ofgem
Making a positive difference
for energy consumers

Consultation

Setting the level of rollout for the PPM smart meter cost allowance – working paper

Publication date:	02 February 2020	**Contact:**	Anna Rossington, Interim Director
		Team:	Retail Price Regulation
Response deadline:	02 March 2020	**Email:**	retailpriceregulation@ofgem.gov.uk

This working paper is part of the consultation process for updating the smart metering allowance in the default tariff cap in time for winter 2021-22. It is the second in a series of three consultations leading up to the decision in the summer. We would like views from people with an interest in the level of the default tariff cap. We particularly welcome responses from domestic energy 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.

Any enquiries related to the text of this publication should be sent to Ofgem at:
10 South Colonnade, Canary Wharf, London, E14 4PU. Alternatively, please call Ofgem on 0207 901 7000.

This publication is available at **www.ofgem.gov.uk**. Any enquiries regarding the use and re-use of this information resource should be sent to: psi@nationalarchives.gsi.gov.uk

Contents

Executive summary

This working paper is the next step towards updating the Smart Metering Net Cost Change (SMNCC) allowance in the default tariff cap in time for winter 2021-22. We previously published a working paper on the methodology and assumptions of prepayment meter (PPM) specific costs in November 2020. This second working paper now focuses on issues relating to the rollout for **smart meters in prepayment mode**. (We have published a separate working paper on the rollout for smart meters in credit mode). It follows the Department for Business, Energy and Industrial Strategy's (BEIS) consultation on the minimum annual targets associated with its new smart meter policy framework which will be implemented on 1 July 2021 – i.e. the enforceable obligations that suppliers face.

The rollout profile is a key input to the calculation of the SMNCC. It drives our modelled estimate of suppliers' costs. We calculate the rollout profile by using supplier data for historic periods and using a modelled approach to forecast future rollout.

We propose to use a different profile for the rollout of smart meters in prepayment mode (smart PPM) compared to the one for smart meters in credit mode. This is because there is a much greater variation in supplier rollout of smart PPM versus credit.

We note that the new BEIS framework for the rollout of smart meters does not differentiate between payment methods, and therefore suppliers do not have a legal obligation specific to their PPM rollout. However, we need to set a PPM level of the cap that reflects the costs of supplying PPM customers. This includes setting a PPM SMNCC that reflects the costs of rolling out smart meters to PPM customers.

We propose to set the PPM SMNCC based on the average cost to PPM customers for rolling out smart meters. We consider that it is appropriate to use a weighted average rollout profile to model the PPM SMNCC allowance when it broadly reflects the average cost to PPM customers. Our initial analysis, however, raises questions on whether this is always the case.

Unlike the rollout for smart credit meters, our model suggests the relationship between net costs and rollout for smart PPM might not be linear. According to our initial modelling this could mean that suppliers who have rolled out both the most and fewest smart PPMs could have higher modelled net costs than the modelled average (holding costs and assumptions constant). We explore different ways we could address this issue, but also invite stakeholders' suggestions for alternatives.

We seek views by 02 March 2021. We intend to issue a consultation in late spring 2021. This will be followed by a decision in the summer, setting the PPM SMNCC for 1 October 2021 onwards.

1. Introduction

What are we consulting on?

1.1. The default tariff cap ('cap') protects domestic customers on default tariffs, ensuring that they pay a fair price for their energy, reflecting its underlying costs.

1.2. We set the cap on a bottom-up basis, by considering the different costs suppliers face. The cap is made up of a number of allowances, which reflect these different costs.

1.3. One cost to suppliers is the net cost of installing and operating smart meters. We reflect the costs of smart metering in the default tariff cap through two allowances. The operating cost allowance includes the cost of smart metering in the 2017 baseline year (alongside other operating costs).[1] The Smart Metering Net Cost Change (SMNCC) allowance captures the change in smart metering costs since 2017. The SMNCC allowance comprises a 'pass-through' element covering industry charges relating to smart metering and a 'non-pass-through' element covering suppliers' own smart metering costs. We update the 'pass through' element as part of the six-monthly price cap update. We use a forward-looking modelled approach to set the non-pass-through element ex ante for future cap periods. This working paper focuses on the non-pass-through SMNCC allowance for customers with prepayment meters (which we refer to as the PPM SMNCC for the remainder of this document). Where we use the term SMNCC on its own, we are discussing points that are common to both credit and PPM.

1.4. In August 2020, we decided to introduce a prepayment meter (PPM) level in the cap to protect default tariff PPM consumers beyond the expiry of the Competition and Markets Authority (CMA) PPM cap.[2] As part of our decision, we decided to include a PPM SMNCC allowance in the PPM level of the cap. However, we opted to use our contingency option and set the value at zero. We said we would introduce a specific PPM SMNCC methodology for cap period seven (starting on 1 October 2021).

1.5. We said that we would consider the following areas in our subsequent consultation:

[1] We index this allowance with inflation.
[2] Ofgem (2020), Decision on protecting energy consumers with prepayment meters. https://www.ofgem.gov.uk/publications-and-updates/decision-protecting-energy-consumers-prepayment-meters

- the Department for Business, Energy and Industrial Strategy's (BEIS) decision on its new smart metering framework;

- the latest data on costs, benefits and suppliers' progress submitted to BEIS, including the net impact of COVID-19 on the smart meter rollout.

1.6. This working paper sets our initial thoughts, proposals and rationale for setting the rollout element of the PPM SMNCC for cap period seven onwards.

1.7. In this paper we consider:

- whether we should set a separate rollout profile for PPM and credit and setting an approach for modelling rollout in the final six months of the BEIS 'all reasonable steps' framework – Chapter 2;

- the interaction between the PPM SMNCC and the new smart meter rollout framework and whether we should fund at an average level of rollout or based on the highest cost rollout – Chapter 3;

- whether we should set the rollout based on the target of the smart meter rollout or suppliers' minimum installation requirements after taking into account the tolerances (the legal obligation) – Chapter 3; and

- whether we can calculate a PPM SMNCC allowance that broadly funds the average cost to PPM customers of the smart meter rollout by using a rollout profile or whether we should consider alternative options – Chapter 4.

1.8. We seek stakeholders' views on:

- our views and positions set out in this working paper; and

- if there are any alternative options to using a rollout profile to calculate the PPM SMNCC that we should consider.

Context and related publications

New smart meter rollout framework

1.9. The Department for Business, Energy and Industrial Strategy (BEIS) has now consulted on the annual tolerances associated with its post 2020 smart meter policy framework.[3] We do not repeat its consultation here, although we would encourage stakeholders to read BEIS's consultation. Key elements of BEIS's proposals are as follows.

- BEIS has proposed tolerances for the first two years of its new framework (July 2021 to June 2023).[4]

- These tolerances are the same for all suppliers: 4% for year one of the framework (1 July 2021 to 30 June 2022), and 5.5% for year two of the framework (1 July 2022 to 30 June 2023.[5]

- Each supplier's rollout target is based on a profile to market-wide rollout by mid-2025.[6] As each supplier will have a different rollout position at the start of the framework, suppliers will have different targets.

- The tolerances are applied to the targets to calculate the minimum annual installation requirements. Suppliers' legal obligations are to meet these minimum

[3] BEIS (2020), Smart meter policy framework post 2020: minimum annual targets and reporting thresholds for energy suppliers.
https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020-minimum-annual-targets-and-reporting-thresholds-for-energy-suppliers
[4] BEIS (2020), Smart meter policy framework post 2020: minimum annual targets and reporting thresholds for energy suppliers, paragraph 8.
https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020-minimum-annual-targets-and-reporting-thresholds-for-energy-suppliers
[5] BEIS (2020), Smart meter policy framework post 2020: minimum annual targets and reporting thresholds for energy suppliers, paragraph 77.
https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020-minimum-annual-targets-and-reporting-thresholds-for-energy-suppliers
[6] BEIS (2020), Smart meter policy framework post 2020: minimum annual targets and reporting thresholds for energy suppliers, paragraph 5.
https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020-minimum-annual-targets-and-reporting-thresholds-for-energy-suppliers

installation requirements,[7] calculated after applying the tolerances.[8] Suppliers would therefore have different legally-binding installation requirements.

