Department for
Business, Energy
& Industrial Strategy

Smart Meter Policy Framework Post 2020:

Minimum Annual Targets and Reporting Thresholds for Energy Suppliers

Annex A: Impact Assessment

November 2020

Contents

Summary: Interventions and Options

Title: Post-2020 smart meter rollout **IA No:** BEIS016(C)-19-SMIP **Lead department or agency:** Department for Business, Energy and Industrial Strategy **Other departments or agencies:** None	Impact Assessment (IA) **Date: 23/11/2020** **Stage: Development/Options** **Source of intervention: Domestic** **Type of measure: Secondary legislation** **Contact:** smartmetering@beis.gov.uk
Summary: Intervention and Options	RPC Opinion: Awaiting Scrutiny

Cost of Preferred (or more likely) Option (in 2019 prices, 2020 present value)			
Total Net Present Social Value	**Business Net Present Value**	**Net direct cost to business per year**	**Business Impact Target Status**
£1,235m	£222m	£8m	Qualifying provision

What is the problem under consideration? Why is government intervention necessary?

This intervention is designed to drive the consistent, long-term investment needed to achieve high levels of smart meter coverage by setting annual targets and providing regulatory certainty[1]. Under the current smart meter regulatory framework, energy suppliers have an obligation to take "all reasonable steps" to install smart meters in all premises by the end of June 2021. This is expected to deliver 47.2% coverage equating to c.26 million smart meter installations and build a strong foundation for an enduring smart energy system. To achieve this ambition smart meter installations will need to continue beyond June 2021. Government therefore recognises that industry needs clarity and certainty on the smart meter policy landscape post June 2021 in order to drive further investment to ensure that the programme maintains its momentum beyond this date and reaches the remaining GB population. This will ensure delivery of the programme's primary objective, in line with recent NAO recommendations and Government commitments.

What are the policy objectives and the intended effects?

We have identified four key design principles for the policy framework beyond June 2021:

- To encourage consumers to benefit from the rollout of smart meters, including how to use the data from their smart meters;
- To deliver a market-wide rollout of smart meters as soon as possible, that ensures value for money and maintains installation quality so that consumers can derive maximum benefit and have a good experience;
- To normalise smart meters so they are the default meter used in Great Britain; and
- To give certainty to the whole sector to invest and plan, ahead of and beyond June 2021

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

The following options have been considered:

1) Do Nothing: This is the counterfactual scenario without additional regulation. In this case, energy suppliers would only be required to take all reasonable steps to install smart meters on new metering points and for meter replacements, which would deliver substantially lower smart meter coverage.
2) Preferred option: The preferred option establishes annual targets during a period of four years (from 1 July 2021 to 30 June 2025) for each energy supplier, based on a straight-line delivery trajectory towards the overall ambition of market-wide rollout with 'tolerance values' to account for circumstances where smart meters cannot be installed. At this stage, only the targets and tolerance values for the first two years of the framework (i.e. starting 1 July 2021 and 1 July 2022) will be implemented with a review planned in 2022 to set the tolerances for the final two years of the Framework.

Will the policy be reviewed? It **will** be reviewed. **If applicable, set review date:** **During 2022**

Does implementation go beyond minimum EU requirements?		Yes		
Is this measure likely to impact on trade and investment?		No		
Are any of these organisations in scope?	**Micro** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)		**Traded:** -1.2	**Non-traded:** -3.1	

Signed by the responsible Minister:Lord Callanan Date: 18/11/2020

[1] https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020

Summary: Analysis and Evidence

Description: Main policy scenario – linear targets towards market-wide smart meter coverage by 30 June 2023

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2019	Time Period Years 14	Net Benefit (Present Value (PV)) (£m)		
			Low: 725	**High: 1,129**	**Best Estimate: 1,018**

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	0	One-off	68	**735**
High	1		99	**1,083**
Best Estimate	1		90	**982**

Description and scale of key monetised costs by 'main affected groups'
The majority of these costs are incurred by energy suppliers for (a) the purchase of metering assets (smart meters, in-home displays, and communications hubs); and (b) the installation of these meters. Combined these areas make up around 40% of the total cost. Other costs include operational and maintenance costs, supplier IT costs, pavement reading inefficiencies and disposal costs, which are all incurred by suppliers. These costs are likely to be passed through to consumers eventually through impacts on energy bills.

Other key non-monetised costs by 'main affected groups'
While we have monetised the time cost to consumers resulting from the typical duration of an installation visit (around two hours to complete), consumers will also incur a non-monetised opportunity cost relating to the time that they may stay at home prior to and following this installation visit.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	0	One-off	142	**1,460**
High	0		215	**2,212**
Best Estimate	0		194	**2,000**

Description and scale of key monetised benefits by 'main affected groups'
Consumers will benefit directly through energy savings that smart meters enable them to realise. This makes up around a third of the total benefits. Most of the remaining benefits are to energy suppliers, including avoided site visits (e.g. for meter reading), reduced customer service enquiries, and lower costs to serve prepayment customers. We expect these savings to be passed on to consumers through lower bills. There are also environmental benefits from reduced energy usage and benefits to electricity network operators through improved fault detection and better-informed investment decisions.

Other key non-monetised benefits by 'main affected groups'
Smart meters are a vital upgrade to our national energy infrastructure and are central to a smarter, more flexible, and more resilient energy system. They will enable suppliers to offer innovative new tariffs, including smart tariffs which charge consumers different prices for electricity at different times of the day. Empowering consumers to shift their electricity use away from peak times will be critical to the future of our energy system, reducing the need for costly network reinforcement and investment in additional peak generation.

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5%

This Impact Assessment is based on the latest Cost-Benefit Analysis model for the smart meter rollout, which was published in September 2019[2]. The recency and comprehensive nature of that assessment gives confidence that it remains suitable for the purposes of this impact assessment. COVID-19 presents another risk on the level of installations that can be achieved.

BUSINESS ASSESSMENT (Option 1) – calculated in 2019 prices, 2020 present values as per the BIT calculator

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 99	**Benefits:** 91	**Net:** 8	BIT score of 39

[2] https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019

Evidence Base

Background

Problem under consideration

1. Smart meters are replacing traditional gas and electricity meters across Great Britain as part of a vital national infrastructure upgrade that will digitise our energy system. Smart meters will make our energy system more efficient and flexible, enabling us to use more renewable energy more cost effectively and reduce our reliance on fossil fuels. This will cut costs for consumers and help us achieve net zero carbon emissions by 2050.

