to under the General Data Protection Regulation (GDPR).

Note that this section only refers to your personal data (your name address and anything that could be used to identify you personally) not the content of your response to the consultation.

1. The identity of the controller and contact details of our Data Protection Officer

The Gas and Electricity Markets Authority is the controller, (for ease of reference, "Ofgem"). The Data Protection Officer can be contacted at dpo@ofgem.gov.uk

2. Why we are collecting your personal data

Your personal data is being collected as an essential part of the consultation process, so that we can contact you regarding your response and for statistical purposes. We may also use it to contact you about related matters.

3. Our legal basis for processing your personal data

As a public authority, the GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. ie a consultation.

4. With whom we will be sharing your personal data

N/A

5. For how long we will keep your personal data, or criteria used to determine the retention period.

Your personal data will be held for 1 year.

6. Your rights

The data we are collecting is your personal data, and you have considerable say over what happens to it. You have the right to:

- know how we use your personal data
- access your personal data
- have personal data corrected if it is inaccurate or incomplete
- ask us to delete personal data when we no longer need it
- ask us to restrict how we process your data

- get your data from us and re-use it across other services
- object to certain ways we use your data
- be safeguarded against risks where decisions based on your data are taken entirely automatically
- tell us if we can share your information with 3rd parties
- tell us your preferred frequency, content and format of our communications with you
- to lodge a complaint with the independent Information Commissioner (ICO) if you think we are not handling your data fairly or in accordance with the law. You can contact the ICO at https://ico.org.uk/, or telephone 0303 123 1113.

7. Your personal data will not be sent overseas (Note that this cannot be claimed if using Survey Monkey for the consultation as their servers are in the US. In that case use "the Data you provide directly will be stored by Survey Monkey on their servers in the United States. We have taken all necessary precautions to ensure that your rights in term of data protection will not be compromised by this".

8. Your personal data will not be used for any automated decision making.

9. Your personal data will be stored in a secure government IT system. (If using a third party system such as Survey Monkey to gather the data, you will need to state clearly at which point the data will be moved from there to our internal systems.)

10. More information For more information on how Ofgem processes your data, click on the link to our "Ofgem privacy promise".