1.10. BEIS determined its proposed tolerances by modelling an achievable level of rollout. It took into account: customers' attitudes towards smart meters, suppliers' operational performance in rolling out smart meters, and the industry capacity to roll out smart meters.[9] It moderated the number of installations in each half year based on the current and historical installation averages to account for operational capability.[10]

1.11. The framework applies to both the domestic and non-domestic rollout. In relation to the domestic rollout, the framework applies without distinction between credit and PPM rollout.[11] The majority of domestic meters are credit (approximately 85%) so the framework is more sensitive to suppliers' decisions on the credit rollout.

Related publications

1.12. Alongside this publication, we are also consulting on a second working paper on the credit smart meter rollout and the default tariff cap (we refer to this as the 'credit working paper' in this document).[12]

[7] Technically the obligation is to install a certain number of smart meters in a given year (rather than to reach a certain rollout percentage at the end of the year). This is to cover the case where a supplier installs a smart meter and then the customer switches away. This distinction is not significant for our comparison of rollout profile options in this working paper.
[8] BEIS (2020), Smart meter policy framework post 2020: minimum annual targets and reporting thresholds for energy suppliers, paragraph 65. https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020-minimum-annual-targets-and-reporting-thresholds-for-energy-suppliers
[9] BEIS (2020), Smart meter policy framework post 2020: minimum annual targets and reporting thresholds for energy suppliers, paragraph 43. https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020-minimum-annual-targets-and-reporting-thresholds-for-energy-suppliers
[10] BEIS (2020), Smart meter policy framework post 2020: minimum annual targets and reporting thresholds for energy suppliers. Annex B: Analytical Evidence, paragraph 24. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/937398/smart-meter-policy-framework-post-2020-minimum-targets-reporting-thresholds-annex-b.pdf
[11] To note, the framework does not differentiate between fixed and default tariff customers either.
[12] Ofgem (2021), Smart meter rollout and the default tariff cap: working paper. https://www.ofgem.gov.uk/publications-and-updates/smart-meter-rollout-and-default-tariff-cap-working-paper

1.13. Other related publications are:

- Ofgem (2020), Setting the PPM smart meter cost allowance in the default tariff cap – working paper. https://www.ofgem.gov.uk/publications-and-updates/setting-ppm-smart-meter-cost-allowance-default-tariff-cap-working-paper
- Ofgem (2020), Decision on protecting energy consumers with prepayment meters. https://www.ofgem.gov.uk/publications-and-updates/decision-protecting-energy-consumers-prepayment-meters
- Ofgem (2020), Decision on reviewing smart metering costs in the default tariff cap. https://www.ofgem.gov.uk/publications-and-updates/decision-reviewing-smart-metering-costs-default-tariff-cap
- Ofgem (2020), Statutory consultation on protecting energy consumers with prepayment meters. https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-protecting-energy-consumers-prepayment-meters

Consultation stages

1.14. This is the second of two working papers. This working paper covers our views on issues related to rollout. Our first working paper (published in November 2020) covered areas where our methodology or assumptions related to costs differed from the credit SMNCC.[13] We are currently reviewing stakeholder responses to the first working paper, and will respond to them in our next consultation.

1.15. We intend to issue a consultation in late spring 2021. This will allow us to take into account feedback on the two working papers, any subsequent data gathering (if required), and the updated Smart Meters Annual Information Request input data.[14]

[13] Ofgem (2020), Setting the PPM smart meter cost allowance in the default tariff cap – working paper https://www.ofgem.gov.uk/publications-and-updates/setting-ppm-smart-meter-cost-allowance-default-tariff-cap-working-paper

[14] BEIS initially gathered the data through the Annual Supplier Returns (ASR). It has recently merged the ASR with other data requests to form the Smart Meters Annual Information Request. We refer to it by this name through the paper.

1.16. Alongside the spring consultation, we expect to carry out a similar disclosure process as for our May 2020 consultation. This would enable stakeholders to inspect the SMNCC model and for their advisers to inspect certain other pieces of analysis, in each case subject to confidentiality restrictions.

1.17. Subject to the spring consultation, we intend to announce the PPM SMNCC allowance values at the start of August 2021. This aligns with our six-monthly update of the cap. These PPM SMNCC allowance values would take effect from cap period seven (beginning in October 2021).

How to respond

1.18. We want to hear from anyone interested in this consultation. Please send your response to retailpriceregulation@ofgem.gov.uk

1.19. We ask stakeholders provide any quantitative and qualitative evidence they think will assist our consideration of any issues raised in representations.

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

Your response, data and confidentiality

1.21. You can ask us to keep your response, or parts of your response, confidential. We will 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.

1.22. 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 will 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.

1.23. If the information you give in your response contains personal data under the General Data Protection Regulation 2016/379 (UK GDPR) and domestic legislation on data protection, the Gas and Electricity Markets Authority will be the data controller for the purposes of UK 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 3.

1.24. If you wish to respond confidentially, we will keep your response itself confidential, but we will publish the number (but not the names) of confidential responses we receive. We will not 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

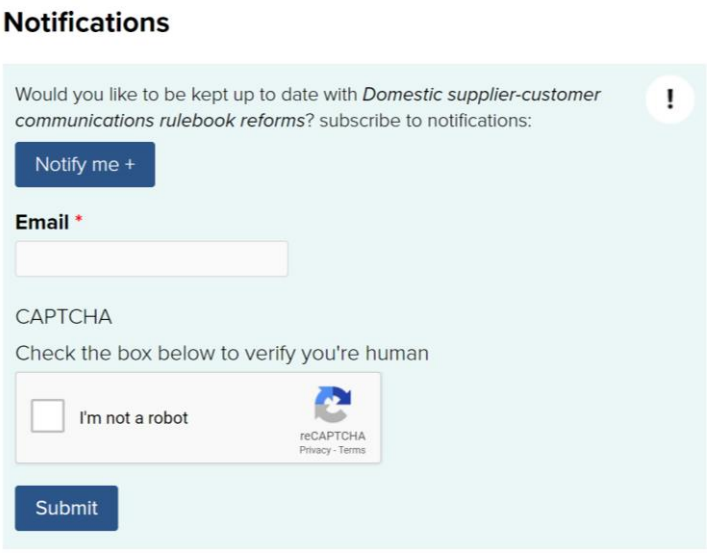
1.25. We believe that consultation is at the heart of good policy development. We welcome any comments about how we've run this consultation. We'd also like to get your answers to these questions:

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?

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

How to track the progress of the consultation

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:

Upcoming ▶ Open ▶ Closed (awaiting decision) ▶ Closed (with decision)

2. Setting the PPM-specific rollout profile

Section summary

In this chapter, we discuss whether we should set a separate rollout profile for the PPM SMNCC compared to credit. We also consider options for setting the PPM rollout profile for the first half of 2021 under the 'all reasonable steps' framework.

2.1. The number of smart meter installations drives the majority of costs and benefits in the PPM SMNCC allowance. The number of installs affects the costs in that year and the costs in future years because we amortise certain costs over time (e.g. meter asset and installation costs).

2.2. We model the profile of installations over time – we refer to this as the rollout profile. In order to estimate that profile we need to decide whether to use the same rollout profile as credit. The new BEIS framework starts mid-2021, so we also need to decide how to account for the final period of the current 'all reasonable steps' framework, for PPM.

Differentiating rollout between credit and PPM

Context

2.3. In our May 2020 consultation, we proposed to use the same rollout profile for the credit and PPM SMNCC.[15] In response to our consultation, some suppliers stated that their PPM rollout was behind their credit rollout and that we should consider using a PPM specific rollout profile to set the PPM SMNCC.

2.4. In our August 2020 decision, we decided to introduce a PPM specific SMNCC for the PPM level of the cap. However, we opted for our contingency option when setting the value.