2. Smart meters offer a range of intelligent functions and provide consumers with more accurate information, bringing an end to estimated billing. The half-hourly consumption and price data recorded by smart meters enables innovative tariffs that reward consumers for reducing their energy use, as well as using energy away from peak times or when there is excess clean electricity available.

3. Energy suppliers are currently under a legal obligation to take "all reasonable steps" to install smart meters in all domestic and smaller non-domestic consumers' premises by the end of June 2021. The programme has been an important contributor to the national economy supporting around 15,000 jobs across Great Britain with over 99% of the funding coming from the private sector and annual investment running at c.£1bn. This obligation has delivered huge investment across the energy sector to design and deliver a national interoperable metering infrastructure. Millions of people across Great Britain are already benefitting from smart meters, and many more are expected to do so before the end of June 2021. This framework is seeking to continue this beyond June 2021.

Rationale for intervention

4. As described above, smart meters deliver significant benefits to consumers and the energy system. The market-wide rollout of smart meters will also be necessary to help maximise the benefits of half hourly settlement, which Ofgem is considering in respect of domestic and smaller non-domestic consumer segments[3] (larger non-domestic consumers are already subject to half-hourly settlement) and to create a flexible energy system, thus enabling the effective delivery of net zero by 2050. The Committee on Climate Change report[4] suggested that without a flexible energy system the cost of achieving net zero will increase by £16bn per annum so rolling out smart meters as soon as possible is an important requirement. Government intervened in ensuring the roll out for Smart Meters due to a range of barriers to take up – these are set out in the 2019 Smart Meter Roll Out: cost-benefit analysis[5].

5. The existing obligation to take "all reasonable steps" to install smart meters in all premises is due to expire on 30 June 2021. After this date, the New and Replacement Obligation (NRO) [6] means that energy suppliers will be required to only install smart meters at new metering points and for meter replacements (subject to all reasonable steps). If smart meters were only installed for new and replacement situations, this would lead to a substantial slowdown in the current smart meter installation rate. Any installations beyond this minimum would be optional, meaning that we could

[3] https://www.ofgem.gov.uk/electricity/retail-market/market-review-and-reform/smarter-markets-programme/electricity-settlement-reform
[4] Net Zero Technical Report May 2019
[5] https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019
[6] https://smartenergycodecompany.co.uk/latest-news/government-response-to-january-2019-consultation-on-the-new-and-replacement-obligation-nro-activation-date/

not be confident that the momentum of the rollout would be maintained beyond the end of June 2021. This would delay the point at which a market-wide smart meter rollout is reached, putting at risk the delivery of the benefits of a smarter energy system to energy consumers, industry and society as a whole.

6. Given the importance of providing industry with early clarity and certainty on the policy landscape post 2020 (in order to enable energy suppliers to adequately plan for the delivery that will be required), the Energy Minister confirmed at the BEIS Select Committee in January 2019 that Government would provide clarity during 2019 on its plans for future smart meter rollout obligations. In September 2019, we consulted on proposals which indicated our expectation that energy suppliers should continue rolling out smart meters on the basis of binding annual targets during 2021 and beyond. In June 2020, the Government confirmed that from 1 July 2021 a new four-year policy framework will be implemented with fixed annual installation targets for energy suppliers that will drive continued investment and support the cost-effective delivery of net zero and our clean economic recovery. In this Government response we also confirmed an extension of the existing all reasonable steps obligation that was due to expire on 31 December 2020 by six months to 30 June 2021. This was to take account of the short-term uncertainty caused by COVID-19 and enable energy suppliers to return to installing smart meters at volume prior to the new Framework taking effect.

7. In formulating our revised policy framework, we considered the responses provided by stakeholders across the industry and consumer advocacy organisations, and took account of their views to design a framework that balances achievability and ambition in order to stimulate the investment needed to deliver a market-wide roll out of smart meters across Great Britain.

Policy objective

8. Through engagement with energy suppliers, Ofgem, and Citizens Advice, we have identified four key design principles for the policy framework beyond 30 June 2021:

    - To encourage consumers to benefit from the rollout of smart meters, including how to use the data from their smart meters;
    - To deliver a market-wide rollout of smart meters as soon as possible, that ensures value for money and maintains installation quality so that consumers can derive maximum benefit and have a good experience;
    - To normalise smart meters so they are the default meter used in Great Britain; and
    - To give certainty to the whole sector to invest and plan, ahead of and beyond 30 June 2021.

Description of options considered

9. This Impact Assessment considers the costs and benefits likely to arise under the policy framework for the post-June 2021 period[7], compared against a status quo counterfactual scenario. The Government response document published in June 2020[8] confirmed the policy approach, having considered different options.

Status quo counterfactual scenario

10. In this Impact Assessment, we compare the policy framework against the status quo counterfactual scenario. This is the scenario that we expect to prevail if no additional regulation is implemented. Under the status quo, the only obligation that would apply to energy suppliers' installation of smart meters from 1 July 2021 is the NRO. This requires that energy suppliers must (subject to all reasonable steps) install smart meters in all new metering points and where meters require

[7] This Impact Assessment provides sufficient detail of this framework to enable understanding of the analysis that has been conducted. For full details of the framework, the rationale behind its development, and the implementation plan, please consult the main Government Response document and annexes.
[8] https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020

replacement. The status quo counterfactual scenario thus assumes that only these installations take place post June 2021[9], resulting in a substantially lower level of smart meter coverage.

Policy framework

11. Our policy option is to:

    a) **specify targets for the number of smart meter installations that each energy supplier will be required to make in each year** for the first two years of the new four-year regulatory framework. This will specify targets for the two years covered by the period from 1 July 2021 to 30 June 2023. These targets will be based on the linear profile, from each energy supplier's known percentage coverage at the end of June 2021 (or the end of June in each subsequent year), to the end of the framework period at the end of June 2025 (and towards market-wide coverage).

    b) **set tolerance levels for delivery of these targets** such that energy suppliers would have to meet these installation targets within a tolerance allowance, which would ensure that suitably high coverage levels are achieved while also accounting for challenges which might limit energy suppliers' ability to deliver the required smart meter coverage.