[15] Ofgem (2020), Statutory consultation for protecting energy consumers with prepayment meters. https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-protecting-energy-consumers-prepayment-meters

2.5. We acknowledged that we would need to consider setting a PPM specific rollout profile that reflects the level of PPM rollout (since using the credit level of rollout may not give the appropriate net costs for PPM customers). We stated that as a result of the greater variation between suppliers for the PPM rollout compared to credit, it was difficult to set a single PPM SMNCC allowance. We also said that we would reconsider this in future consultations.

Proposal

2.6. We propose to set a PPM specific rollout profile for the PPM SMNCC. This means we would have a separate PPM rollout profile to the one used for credit.

Considerations

2.7. While the new rollout framework does not differentiate between the credit and PPM rollout, the net costs of rolling out smart meters to PPM customers are different to those for credit customers. We need to reflect the costs of rollout for PPM customers in the PPM level of the cap, which means setting a separate SMNCC for PPM. This means that BEIS' new framework has not affected our August 2020 decision.

2.8. As stated in our August 2020 decision, we disagree that the progress of the PPM rollout is significantly different to the credit rollout in general. However, there is much greater variation in PPM rollout across suppliers relative to average progress compared to credit.[16] Therefore, our considerations on how to calculate the rollout profile (e.g. what sample of suppliers to base the rollout for PPM on) are likely to be different for PPM than for credit (or for a combined rollout profile).

2.9. In our August 2020 decision, we decided to use a credit specific rollout profile for the credit SMNCC.[17] Our proposal to set a PPM specific rollout profile for the PPM SMNCC is consistent with that decision.

[16] This could be because some suppliers rolled out smart meters to PPM customers early on, while others made a commercial choice to wait and develop a PPM solution with SMETS2 meters meaning they started smart PPM installations later.
[17] Ofgem (2020), Reviewing smart metering costs in the default tariff cap, paragraph 3.15. https://www.ofgem.gov.uk/system/files/docs/2020/08/reviewing_smart_metering_costs_in_the_default_tariff_cap_-_august_2020_decision.pdf

Calculating the rollout profile

2.10. In order to set the rollout profile for PPM, we need to take into account the historical rollout of smart meters as well as a forecast of future rollout, taking into account the different BEIS frameworks (we discuss these over Appendix 1, Chapter 2 and Chapter 3):

- **Historical periods** – for past periods, we largely use supplier rollout data, but use a modelled approach to fill in any missing data points. **We discuss our approach in Appendix 1**.

- **'All reasonable steps' framework** – the current framework for the smart meter rollout, which is set to end in June 2021. We use a modelled approach to forecast this part of the rollout. **We discuss three options for modelling rollout under the remainder of the 'all reasonable steps' framework in this chapter**.

- **New smart meter rollout framework** – the new framework for the smart meter rollout, which begins on 1 July 2021. BEIS's policy ambition for the new framework is market-wide rollout by mid-2025. For the purposes of modelling this and forecasting future rollout in the rollout profile, we calculate the linear trend in annual smart meter installations needed to meet 100% rollout at mid-2025. BEIS is also setting tolerances around the supplier rollout targets. We could therefore use a profile based on tolerances rather than targets. **We discuss setting the rollout profile for the new framework in Chapter 3**.

Modelling rollout for the remainder of 'all reasonable steps'

2.11. BEIS's new framework will take effect from 1 July 2021. When we take the decision for this review, we will have data on PPM rollout progress up to the end of 2020. We will therefore need to estimate rollout in the first half of 2021 under the current framework. In this section, we consider how we should model this.

2.12. We have identified three options. In each case the starting point, the cumulative rollout at the end of 2020, is the same - so the options look at how we should forecast rollout over the subsequent six-month period.

Option 1 – use the average rollout between 2017 and 2019

2.13. Under this option, we would estimate the annualised rollout rate for the first half of 2021 would be the same as the suppliers' average progress between 2017 and 2019.

2.14. This would reflect the progress that suppliers have been able to make in the past (in absence of a pandemic) under the 'all reasonable steps' obligation, which will still be in place during the first half of 2021. We would exclude 2020 from the calculation to avoid incorporating any impacts of COVID-19 on the 2021 rollout estimate. However, there is a risk that historical performance over 2017-2019 could overstate what is achievable if the effects of COVID-19 extend into 2021.

2.15. Conversely, this approach may understate the level of PPM rollout if suppliers have waited for SMETS2 meters before starting their PPM rollout. A PPM solution for SMETS2 meters was not available for the majority of the 2017-2019 period, but is now available at scale so we may expect higher levels of PPM rollout.

Option 2 – roll forward suppliers' rollout over 2020

2.16. The second option would be to use suppliers' rollout in 2020 – i.e. a year affected by COVID-19. This could be used as a proxy for the rollout of smart meters that suppliers are able to rollout in the midst of a pandemic.

2.17. However, the COVID-19 impacts over 2020 are not necessarily the same as those that suppliers will face during the first half of 2021. In 2020, there was a period where suppliers paused all but essential metering work. At present, where consistent with Government COVID-19 guidance and subject to safe working practices, suppliers are continuing to install smart meters. Using 2020 data might therefore understate the rollout that suppliers are able to achieve in the first half of 2021.

Option 3 - use suppliers' rollout plans for the first half of 2021

2.18. The third option would be to use suppliers' rollout plans for the first half of 2021, as provided to us.[18] However, the rollout plans are not split by credit and PPM. We would therefore have to take the percentage change in overall rollout for each supplier from the rollout plans and apply it to the 2020 data actuals, which will be split between credit and PPM. This option assumes that the incremental rollout (as a percentage of the customer base) is the same in the first half of 2021 for credit and PPM meters. This would be a simplification. It is unlikely to have a material impact for the credit SMNCC – given that credit meters represent the vast majority of domestic meters, credit rollout and overall rollout will be broadly similar. However, the potential scale of any discrepancy would be larger for PPM. That said, we do not have a clear reason to expect there to be a large discrepancy in practice.

2.19. We have not reached a view on which option we would use. We will keep the COVID-19 situation under review. By the time of our late spring consultation we will have more information about COVID-19 in the first few months of 2021, including early information on the impact on rollout. We will therefore be able to consider which option might be most appropriate.

[18] We receive this information as part of Ofgem's role to provide regulatory oversight of the rollout. Most recently, large suppliers submitted rollout plans in November 2020 covering the period to the end of June 2021, the end date for the current rollout obligation.

3. Rollout under the new framework

Section summary

In this chapter, we discuss modelling the rollout under the new framework. We discuss two sets of options: whether we should set a PPM SMNCC that broadly reflects the average rollout profile or the highest net cost rollout profile; and whether we should base the rollout profile on the target of the new framework or the tolerance.

3.1. BEIS has now consulted on its new smart meter rollout framework. We look to reflect its proposals when setting the PPM SMNCC for 2021-2023. These proposals affect how we forecast future rollout to set the rollout profile in the PPM SMNCC.

3.2. The new framework sets individual targets for suppliers. Each supplier's target is based on BEIS's policy ambition of market-wide rollout by mid-2025. As each supplier will have a different rollout position at the start of the framework, suppliers will have different targets. In this chapter, we first consider whether the PPM SMNCC should reflect the average net cost of the smart meter rollout to PPM customers (the market average rollout of smart meters) or the highest net cost to PPM customers (the highest cost rollout profile for a supplier to meet the policy ambition).[19]

3.3. While the targets are based on BEIS's policy ambition, BEIS has also proposed tolerances under the new framework. The tolerances are applied to the targets to calculate a minimum annual installation requirement. Suppliers' legal obligations are to meet these minimum installation requirements. After we discuss the level of costs to reflect in the PPM SMNCC, we then consider whether we should set the rollout profile based on the trajectory of the target or the tolerances.

3.4. BEIS's new framework applies to both the domestic and non-domestic rollout. In relation to the domestic rollout, it applies to all smart meters, irrespective of whether they are credit or PPM. However, while the framework does not differentiate by payment method,

[19] We judge this by looking at the modelled costs generated from our SMNCC model when running different rollout profiles. We hold unit costs and assumptions constant across the modelled costs of different rollout profiles.

the cap does. To set a PPM level for the cap, we need to set a level that reflects the cost to supply PPM customers. This includes setting a PPM SMNCC allowance that reflects the costs of rolling out smart meters for PPM customers. To calculate the PPM SMNCC, we consider it appropriate to use a PPM rollout profile to reflect the rollout position for the PPM market (as proposed in Chapter 2).