12. A straight-line trajectory to market-wide rollout is considered a reasonable approach but we recognise uncertainty in the assumptions underpinning the projections. In our modelling we have made prudent assumptions about the rate meters could be rolled out to reflect any barriers to deployment. We have therefore used these to set a reasonable floor that we consider is justifiable, but we have good reason to believe that the market would exceed this minimum (for instance as a result of increased technical eligibility, improved supplier operational performance and improvements in customer attitudes). The tolerances have been calculated based on the difference between the straight-line trajectory to 100% at the end of June 2025 and the trajectory defined by the central scenario from a starting point on 1 July 2021 (when the new policy framework commences). Under the new framework, the straight line to 100% is redrawn at the end of the first year (assuming the projected value in the central scenario is achieved in the first year) and the difference to the central scenario is used to recalculate the tolerance for the second year. Based on this, the resulting tolerances proposed are 4.0% in the first year and 5.5% in the second year[10]. This approach is illustrated for two example energy suppliers in Graph 1 below. Further details on how these tolerances were calculated are included in Annex B of the consultation document.

13. The choice of the four-year monitoring framework period from June 2021 to June 2025 was confirmed in the June 2020 government response[11] based on a combination of factors, including the level and timeliness of smart meter coverage needed to support a smart energy system and contribute towards the Government's net zero objective and following an analysis of energy suppliers' existing installation rates and the impact that a variety of factors might be expected to have on these going forward.

14. To ensure that targets continue to be proportionate and appropriate to drive a market-wide rollout the June 2020 Government response confirmed that we will undertake a mid-point review. We expect that the targets and tolerance values for the third and fourth years of the framework period (i.e. starting 1 July 2023 and 1 July 2024 respectively) will be consulted upon during the second year of the framework (July 2022 – June 2023), following the outcome of this review. This approach

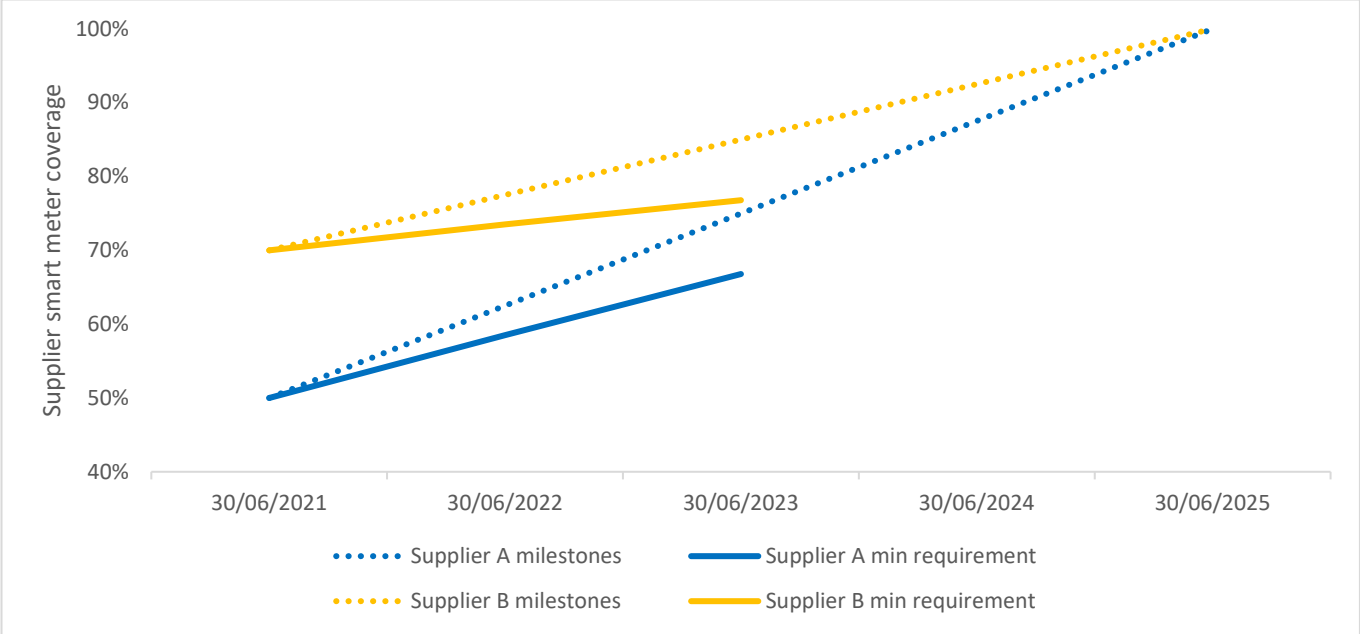
[9] Whilst the technology had been available for several years prior to Government intervention, very few smart meters had been rolled out to domestic customers prior to the announcement of the existing mandate. Furthermore, in a deregulated and competitive supply market such as Great Britain, there is reduced commercial incentive for energy suppliers to voluntarily install smart meters due to the high risk of losing a major part of their value if consumers switch to a different energy supplier. Any smart meter installations taking place above those required under the NRO would therefore be expected to be in small numbers only and these would be highly uncertain. For simplicity, therefore, we do not attempt to estimate these numbers.

[10] In practice, the targets will be reassessed at the start of each year to account for meters gained and lost on churn. Each reassessment will be based on the same principle as illustrated in Graph 1 – namely targets will be set based on the linear coverage profiles required towards market-wide coverage by the end of June 2025 with a specific tolerance allowance, which we have defined for the first two years.

[11] https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020

enables consideration of the impact of ongoing improvements in operational fulfilment and technical eligibility, whilst also taking into account any new policy incentives introduced to support consumer engagement and the most up to date data available at the time.

Graph 1: Illustration of bespoke targets and minimum requirements for each energy supplier – the minimum requirements for the final two years are not shown as they will be decided following the review during the second year of the framework (July 2022 – June 2023).



15. Because only the targets and tolerance allowances for the first two years of the framework (i.e. starting 1 July 2021 and 1 July 2022) will be implemented into the regulatory requirements on energy suppliers at this stage, this Impact Assessment considers only the impact that these two years of new regulation would be expected to deliver. A new Impact Assessment will be produced on the proposals for the third and fourth years (i.e. starting 1 July 2023 and 1 July 2024) as part of the planned review process.

Cost-benefit analysis

16. In order to estimate the costs and benefits of the policy framework, we have produced projections of the levels of smart meter coverage expected under the framework and in the absence of any additional regulation (the NRO counterfactual). To evaluate the impact that these differences in rollout rate would have on the overall costs and benefits of smart metering, we then use the methodology and values for quantifying costs and benefits from the 2019 Smart Metering Cost-Benefit Analysis[12]. This is the most comprehensive view on the cost and benefits of smart meters so gives us the best view of the impact of this policy.

Calculation methodology

17. Full details of the modelling approach are explained in the analytical annex; however, an overview of the modelling is explained below. Figure 1 illustrates how the forecasting model works, where:

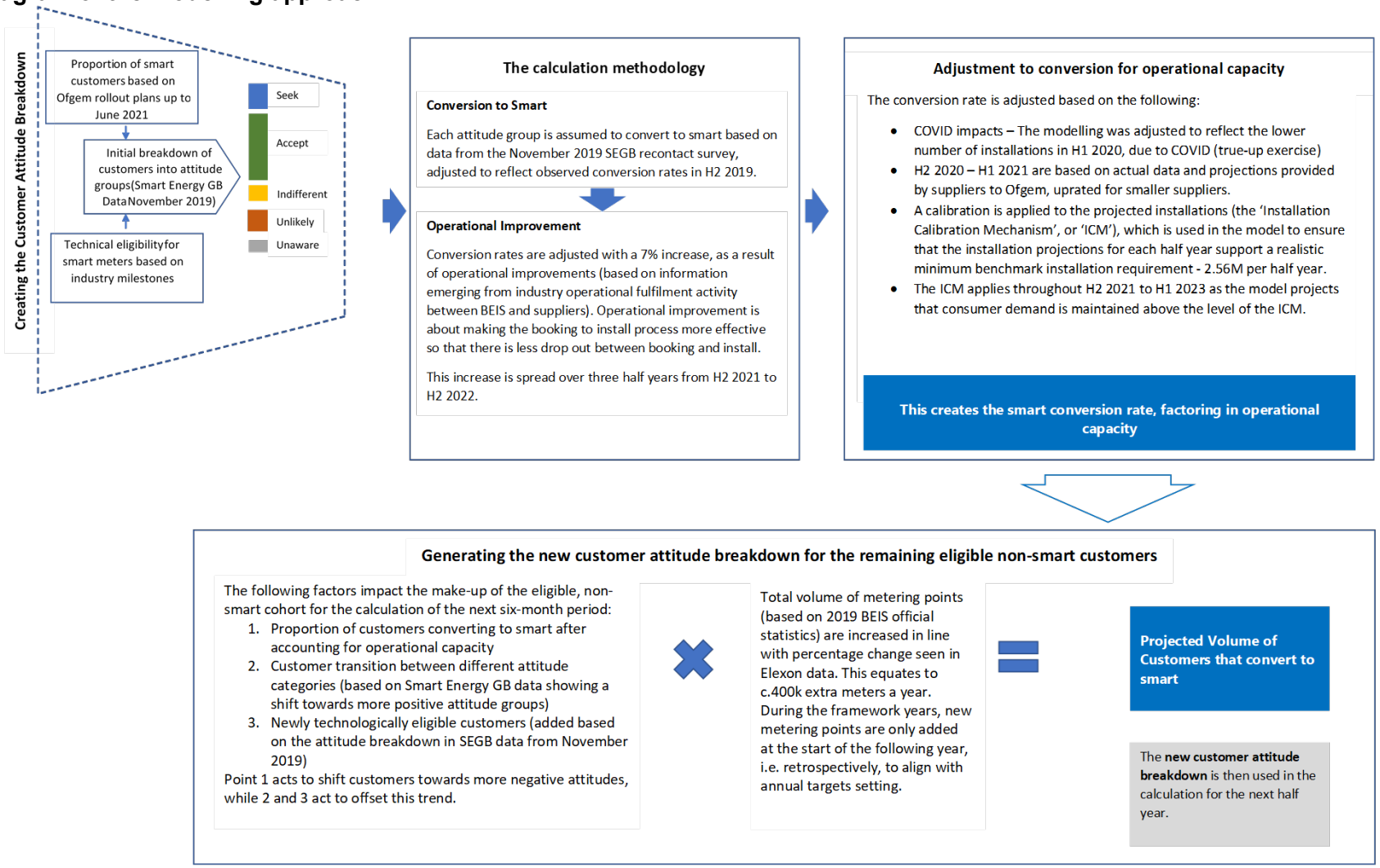
    a) The key variables that determine the feasible rollout are the proportion of non-smart customers in each of the attitude groups and their corresponding eligible-to-smart conversion rate (operational fulfilment). These are both based on Smart Energy GB data. These are combined to determine the demand for smart meter installations based on current and future fulfilment rates in each half-year.

[12] This is a fully quality assured analysis of the rollout's costs and benefits, which was published in September 2019. It can be found at https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019.

b) Operational capacity adjustments are applied as a calibrating mechanism to the installation number generated by the consumer attitude-based conversion model. This Installation Calibration Mechanism (ICM) applies only in situations where the consumer conversion model projects meter installations at a rate above levels that the market has demonstrated it can successfully complete currently and historically. Annex B of the consultation document gives more detail on how the ICM is calculated and the evidence used to validate the outcome of these calculations. The ICM should not be viewed as a restriction on energy suppliers who are able to install above their minimum installation target if their operational capacity allows them to do so.

c) Technical eligibility is based on current plans where the vast majority of technical issues should be resolved by June 2021. As more consumers become technically eligible to convert into smart they are added into the customer attitudes of the eligible non-smart population.

Figure 1: Diagram of the modelling approach



Different scenarios

18. The previous sections detail our modelling approach and how this is used to generate a rollout projection. However, it is dependent on how we assume consumer acceptance and operational fulfilment will evolve during the framework period. In order to give a robust assessment of the potential cost/benefit impact of the policy framework, we consider a central set of assumptions along with a lower installation rate scenario and an optimistic view.

19. Following the initial COVID-19 lockdown, suppliers are broadly back to pre-COVID installation levels. Energy suppliers and their supply chains have now adapted to working under ongoing restrictions. As a result, we think the 6-month extension of the current "all reasonable steps" obligation remains sufficient, and we do not see a case for extending further.

Central Case

20. As a central modelling case, we assume that the attitudes of non-smart consumers currently become progressively worse as those with more positive attitudes receive smart meters and are thus removed from the pool However, observations from the Smart Energy GB recontact survey also suggest that customers move between attitude groups, which offsets some of the reductions in the positive attitude groups We do not believe installations will become disproportionately harder over the two years modelled in this Impact Assessment as over this period there will be increasing smart meter eligibility and improved supplier performance[13]. In addition, customer attitudes may improve as the number of households with smart meters continues to increase and they become seen as the default meter.