Average or highest net cost rollout profile

3.5. In our credit working paper, we explore options for setting the credit SMNCC, looking at targets and tolerances. The relationship between rollout and costs is linear for credit – more rollout means higher net costs. However, we consider that the opposite is true for PPM.

3.6. Our analysis suggests that a supplier further behind in their PPM smart meter rollout incurs higher net costs than one with the average level of rollout over 2021-2023 (the remainder of the cap).

3.7. This is because the net costs of rollout are primarily driven by the cost of installing new smart meters and the number of traditional meters a supplier avoids having to install (since the traditional meter has been replaced by a smart meter before it expired). A traditional PPM is more expensive than a smart PPM.

3.8. Our modelling shows, a supplier behind on rollout receives a smaller operational benefit from the rollout because they have installed fewer smart meters, and have therefore had to replace expired traditional meters with new traditional ones - resulting in higher costs. This is true while holding costs constant (we use the average cost for the given level of efficiency in the PPM SMNCC) and only varying the level of rollout.[20]

3.9. We therefore consider that the profile options for PPM are different to those for credit. We discuss two options:

[20] The benefit of installing a smart meter is lower for electricity than gas because a traditional electricity meter asset cost is approximately the same as for a smart meter (for gas a traditional meter is much more expensive). This means that for electricity, in the extreme case, a supplier who rolls out a large number of meters early could be the highest cost supplier (a market leader) because the benefits they incur do not offset the high smart meter installation costs. We do not think such a supplier reflects the general PPM smart meter rollout of suppliers so we consider the lowest rollout supplier here, which is more likely to be the case.

- set the PPM SMNCC allowance based on the market average PPM rollout; or
- set the PPM SMNCC allowance based on the lowest PPM rollout supplier.[21]

Proposal

3.10. We propose to use the market average PPM rollout to reflect the average net costs incurred by PPM customers for the rollout of smart meters rather than the net costs faced by the lowest rollout supplier. The market average should reflect the aggregate cost of the rollout to PPM consumers for a given level of efficient costs.

Considerations

3.11. There are a number of reasons for our proposal, which we step through in turn: customer protection, commercial decisions, and incentives.

Customer protection

3.12. The objective of the Domestic Gas and Electricity (Tariff Cap) Act ('the Act') is to protect existing and future customers on default tariffs. [22] We consider this is best achieved by reflecting the average cost to PPM customers and not using the lowest rollout supplier (highest cost) rollout profile to calculate the PPM SMNCC.

3.13. Our view is that PPM customers should pay for the average costs of the PPM rollout. The lowest rollout supplier profile would lead to customers overpaying for the PPM smart meter rollout on aggregate and paying the highest possible cost of rollout for a given definition of efficient costs. [23]

[21] We refer to a supplier who has the lowest cumulative PPM rollout as the lowest PPM rollout supplier.
[22] Domestic Gas and Electricity (Tariff Cap) Act 2018. https://www.legislation.gov.uk/ukpga/2018/21/introduction/enacted
[23] We use average costs in our SMNCC model.

Supplier commercial decisions

3.14. Generally, a supplier has control of how it rolls out smart meters. It makes commercial decisions in areas such as how best to allocate resources for the rollout and how to target customers for smart meter installs.

3.15. The decision to rollout PPM meters late is a commercial decision within a supplier's control. We do not consider it appropriate to overfund the majority of suppliers because of an individual supplier's commercial decision to not prioritise rolling out smart meters to PPM customers.

3.16. We do not believe that technical limitations are the deciding factor on why the lowest rollout supplier is significantly behind the average. This is because the variance in PPM rollout across suppliers suggests that it was possible to rollout smart meters to PPM customers earlier than the lowest rollout supplier profile.

Incentives of rollout to PPM customers

3.17. The incentives to install smart meters are set by the smart meter rollout framework set by BEIS. This framework determines the legal obligation on suppliers for their overall domestic rollout and does not differentiate between smart meters for credit and PPM customers.

3.18. We do not think that our choice between setting the PPM SMNCC allowance using the average or lowest rollout supplier profile will alter the incentive for suppliers to rollout smart meters on aggregate. If we opted to use the lowest rollout supplier profile instead of average, there is no guarantee that a supplier with lower than average PPM rollout would install more smart meters to PPM customers to catch up. Suppliers have discretion on whether to rollout smart meters first to credit or PPM customers.[24]

3.19. However, to meet its smart meter rollout obligations, a supplier will eventually have to rollout smart meters to PPM customers even if it chooses to prioritise credit customers.

[24] A supplier can meet its overall obligation by installing smart PPMs or it can install additional smart credit meters. A supplier may choose to install more smart credit meters and fewer smart PPMs to meet its obligation. The decision on whether a supplier decides to rollout PPM meters or additional credit meters to meet their obligation is within that supplier's discretion.

Therefore, we may consider the combined level of funding across PPM and credit in our spring consultation given that framework for the rollout is set for the overall domestic market.[25]

Target or tolerance rollout

3.20. Under the new framework, BEIS proposes to set individual targets for suppliers' rollout, which will be combined with a standard tolerance.

3.21. BEIS has consulted on tolerance values for the first two years of its new framework. [26] These are the years ending in June 2022 and June 2023. The cap could run until the end of 2023,[27] so we would need to make an assumption for the second half of 2023.

3.22. Our initial view is that we would assume that the implied tolerance value for the end of 2023 would be a linear extrapolation from the tolerances for the previous two years. In BEIS's proposal, the tolerance value increases by 1.5 percentage points. Our implied tolerance value for the second half of 2023 would therefore be 0.75 percentage points higher than the tolerance applied on year two of the framework (July 2022 – June 2023).

3.23. Under the target approach, the rollout profile would be a straight line connecting estimated rollout in mid-2021 with market-wide (100%) rollout in mid-2025 for modelling purposes.

3.24. Using our proposal to reflect the average cost of rolling out smart meters to PPM customers from the previous section, we now consider whether to use target or tolerance to calculate the average.

Considerations

3.25. The average target approach would result in a higher PPM SMNCC than the average tolerance. The average target would ensure that, in aggregate, customers pay for the efficient costs of delivering BEIS's policy ambition. This option would therefore align with BEIS's policy ambition at an aggregate level, supporting market-wide rollout and the benefits that smart

[25] We would only consider the combined level of funding. We do not intend to consider setting a combined SMNCC level. We would still look to reflect the aggregate costs of the rollout for PPM customers in the amount they are charged.
[26] The proposed tolerances are the same for all suppliers (4% for 2021/2022 and 5.5% for 22/23).
[27] This is dependent on the Secretary of State's decision each year on whether to extend the cap.

meters can bring overall. However, since a supplier's legal obligation is based on the tolerance, there is no guarantee that a supplier would use the additional allowance to rollout to the target.

3.26. The average tolerance option would deliver a lower PPM SMNCC than the average target option. This option would therefore provide a greater level of protection to PPM customers.

3.27. Using the average tolerance option would give an average supplier sufficient revenue to reflect the efficient costs of meeting its obligation. It would therefore ensure that PPM customers paid for the costs of delivering these obligations. At the same time, it would avoid the risk of overpayment if suppliers did not roll out any smart meters beyond their obligations.

3.28. However, in aggregate, suppliers would not be able to collect enough revenue to reflect the costs of delivering market-wide rollout (for a set level of efficiency). This option would therefore not align with BEIS's policy ambition for the smart meter framework.

3.29. We have not reached a view on which option we would use. We will continue to consider these options ahead of our spring consultation.

4. Relationship between profile and costs

Section summary

In this chapter, we present our analysis of modelled rollout and costs. We then discuss whether the average rollout profile broadly reflects the average costs of the rollout and if we should consider alternative options for setting the PPM SMNCC.

4.1. We use a rollout profile to calculate a PPM SMNCC allowance that broadly reflects a given level of modelled costs (e.g. when we use the average rollout profile, we expect to calculate an PPM SMNCC that broadly reflects the average cost of rolling out smart meters).