21. The latest pre-COVID data from November 2019 indicates that there has been a significant shift towards the more positive attitude groups of 'seek' and 'accept' from 'indifferent' and 'unlikely' (these categories are defined in the analytical annex, Annex B of the consultation document). However, we have used a prudent assumption by taking an average of this value with three previous values (the changes observed between Nov 2017 and May 2018, between May 2018 and Nov 2018 and the change between Nov 2018 and May 2019). This is an assumption we have varied in the optimistic scenario.

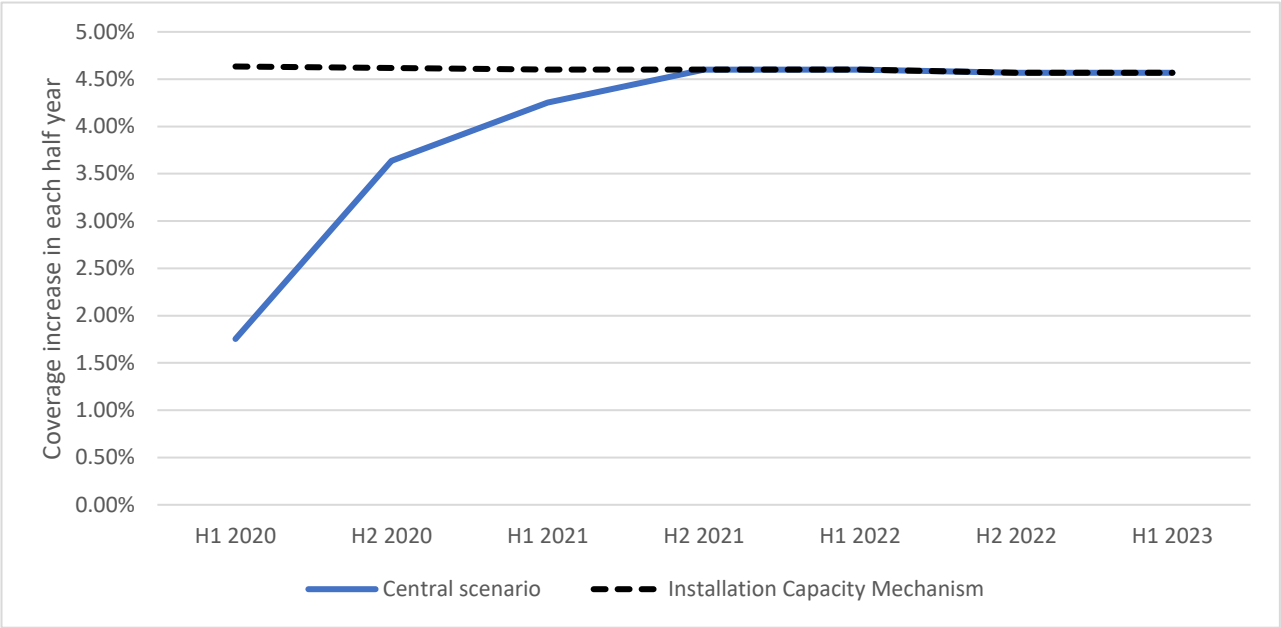
22. In the central scenario, we have applied an ICM based on a rate that the market has demonstrated it can successfully complete historically. This assumption has been varied in the optimistic scenario.

23. The central scenario uses prudent assumptions to ensure a reasonable minimum level of installations, which is used to generate the proposed tolerances.

24. Based on the modelling set out in these consultation proposals, the ICM applies throughout the two year period from H2 2021 to H1 2023 as the model projects that consumer demand is maintained above the level of the ICM, hence the ICM defines the tolerance levels. Graph 2 below illustrates the application of the ICM on the projected installation number.

[13] This is based on assumed improvements in supplier operational performance as reported to BEIS by energy suppliers in bilateral meetings

Graph 2: Projected increase in coverage as a proportion of all metering points for each half year after accounting for new metering points (the ICM reduces proportionally as it is a fixed volume of meters whilst the number of metering points increases each half year)



Lower installation rate scenario

25. We have also considered a purely illustrative scenario in which energy suppliers install 80% of the meters compared to the central scenario. This scenario has been used to demonstrate the impact of lower installations on the overall NPV. In this scenario, fewer customers would be able to realise the benefits of smart metering, which reduces the NPV of the overall programme.

Optimistic case

26. The central scenario described above assesses the impact if energy suppliers are incentivised to continue rolling out smart meters without substantial operational or consumer attitude improvements. We also consider an optimistic scenario in which further operational and consumer attitude improvements do occur.

27. Our optimistic scenario assumes the shift towards the more positive attitudes is in line with the latest observed value in November 2019 (which is where the largest shift to positive attitudes was observed). Additionally, the ICM has been increased so it is based on the average installation rate between 2017 and 2019, which equates to 2.77m installations per half year rather than 2.56m in the central case.

Status quo counterfactual scenario

28. Installations under the NRO from 1 July 2021 are forecast as follows:
    - The number of new metering points is projected based on household growth forecasts, consistent with the approach taken in the 2019 Smart Metering Cost-Benefit Analysis[14]. It is assumed that these will all receive a smart installation.
    - Traditional meters are assumed to require replacement around every 20 years for credit meters and every 10 years for prepayment meters, meaning that each year around 6% of each energy supplier's remaining non-smart metering points will receive a smart meter.

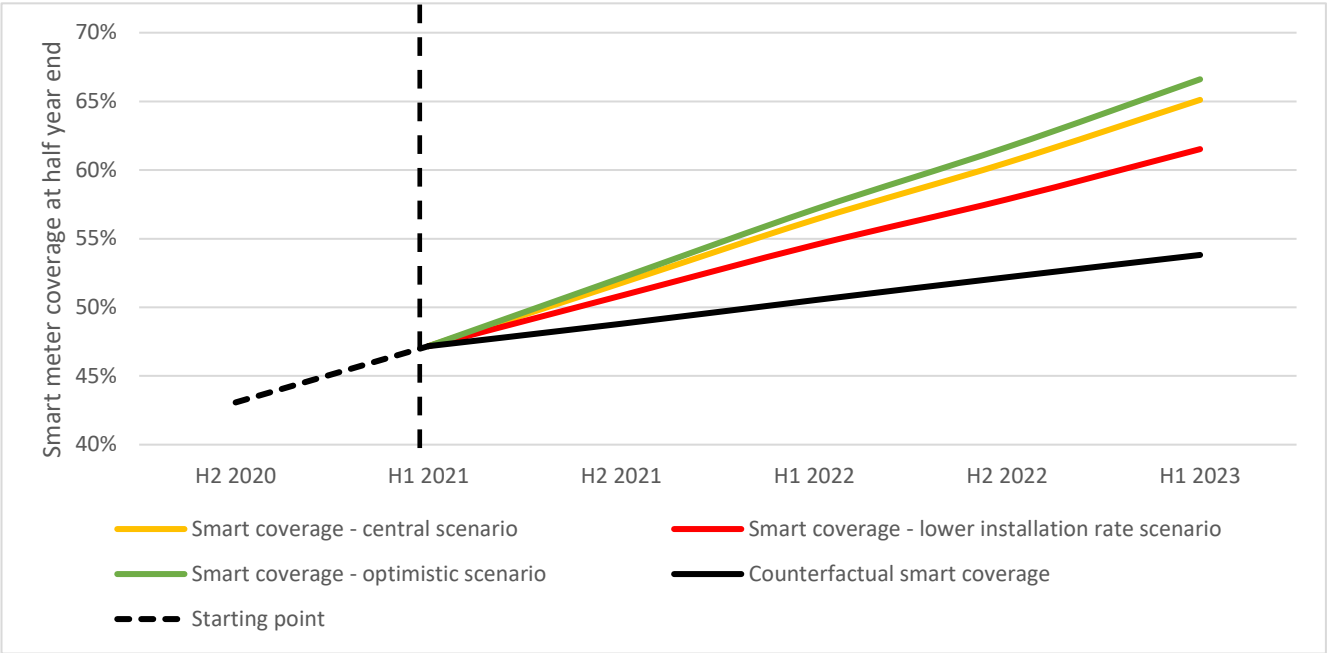
[14] Page 15 of the 2019 Smart Meter Cost Benefit Analysis

This is also consistent with the approach taken in the 2019 Smart Metering Cost-Benefit Analysis[15].

Comparison of scenario rollout forecasts

29. The forecast overall smart meter coverage levels under each of the three scenarios considered are shown on the following graph:

Graph 3: Overall smart meter coverage under the three scenarios considered.



30. This shows that the policy scenario helps to maintain the rollout's momentum post June 2020, whereas in the status quo counterfactual this momentum would be lost, and installation rates would be substantially reduced. By the end of June 2023, smart meter coverage under the main policy scenarios is expected to be between 8 and 13 percentage points higher than under the status quo counterfactual. As noted above, the targets and tolerance for the third and fourth years of the framework period will be confirmed following the outcome of a review during the second year of the framework (1 July 2022 – 30 June 2023). We have however undertaken an indicative projection across the appraisal period (from July 2023 to 2034) to show the overall impact on the NPV if the NRO counterfactual were to apply after June 2023. This shows that the gap between coverage levels begins to narrow, although the counterfactual scenario remains between 4 and 7 percentage points lower at the end of the appraisal period

Evaluation of costs and benefits

31. As described above, we now evaluate the impact of these different rollout profiles on the overall costs and benefits of smart metering using the methodology and values for quantifying costs and benefits from the 2019 Smart Metering Cost-Benefit Analysis. This considers the following costs and benefits:

Costs	Benefits
• Metering asset costs • Installation costs	• Energy savings for consumers • Time savings for consumers

[15] Page 17 of the 2019 Smart Meter Cost Benefit Analysis

• Operation and maintenance costs • Costs associated with the Data Communications Company (DCC) • Costs incurred by energy suppliers and the wider industry (capex and opex) • Energy costs • Other costs (including for disposal of old meters and marketing)	• Avoided site visits • Reduced customer service enquiries • Improved debt handling • Reduced cost to serve prepayment customers • Customer switching benefits • Remote outage detection • Use of data to inform network reinforcement • Reduced theft and losses • Benefits from time-of-use tariffs • Carbon and air quality benefits

32. These costs and benefits were all calculated based on a range of evidence, including data provided by energy suppliers, international comparisons, and research commissioned by the Programme[16]. They represent a robust understanding of both the fixed costs of delivering the smart meter rollout and the incremental costs and benefits that are accrued once each smart meter is installed. The present analysis determines the difference in the net present value (total benefits minus total costs) that arises within the model that was used for the 2019 Smart Metering Cost-Benefit Analysis when the rollout of smart meters follows the various profiles shown in Graph 3 above. These differences are appraised over the period from 2013 to 2034 using a 2019 present value base year and 2011 prices[17], consistent with the approach used in the 2019 Cost-Benefit Analysis (see page 17 of that document for a discussion of the rationale behind these assumptions). Since the policy options would be implemented in 2021 (and installation levels are the same in all years prior to this across all scenarios considered), this corresponds to fourteen appraisal years (2021-34).

Analysis results

33. Comparing the overall Programme net present value under the central forecast for the policy scenario described above against the status quo counterfactual scenario[18] yields the following result:

Table 1: The central scenario net benefit compared to the status quo counterfactual

Scenario	Net benefit compared with status quo counterfactual
Policy scenario – central case	£1,018m

34. As described above, we can also form natural upper and lower net benefit estimates. These give the following net benefit ranges:

Table 2: The "lower installation rate" and "optimistic" scenarios net benefit compared to the status quo counterfactual

Scenario	Net benefit compared with status quo counterfactual
Policy scenario – lower installation rate case	£725m
Policy scenario – optimistic case	£1,129m

35. From these results, we can see that under the central scenario the policy framework is expected to deliver a net benefit to Great Britain of £1.0bn over the appraisal period to 2034. This benefit is due to the higher numbers of smart meters that will be installed when compared to the counterfactual, driving consumer energy and time savings, energy supplier operational efficiencies, and wider environmental benefits. It assumes that energy suppliers deliver rollout rates in line with our central forecast between 1 July 2021 and 30 June 2023

[16] Further details are available in the 2019 Smart Meter Cost Benefit Analysis https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019.
[17] The Impact Assessment summary sheets and business impact test use different PV and price base years to be consistent with the impact assessment guidance.
[18] The counterfactual has a net benefit, but these scenarios deliver benefits above and beyond the counterfactual.

and makes no assumptions about the scheduled review to introduce the proposed targets and tolerance levels for the third and fourth years of the framework (1 July 2023 to 30 June 2025).