4.2. The cap covers PPM customers from 01 January 2021. Prior to this they were protected by the PPM cap, set by the CMA. In our analysis, we only consider the cost of rollout of smart meters to PPM customers from the point they were protected by the cap. This is the period over 2021-2023 (the years covering the remaining cap periods from cap period seven onwards).[28]

4.3. Throughout this chapter, we discuss the net costs or PPM SMNCCs of hypothetical individual suppliers. It is important to note that these are solely driven by differences in rollout profiles between suppliers rather than differences in unit costs (which we keep fixed in the model). Therefore, when we say the average rollout profile should broadly reflect the average PPM SMNCC, we mean the average of the modelled PPM SMNCCs generated by a sample of rollout profiles, all else being equal. Additionally, where we mention a rollout profile, we are referring to a PPM specific rollout profile.

Our analysis of rollout and costs

4.4. In the previous section, we proposed to allow for the average cost of the smart meter rollout to PPM customers in the PPM SMNCC by using the weighted average rollout profile to model the net smart meter rollout costs. We consider that it is appropriate to use an average

[28] The Secretary of State decides each year whether to extend the cap for an additional year up to 2023. The cap expires at the end of 2023.

rollout profile to model the PPM SMNCC allowance when it broadly reflects the cost of the smart meter rollout for PPM customers.

4.5. Our initial analysis, however, could raise questions on whether this is always the case. The analysis suggests that the PPM SMNCC allowance calculated using the weighted average rollout profile could be lower than the PPM SMNCC for a supplier who is significantly ahead of or behind the average.

4.6. This analysis is based on the data we currently have in our model and using our current assumptions. The relationship between the PPM rollout profile and modelled net costs in the PPM SMNCC may change following our review of responses to our first working paper and the data received from our data gathering exercise.

4.7. Our initial assessment suggests that the issue could be caused by the weighted average PPM rollout profile having a modelled lower cost increase/higher cost decrease over 2021-2023 relative to the 2017 benchmark compared to other rollout profiles. Our modelling suggests this is because of a decrease in traditional meter costs and an increase in operational benefits, which more than offset the continued increase in smart meter asset and installation costs.

4.8. We compare the PPM SMNCC generated by three hypothetical profiles (an early rollout, an average rollout and a late rollout) to illustrate our analysis. We explain this in more detail in Appendix 2. In summary:

- if a supplier rolls out earlier than the average, its modelled smart meter asset and installation costs could be higher than the average (over 2021-2023) because the modelled costs accumulate from a higher number of smart meter installs. In our model, the higher than average smart meter install costs outweigh the lower than average traditional meter costs and higher than average operational benefits compared to the average profile. This means the PPM SMNCC set using this rollout profile is higher than when using the average rollout profile.

- if a supplier rolls out later than the average, its modelled smart meter costs are lower than average but it has to install more traditional meters to replace those

expiring.[29] Additionally, our model suggests that there are lower operational benefits under the late profile due to the lower number of smart meters installed. The additional traditional meter costs and lower operational benefits outweigh the avoided smart meter install costs and the PPM SMNCC generated by this rollout profile is higher than the average rollout profile.

4.9. As shown above, it is possible for the PPM SMNCC generated by the average rollout profile to be lower than the PPM SMNCC generated for a hypothetical early rollout and a hypothetical late rollout according to our model. When considering these results more widely, it is possible that setting the PPM SMNCC based on the weighted average rollout profile could set a PPM SMNCC that is lower than the PPM SMNCCs generated by suppliers' individual PPM rollout profiles (when considering the rollout for the largest PPM suppliers).

Accounting for individual rollout decisions

4.10. In the previous section we describe how our initial analysis suggests that the relationship between PPM rollout and our modelling of PPM smart meter costs could be non-linear. It is possible that the weighted average rollout profile generates a PPM SMNCC allowance in the lowest cost region (holding unit costs and assumptions fixed).

4.11. Throughout this paper, we have said that we aim to set a PPM SMNCC allowance that broadly reflects the cost to PPM customers of the smart meter rollout. We could view this as a PPM SMNCC allowance reflecting the average rollout profile (as per Chapter 2) or the average modelled cost of suppliers' rollout positions (reflecting the analysis above if supported by the updated data and analysis).

4.12. Using the weighted average profile could reflect a hypothetical supplier rolling out smart meters to PPM customers in line with the PPM market rollout. This would provide a higher level of protection for customers by limiting the cost they pay for the PPM smart meter rollout relative to the average modelled supplier cost.

4.13. In general, we use average cost as our measure of efficiency in the SMNCC model. This is a less strict measure of efficiency than we use elsewhere in the cap (e.g. the operating cost

[29] In our model, we assume that where there are not enough smart meter installations to cover the number of expiring traditional meters, a supplier installs new traditional meters in their place.

allowance is based on the lower quartile minus £5). This means that there will be suppliers with lower unit costs than our average. It would therefore not be unreasonable to assume that even if we were to use the weighted average profile to set the PPM SMNCC, it is likely that there would be a number of suppliers with lower costs than the PPM SMNCC allowance.

4.14. We do not have a position on whether the weighted average rollout profile sets an appropriate level of funding for the rollout of smart meters to PPM customers. However, if it is not appropriate, we potentially need an alternative approach to using a weighted average rollout profile to set the PPM SMNCC. We consider options in the next section.

Options and discussion for setting the PPM SMNCC

4.15. We consider two options for setting the PPM SMNCC:

- using a single rollout profile; and
- taking the average of the PPM SMNCC allowances generated by using a sample of rollout profiles;

4.16. Additionally, we welcome views from stakeholders on whether we should consider other options for setting the PPM SMNCC.

Rollout profile

4.17. Our preferred option is to use a single rollout profile to calculate the PPM SMNCC. This method is in line with our proposals for the SMNCC (both PPM and credit) to date.

4.18. We would look to use a rollout profile that produces a PPM SMNCC level that broadly reflects the average cost of the smart meter rollout to PPM customers. If the weighted average rollout profile based on our sample does not achieve this, we could consider whether excluding outliers from our sample may give a more reliable result. Additionally, we could consider whether a weighted average rollout profile is the best statistical metric to model the average cost faced by PPM consumers of rolling out smart meters, rather than (for example) a median rollout profile.

4.19. The advantage of retaining our current approach is that the SMNCC model is set up to calculate the SMNCC based on a single rollout profile. Moving away from this approach could

require significant change to the model. The additional accuracy gained from moving away from a rollout profile approach may not be proportional to the level of change introduced.

Average of individual rollout profile costs

4.20. An alternative option would be to calculate the average cost based on individual modelled PPM SMNCCs of suppliers in our sample. As noted previously, in this option we are referring to the PPM SMNCCs generated by the individual rollout profiles while holding the unit costs and assumptions constant.

4.21. At a high level, to calculate the PPM SMNCC allowance in the cap based on the average of individual PPM SMNCCs, we would:

- use the rollout profile for each supplier in our sample in the SMNCC model to calculate the modelled total PPM smart costs for each supplier in each year;
- calculate the average total cost in each year across our sample of suppliers. In doing so, we would consider whether any suppliers in our sample are not reflective of a typical supplier and use a weighted average to calculate the average PPM SMNCC costs (weighting by the number of PPM customers per supplier);
- calculate the difference between our modelled estimate of total PPM smart costs in 2017 and in each year (2021-2023) to calculate the annual PPM SMNCC.

4.22. This method is based on using modelled costs generated by a sample of individual rollout profiles to calculate average costs. This could mean the PPM SMNCC more closely reflects the average cost expected to be faced by suppliers of rolling out smart meters to PPM customers. However, it would be a significant move away from our current methodology.

4.23. The PPM SMNCC in this option would rely more heavily on the costs generated by the supplier rollout profiles. The variation in rollout between suppliers means that the resulting average PPM SMNCC may be much more sensitive to changes in the sample of suppliers. For example, consolidation of suppliers is unlikely to affect the calculation of a weighted average profile and the resulting PPM SMNCC. However, it could have a considerable impact on the weighted average of individual PPM smart costs because the PPM smart costs of the consolidated supplier could have a different value and weight in calculating the weighted average PPM smart costs compared to the two suppliers before consolidation.