36. If market evolution is in fact sufficient for energy suppliers to deliver our most optimistic forecasts between 1 July 2021 and 30 June 2023, then a further £0.1bn of net benefit could be realised. By contrast, however, if for whatever reason only 80% of the installations projected under the central scenario are delivered across the market, then the resulting slower installation rates could reduce this net benefit figure by £0.3bn. Nonetheless, the policy option would still provide a strong net benefit of £725m relative to the status quo counterfactual.

Table 3: A breakdown of the costs and benefits that are expected in the central case.

Costs (£m)		Benefits (£m)	
In-premise costs		*Consumer benefits*	
Installation of meters	378	Energy savings	751
Meter assets	441	Time savings	131
Operation and maintenance	70		
		Energy supplier benefits	
Other costs		Avoided site visits	245
Supplier IT costs	14	Reduced customer calls	130
		Reduced prepayment cost-to-serve	97
Device energy consumption	63		
Pavement reading inefficiency	16	Customer switching	148
Disposal costs	1	Remote change of tariff	18
		Debt handling	120
		Reduced theft and losses	28
		Other benefits	
		Network benefits	66
		Environmental benefits	265

37. Table 3 above shows that the vast majority of costs relate to the installation of new metering equipment (approximately 40% each for the installation process and the new assets). Around one third of benefits are energy savings that smart meters enable consumers (domestic and non-domestic) to realise, while consumers will also realise a smaller benefit due to time savings. Most of the remaining benefit is to energy suppliers, largely through efficiency savings that greater numbers of smart meters will enable them to make. The environmental benefits include an emissions reduction equivalent to 4.3m tonnes of CO_2.

Sensitivity analysis

38. As explained above, the analysis presented is based on energy suppliers delivering the installations required to reach a starting point of 47.2% smart coverage at the end of June 2021. However, it is also important to consider how this impact could be affected if this starting point is not reached due to factors such as COVID-19 impacts. The consequence of this is that smart coverage levels throughout the framework period, in both the policy and counterfactual scenarios, are lower. This leads to the following central NPV impact estimate:

Table 4: Sensitivity analysis on the installations in the second half of 2020

Reduction in installations during H2 2020	Net benefit compared with status quo counterfactual (central scenario)
12.5%	£977m
25%	£935m

39. We see from this analysis that, even with over a quarter fewer installation than expected during H2 2020, the policy framework is still expected to deliver a net benefit to society.

Direct costs and benefits to business

40. The costs of the smart meter rollout are incurred predominantly by energy suppliers. In turn, the benefits delivered are split between consumers and the energy industry. To determine the direct costs and benefits to business, we consider only those costs and benefits that accrue to energy suppliers and other businesses that operate within the energy industry. Inputting these into the BIT methodology (using the BIT spreadsheet) gives the following estimates:

Cost of Option (£mn) (2019 prices, 2020 present value)			
Total Net Present Social Value	**Business Net Present Value**	**Net direct cost to business per year**	**BIT Score**
1,235	222	8	39

41. These calculations are based on the fourteen remaining years of the 2013-34 appraisal period after the policy options are scheduled to take effect (i.e. 2021 to 2034). A large portion of the business net present value is made up of the energy savings that non-domestic energy customers are able to realise with smart meters. These are treated as indirect benefits to the business, since they require consumer action in order to be realised, and thus are excluded from the net direct cost and BIT score calculations above[19]. Note that, in line with BIT methodology, 2019 prices and 2020 present values are used, so these numbers are not comparable to those determined above for the policy framework's net present value.

Consideration of the impact on small and microbusinesses

42. Approximately 99% of businesses in the UK are small (10-49 employees) or micro-businesses (1-9 employees). In this section, we consider the potential impacts of this framework on these businesses.

43. The smart meter rollout includes within scope all non-domestic metering points within electricity profile classes 1 to 4 and with gas consumption below 732MWh per annum. This covers the vast majority of British business metering points and would be expected to include the vast majority of small and micro-businesses (as these are likely to be smaller energy consumers). Therefore, the policy framework considered within this analysis is expected to drive higher rollout of smart metering to small and micro-business premises. Under the policy scenarios set in Graph 3, we would expect around 10-14% more such businesses to have a smart meter by the end of June 2023 under the framework than would be the case without policy intervention. The 2019 Smart Metering Cost-Benefit Analysis showed that receiving a smart meter will enable these consumers to realise substantial benefits through energy savings (up to 2.8% savings on electricity bills and 4.5% for gas, subject to consumer action). The accelerated rollout under the policy framework will allow these savings to be realised earlier, delivering higher benefits to those small and micro-business consumers who receive a smart meter earlier.

44. Smart metering includes a range of efficiency savings that can be accessed by energy suppliers, which will reduce their costs and ultimately lead to lower energy bills. Therefore, energy bill reductions are expected to be realised across the market, leading to benefits for all small and micro-business consumers, even if they do not yet have a smart meter.

[19] If these were included, then the net direct cost to business figure shown in the table above would improve to -20 (a net benefit), while the BIT score would become -98.

45. The minimum installation requirements are intended to apply to all energy suppliers within the market. While the vast majority of consumers are served by medium or large businesses[20], the market does include some energy suppliers who are either small or micro in size. This is particularly likely for new entrants to the energy market. Such suppliers are already required, under their licence conditions, to put in place the systems needed to operate smart meters through the DCC and to have contracts in place to service or replace their customers' meters if needed. Therefore, the requirements imposed by this framework are not substantially different in character from the obligations that already apply to them. We did consider the option of exempting such energy suppliers from these regulations, however, we determined that this would risk adversely affecting the balance of the market by allowing these energy suppliers to operate with lower capital costs and thus giving them a potential competitive advantage over those suppliers to whom the framework would apply. Additionally, it is important to set regulations across the market and that consumers should expect to receive the same level of service regardless of energy supplier. Any policy framework should ensure that specific groups of consumers are not left behind in accessing the benefits that smart meters provide.