4.24. Additionally, by using this method, we would add complexity to the methodology. It is likely we would have to run multiple auxiliary SMNCC models to calculate the modelled smart PPM costs for each rollout profile in our sample. We would then need an additional model to take the average of those modelled costs, calculate the PPM SMNCC and apply any adjustments.

4.25. Furthermore, using the average of individual PPM SMNCCs would limit our ability to break down the overall PPM SMNCC allowance into the cost categories as we have done in previous consultations. The allowance would be an average of multiple PPM SMNCCs and would not have its own cost item breakdown. This will make it difficult to explain overall cost trends through changes in the underlying costs.

Other views

4.26. We are interested in stakeholders' feedback to the options set out in this chapter and any views on any additional methods we should consider for our spring consultation. We are particularly interested in ideas that could simplify the methodology while still protecting customers.

Appendices

Index

Appendix 1 – Setting the rollout profile

1.1. A rollout profile is an integral input for calculating the PPM SMNCC. It determines the level of smart meter installations in each year of the time period covered by the PPM SMNCC. This drives the main costs and benefits in the model (e.g. in-premise costs and operational benefits).

1.2. In this appendix, we describe how we intend to calculate the historic element of the rollout profile and how we would forecast future rollout under the new framework.

Calculating historical rollout (2011 – end 2020)

1.3. To calculate the historical rollout, we use suppliers' customer number data where possible. We currently have supplier data on smart and traditional customer numbers collected by BEIS through the Smart Meters Annual Information Request (SMAIR).[30] The data includes customer numbers for 2017-2019 split by PPM and credit for large suppliers.[31] We will update this with 2020 data when it becomes available.

1.4. When discussing our calculations of the rollout profile below, we use the terms meter and smart meter generally. In this context, we are discussing PPM meters and smart meters in PPM mode specifically.

1.5. To calculate the rollout over 2016-2019, we take the number of smart meters as a proportion of all meters.[32] This gives us the smart meter coverage for each year. We calculate this for each supplier in our sample. To calculate the weighted average, we take the total smart meters across suppliers divided by the total number of meters across suppliers in our sample. This gives us the base starting point for the rollout profile.

1.6. We do not currently have rollout data for 2011-2015 split out between credit and PPM. Therefore, we currently use a modelled approach to calculate the rollout in 2011-2015. Our model is less sensitive to rollout in these years because we baseline the PPM SMNCC from

[30] This was formally the Annual Supplier Returns (ASR) data request. BEIS have recently merged their data gathering exercises into the Smart Meter Annual Information Request.
[31] Those classified as Large Energy Suppliers for the purpose of smart meter reporting.
[32] For the end of year 2016 snapshot, we use the difference between end of year 2017 snapshot and the 2017 midpoint to calculate what rollout was at the end of 2016.

2017 (at which point all previous cumulative rollout is captured in suppliers' data). Additionally, we suspect there is little smart meter rollout over 2011-2015 for PPM customers.

Forecasting future rollout under the new framework

1.7. In Chapter 3, we discuss two options for setting rollout in the PPM SMNCC under the new framework - the average rollout and the lowest PPM rollout supplier. We outline how we would calculate the rollout profiles for these two options below.

Average

1.8. We would calculate an average rollout profile in the same way as we do at present for the credit SMNCC. We would use a weighted average of suppliers' rollout data for the historic periods. Using the weighted average historic rollout as a starting point, we would forecast the weighted average rollout for the remainder of the current 'all reasonable steps' framework based on the options set out in Chapter 2. We would then set a linear rollout trajectory from the end of the current framework to the end of the new framework (mid-2021 to mid-2025) based on the options set out in this Chapter 3.

1.9. We would calculate the weighted average rollout profile[33] for the historic periods based on larger suppliers who submit data to BEIS.[34] We would not use data for the smaller suppliers in the market who do not submit data to BEIS. These suppliers have installed few smart meters, and so would pull down the average, making it less representative of the rollout profile for suppliers who serve most of the market.

Lowest rollout supplier

1.10. To set the lowest rollout supplier profile, we would start with each suppliers' historic rollout position. We would forecast future rollout for each supplier using the same basic approach as outlined above, except looking at individual suppliers rather than averages (model rollout under the 'all reasonable steps' framework based on the options in Chapter 2 and the new framework based on the options in Chapter 3).

[33] We would use a weighted average, rather than a simple average, so that this reflects the average impact on customers.
[34] Those classified as Large Energy Suppliers for the purpose of smart meter reporting.

1.11. We would use the supplier rollout profile that produces the highest cumulative PPM SMNCC over 2021-2023 (the period from which PPM customers are covered by the default tariff cap to the potential end of the cap).[35] We would not set a different rollout profile for each cap period. If we did, we would risk overfunding suppliers (including the lowest rollout supplier), and not protecting customers.

1.12. We would use a smaller sample of suppliers that represent the majority of the PPM market to determine who the lowest rollout supplier is. This is different to the sample of suppliers we would use to calculate the average. As stated in the first option, the average would be based on larger suppliers who submit data to BEIS. This includes suppliers who have few PPM customers and therefore little weight in calculating a weighted average but may individually have a high PPM SMNCC. For the lowest rollout, we would consider excluding any suppliers who are not representative of the overall PPM market from our sample (even if they are large suppliers) because their modelled costs may overstate the costs of the PPM rollout and increase the risk of overcharging PPM customers.

[35] The Secretary of State decides each year whether to extend the cap for an additional year up to 2023. The cap expires at the end of 2023.

Appendix 2 – Analysis of rollout and costs in the PPM SMNCC

1.13. To calculate the PPM SMNCC, we model the costs and benefits of the smart meter rollout for PPM customers. Our calculations are underpinned by the modelling assumptions we make for each cost and benefit (e.g. the asset life and amortisation periods of meters), the level of cost we assume (e.g. the cost of a smart meter asset and installation) and the rate at which smart meters are installed (the rollout profile). To note, we published a working paper in November 2020, outlining where we thought costs and assumptions differed for PPM compared to credit and where changes were required.[36]

1.14. The majority of costs and benefits in the PPM SMNCC vary with the number of smart meters installed. Costs and benefits can be in-year or cumulative. For example, the cost of a smart meter installation is amortised over time, this means that the cost of an installation is not only captured in the year it is installed but also in the years following. Some costs (e.g. a premature replacement charge) are incurred in year and do not accrue over time.

1.15. The rollout profile drives the number of smart installations each year, which in turn drives the level of our modelled PPM smart metering net costs. The main costs and benefits affected by the rollout are:

- smart meter asset and installation costs;
- traditional meter costs; and
- operational benefits.

1.16. We discuss each of these in turn below.

1.17. Smart meter asset and installation costs are the costs of installing smart meters (including the cost of the physical meter). These costs are mostly cumulative because we amortise them over time. However, the exception is In-Home-device (IHD) costs, which are

[36] Ofgem (2020), Setting the PPM smart meter cost allowance in the default tariff cap – working paper https://www.ofgem.gov.uk/system/files/docs/2020/11/setting_the_ppm_smart_allownance_in_the_default_tariff_cap_-_working_paper_final_publication.pdf

expensed in year. Generally, a higher rollout position will lead to higher smart meter installation costs.

1.18. Traditional meter costs are the costs of installing traditional PPM meters (including the cost of the asset). Generally, when there are not enough smart meters installed to meet the number of expiring meters in a given year, we assume and model that traditional meters are installed instead. The traditional meter costs consist of:

- The cost of installing traditional meters (including the cost of the physical meter). These costs are amortised over time and therefore accumulate with more traditional meter installations.

- Premature replacement charge (PRC) – the cost incurred when a traditional meter is replaced within its contract period. The PRCs vary based on the age of the meter – newer meters will have higher PRCs. We assume the smart meter installs above the number needed to cover the expiring traditional meters incur a PRC. These are in-year costs and therefore do not affect costs in future years.

- Avoided meter rental charges. This benefit captures the accumulated meter rental charges a supplier would have had to pay for a meter that was prematurely replaced. This benefit is captured in each year from when the traditional meter is replaced to the modelled remaining length of contract.

1.19. Direct operational benefits, a per smart meter operational benefit. The total benefits increase as more smart meters are installed.

1.20. The level of the PPM SMNCC depends on the interaction between these costs and benefits that are largely driven by the rollout profile.

1.21. To calculate a PPM SMNCC allowance that reflects the average cost of the smart meter rollout for PPM customers, we are in favour of using the weighted average rollout profile. However, this relies on the PPM SMNCC allowance generated by the weighted average rollout profile broadly estimating the average cost of rolling out smart meters to PPM customers over 2021-2023.

1.22. In this appendix, we present our analysis on the relationship between rollout and costs to show how the average rollout could reflect average costs. We present this analysis using hypothetical rollout profiles to make the analysis more accessible to stakeholders without

having to disclose confidential data on rollout. We do not show the value of modelled costs because it is not important. Instead, we show the relative position of the profiles and the change over time.

1.23. The rollout profile is important for estimating not only the costs in a given year but also the costs captured in the 2017 operating cost baseline. The PPM rollout varies across suppliers in our sample. The modelled PPM costs generated by these individual rollout profiles will also vary across the years.

Hypothetical rollout profiles

1.24. Table A2.1 shows the smart meter coverage for three hypothetical PPM rollout profiles. We consider PPM SMNCC levels generated by three distinct rollout profiles:

- Average rollout profile – this rollout profile reflects a hypothetical rollout starting in 2016 and rolling out 10% of smart meters each year to reach 100% in 2025. This linear rollout leads to 80% rollout in 2023. This broadly reflects our estimate of the weighted average profile.

- Early rollout profile – a hypothetical rollout profile reflecting an earlier rollout and in greater number than the average. The profile has a much higher starting point (we arbitrarily use 85%) because most of their smart meters have been rolled out before 2016. We then set a linear rollout of 3% each year, which reaches 100% rollout by the end of 2021 (the following years reflect 100% rollout because the percentage rollout cannot exceed 100%). The profile has greater overall rollout than the average but less in year rollout.

- Late rollout profile – a hypothetical rollout profile reflecting rolling out meters later than the average profile. We set a rollout profile for which rollout starts after 2017 at a slower pace of 3% per year until the end of 2020. From 2021 onwards, we set the profile to speed up rollout in order to meet the target of 100% rollout by 2025.

Table A2.1 – Hypothetical rollout profiles.

Rollout	2016	2017	2018	2019	2020	2021	2022	2023
Early	85%	88%	91%	94%	97%	100%	100%	100%
Average	10%	20%	30%	40%	50%	60%	70%	80%
Late	0%	0%	3%	6%	9%	27%	45%	64%

1.25. To note, we only change the rollout profile when calculating these hypothetical PPM SMNCC allowances. The unit costs and assumptions are identical between each rollout profile.

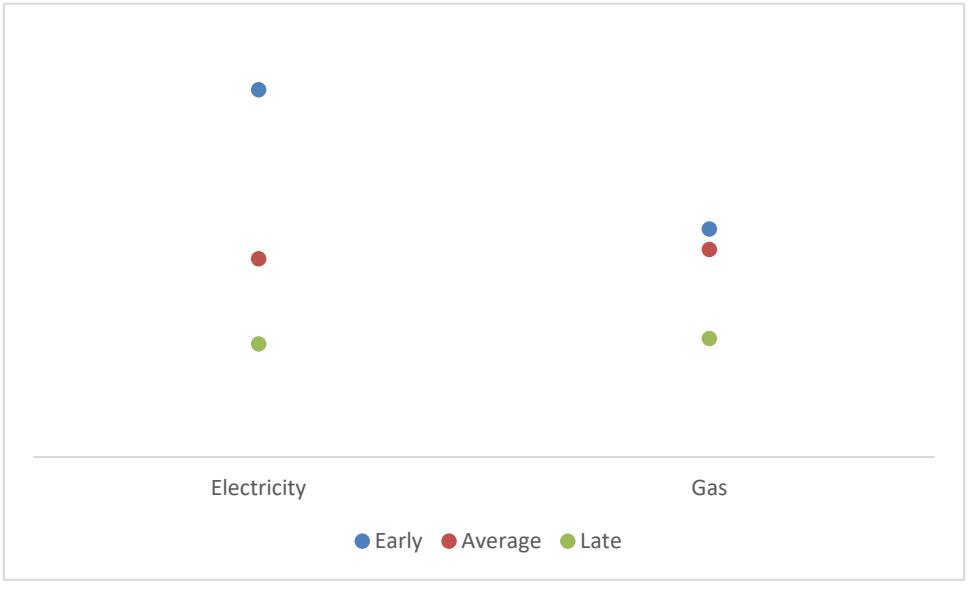
1.26. The rollout profile is important for estimating not only the costs in a given year but also the costs captured in the 2017 operating cost baseline. The PPM rollout varies across suppliers in our sample. The modelled PPM costs generated by these individual rollout profiles will also vary across the years.

Total costs in 2017

1.27. The PPM SMNCC measures the change in smart meter costs. It is calculated as the difference between the modelled costs in a given year and 2017.

1.28. The hypothetical rollout profiles have different rollout positions in 2017 and this will impact the level of costs the PPM SMNCC models for the 2017 baseline. We show the relative positions of 2017 costs for the three profiles in graph A2.1.

Graph A2.1 – Hypothetical net PPM smart metering costs in 2017



1.29. The ordering of costs between the three profiles is the same for both gas and electricity. However, the spread is different. The difference in spread is driven by differences in unit costs between electricity and gas.

1.30. For the early rollout profile, the modelled costs are higher than the average rollout profile. The smart meter installation costs are much higher for the early rollout profile as more smart meters have been installed (these are amortised and accumulate over time). The traditional costs are lower and the operational benefits are higher for the early rollout profile, but these are not enough to offset the high smart meter installation costs.

1.31. The opposite is true for the late rollout profile. Compared to the average rollout profile, the smart meter installation costs are low because there has been no rollout. The traditional costs are around the same because while the late rollout profile has lower traditional meter asset and install costs, but the average rollout profile has higher PRCs – these offset each other. The operational benefits are lower for the late rollout profile but this does not offset the lower smart meter install costs.

1.32. These trends are consistent between gas and electricity. However, for the early rollout profile, the traditional costs are much lower than the average rollout profile for gas than they are for electricity. This closes the gap between the early and average rollout profile for gas compared to electricity.

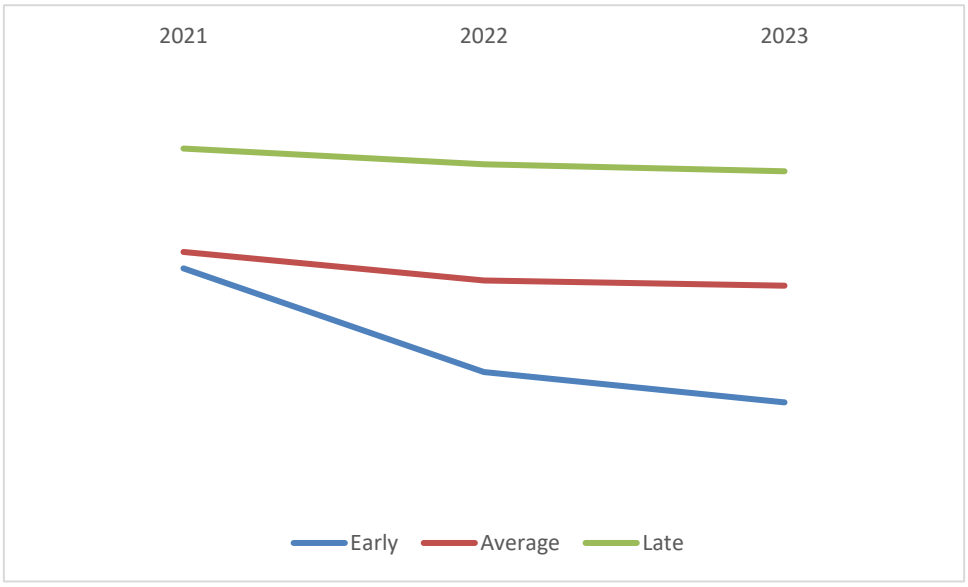
1.33. In the next section, we explore the hypothetical PPM SMNCC allowances over 2021-2023 generated by the rollout profiles.