46. It should also be noted that each energy supplier's targets and minimum installation requirements will be set as proportions of its overall consumer base. We chose this approach in order to ensure that the task facing each supplier will be commensurate to its size. In absolute terms, therefore, these smaller energy suppliers will be required to install a smaller number of smart meters than larger energy suppliers by virtue of their smaller customer bases. While it could be argued that larger energy suppliers will have greater ability to secure meter availability, lower prices, etc., in practice many smaller energy suppliers will contract installations out to third-parties working across several energy suppliers, so will be able to benefit from similar economies of scale. Therefore, we do not consider that any regulatory mitigation is required.

Wider impacts

47. Consumers are paying for the smart meter rollout through additions to gas and electricity bills. Without policy intervention, the rollout is likely to slow down considerably after the end of June 2021. This would mean that those consumers who had not received smart meters by this point would likely have to wait considerable periods of time before they are able to access the benefits of smart metering. Thus, these consumers would be paying for smart metering, but not receiving the benefits that it offers. Furthermore, these customers would be unable to access new market offerings that are enabled by smart meters (e.g. new tariffs that suppliers will be able to offer based on half-hourly energy usage data that can be provided by smart meters). The policy framework mitigates this by ensuring rollout momentum is maintained and enabling substantial progress over the next two years and beyond across the four-year framework period.

48. We would not expect this policy to have any significant impact on trade and investment. Supporting the continued rollout of smart meters will contribute to the development of a smarter energy system, which may stimulate innovation and investment in future. Examples of this are already being seen, with some energy suppliers beginning to offer tariffs that offer consumers energy prices that vary with demand throughout the day, in order to incentivise demand-shifting. Furthermore, continuing to install smart meters to reach market-wide coverage in the mid-2020s will likely allow more consumers to have access to future smart energy tariffs, promoting effective competition within the energy market.

49. Smart meters provide consumers with more timely and detailed information about their energy usage. This allows consumer action leading to energy savings. Furthermore, wide

[20] Around 90% of the domestic and 70% of the non-domestic market are served by the companies with over 250k customers. These companies are all large businesses with sizeable workforces. The companies that serve the remainder of the market will mostly have at least several thousand customers and will likely exceed the threshold defined above for a small business.

penetration of smart meters has the potential to enable demand-shifting, potentially smoothing energy demand peaks. Both of these effects will reduce greenhouse gas emissions, leading to carbon savings and consequent environmental and air quality benefits. These benefits have been assessed in detail on page 57 of the 2019 Smart Metering Cost-Benefit Analysis and are factored into the analysis considered above.

50. This regulatory framework should provide for accurate monitoring of the progress towards market-wide rollout. It is essential that monitoring is based on specific, well defined principles to prevent unequal treatment and market distortion. Equally, reporting requirements should not become so burdensome that they distract energy suppliers from the objectives of the Programme.

51. The impact of smart metering on statutory equality duties is considered on pages 67-72 of the 2019 Smart Metering Cost-Benefit Analysis. Since the purpose of the policy considered here is to ensure that the smart meter rollout is delivered to completion, the impacts studied in that document are also applicable here. We do not consider that any of the social impact tests available are relevant to this assessment given the rollout impacts everyone equally so it does not have a specific negative impact on one particular group over another.

Reporting and monitoring

52. Reporting and monitoring will be undertaken by Ofgem. They have consulted separately on the reporting requirements of the new obligation.[21] From a regulatory point-of-view, this policy framework is more straightforward than “all reasonable steps”, so we would not expect it to lead to any cost increases for Ofgem.

53. In parallel, the Programme will continue to monitor the progress of the smart meter rollout, including (but not limited to):

    a. Producing quarterly and annual statistical releases making transparent the progress of the rollout.
    b. Holding regular bilateral meetings with energy suppliers to identify issues, promote best-practice, and monitor developments within the industry.
    c. Working with specific business sectors to ensure that they are able to get the most out of smart metering.
    d. Reviewing the benefits being delivered by smart meters, as part of ongoing benefits realisation activity within the Smart Meter Implementation Programme.
    e. Undertaking a review planned in the second year of the new framework (July 2022 – June 2023) to support the setting of the targets and tolerances for the final two years of the framework.

[21] See: https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-post-2020-smart-meter-rollout-reporting-requirements

Summary

54. We have seen that the policy framework is expected to deliver a strong net benefit to Great Britain. This framework entails energy suppliers being set individual targets for the smart meter installations required to reach market-wide coverage by 30 June 2025. Only the targets and tolerance values for the first two years of the new framework are planned to be implemented as regulatory requirements on energy suppliers at this stage. The targets and tolerance values for the third and fourth years of the framework period (i.e. starting 1 July 2023 and 1 July 2024 respectively) will be confirmed following the outcome of a review by the Government during the second year of the framework (July 2022 – June 2023).

55. The methodology under the framework establishes annual targets during a period of four years (from 1 July 2021 to 30 June 2025) for each energy supplier based on a straight-line delivery trajectory towards the overall ambition of market-wide smart meter coverage. This methodology takes account of both the starting position of individual energy suppliers as of 30 June 2020 and their performance thereafter in increasing their smart meter coverage.

56. In our modelling we have made reasonable assumptions about the rate smart meters could be rolled out to reflect any barriers to deployment. We have therefore used these to set a reasonable floor that we consider is justifiable, but we have good reason to believe that the market would exceed this minimum. On this basis, we propose to apply the tolerances based on the forecasting explained here.

57. The Government also recognises that the rate at which it is feasible for energy suppliers' to install smart meters is dependent on a range of external factors and market conditions (including the attitudes of their customers towards smart meters), and it is uncertain how these will evolve over the period of the framework. To account for this uncertainty, the framework includes a review based on data collected during the first two years of the framework. The proposals for the final two years are subject to confirmation following a review planned during the second year of the framework period, when further and more relevant information will be available to support them. In parallel, the Government has committed to considering a range of policy measures or incentives to support consumer uptake and help energy suppliers in their journey towards achieving market-wide rollout.

58. The key variables that determine the annual minimum installation requirements for each supplier will be their coverage levels on 30 June 2021 (establishing their specific starting point for the four-year trajectory), the tolerance level allowed for that year and – for subsequent years of the framework – the number of customers the energy supplier has without smart meters at the end of the previous rollout year.

59. We recognise that the smart meter coverage level of individual energy suppliers is influenced by consumers that have had a smart meter installation choosing to switch to a different energy supplier. We have taken account of such churn in the methodology to establish annual targets for individual energy suppliers. This will enable energy suppliers investment in individual smart meter installations to be recognised each year, regardless of whether the consumer remains with the energy supplier.