Hypothetical PPM SMNCC levels – differing 2017 baselines

1.34. Graphs A2.2 and A2.3 show the hypothetical PPM SMNCC levels generated by the rollout profiles. These graphs show the incremental cost of rollout compared to the estimate of costs for that rollout profile in 2017.

Electricity

Graph A2.2 – Hypothetical electricity PPM SMNCC – differing 2017 baseline



1.35. The ordering of the PPM SMNCCs is different to the costs in the 2017 baseline. The PPM SMNCC is lower for the early rollout profile than both the average and late profiles, this reflects a larger decrease in costs over 2021-2023 relative to 2017 than for both of the other profiles.

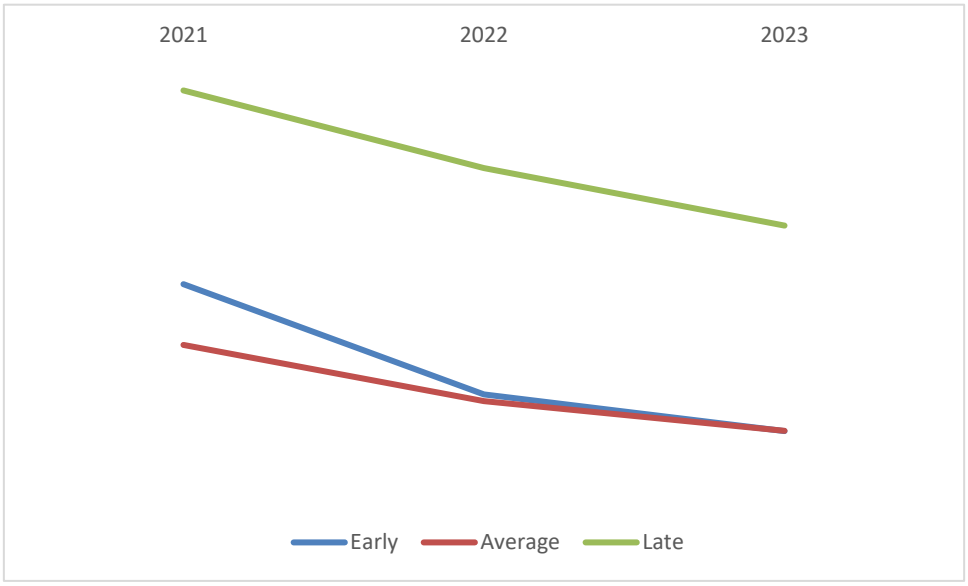
1.36. The average rollout profile generates a PPM SMNCC that is decreasing over time. The modelled net smart meter costs in 2021-2023 are lower than they were in 2017. The smart meter install costs are increasing over time. This reflects continued smart meter installations causing a higher cumulative cost. The traditional meter costs decrease over 2021-2023 relative to 2017. The operational benefits increase over time as smart meter installations increase.

1.37. The smart meter asset and install costs increase by less for the early rollout profile than the average rollout profile. This reflects a lower increase in installations in each year and a much higher level of cost in 2017 baseline for the early rollout profile because rollout is near completion in 2017 (85%). The traditional costs decrease less than the average rollout profile because there are less traditional costs captured in both the 2017 baseline and over 2021-2023. The operational benefits increase by less than the average rollout profile because there is a lower increase in smart meters over the period and the majority of the operational benefits are captured in the 2017 baseline.

1.38. For the late rollout profile, the modelled costs increase relative to the 2017 baseline. The PPM SMNCC is higher than the average rollout profile. The increase in smart meter installation and assets costs relative to 2017 is much higher for the late rollout profile than for the average rollout profile. This reflects the increase in speed and number of installations following 2020 and no smart meter install costs captured in the 2017 baseline. The operational benefits increase by less than the average rollout profile because the increase in smart meter installations is lower for the late profile.

Gas

Graph A2.3 Hypothetical gas PPM SMNCC – differing 2017 baseline



1.39. There are some clear differences between the gas and electricity PPM SMNCC. The ordering between the early and average rollout profiles is the opposite in 2021 for gas and the allowances converge over 2022 and 2023 rather than diverge (as we see in electricity).

1.40. The trends in modelled costs for the average rollout profile are the same average rollout profile as those outlined for electricity. The scale of the trends differs based on differences in unit costs and assumptions between gas and electricity. For example, the decrease in traditional meter costs is much higher for gas than for electricity because there is a larger difference between the cost of a smart meter asset and a traditional PPM meter asset for gas.

1.41. For the early rollout profile, there is a similar decrease over 2021-2023 relative to 2017 compared to the average rollout profile. In comparison, smart meter asset and installation costs increase by less because there are fewer smart meters installations required. However, there is a lower decrease in traditional costs as there are no traditional installs in the 2017

baseline or future years. Additionally, the operational benefits increase by less for the early rollout profile because more of the benefits are captured in 2017 and there are less smart meter installs over 2021-2023.

1.42. For the late rollout profile, the costs decrease over 2021-2023 by less than the other two rollout profiles. This largely reflects traditional meter costs decreasing by much less than the average rollout profile. There is an increase in PRCs compared to a decrease for the average rollout profile and the traditional meter asset and install costs decrease by less.

1.43. Overall, across the fuels, the trend is what we would expect. The average rollout profile broadly sits between the late and early rollout profiles (though for gas it is comparable to the early rollout profile because of the differences in unit costs between gas and electricity).

1.44. For this part of the analysis, we have calculated the hypothetical PPM SMNCC using each rollout profile's own estimate of the 2017 baseline. However, when setting the allowance, the purpose of estimating costs in 2017 is to reflect the level of smart metering costs in the operating cost allowance. This level should not change across the analysis of different rollout profiles. In the next section, we compare the hypothetical PPM SMNCCs of the different rollout profiles when using the 2017 costs generated by the average rollout profile as the common 2017 baseline.

Hypothetical PPM SMNCC profile – common 2017 baseline

1.45. In 2017, the late rollout profile has the lowest modelled costs and the early rollout profile has the highest modelled costs. Moving the baseline point for these two rollout profiles changes the comparison point for calculating the change in costs over 2021-2023 relative to 2017. As the 2017 baseline point is now the same across the rollout profiles, what matters is their comparative total costs in 2021-2023.

1.46. The early rollout profile has higher modelled costs over 2021-2023 compared to the average rollout profile. This mainly consists of high smart meter asset and installation costs from a high level of smart meter installations over the prior years. The high costs persist over time because the smart meter asset and installation costs are amortised across the period. While our model suggests the traditional meter costs are lower and the operational benefits are higher for the early rollout profile in 2021-2023 when compared to the average rollout profile, this is not enough to offset the high smart meter asset and installation costs.

1.47. The late rollout profile also produces higher modelled costs over 2021-2023 compared to the average rollout profile. The ordering of costs is different to 2017 where the late rollout profile has the lowest modelled costs. The ordering between the late and average rollout profile changes because in 2021-2023, the late rollout profile has higher traditional meter costs and lower operational benefits compared to the average rollout profile. This offsets the lower smart meter installation costs, which are consistently lower than the average rollout profile because of fewer smart meter installations.

1.48. Overall, using a common 2017 baseline modelled by the average rollout profile moves the hypothetical PPM SMNCCs such that the PPM SMNCC calculated using the average rollout profile is lower than the PPM SMNCC calculated using both the early and late rollout profile. This means the average PPM SMNCC could be lower (over 2021-2023) than the costs incurred by a supplier rolling out meters later than average and earlier than average (for a given level of efficiency).

Appendix 3 – Privacy notice on consultations

Personal data

The following explains your rights and gives you the information you are entitled to under the UK General Data Protection Regulation (UK 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 UK GDPR makes provision for Ofgem to process personal data as necessary for the effective performance of a task carried out in the public interest. i.e. 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

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.

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