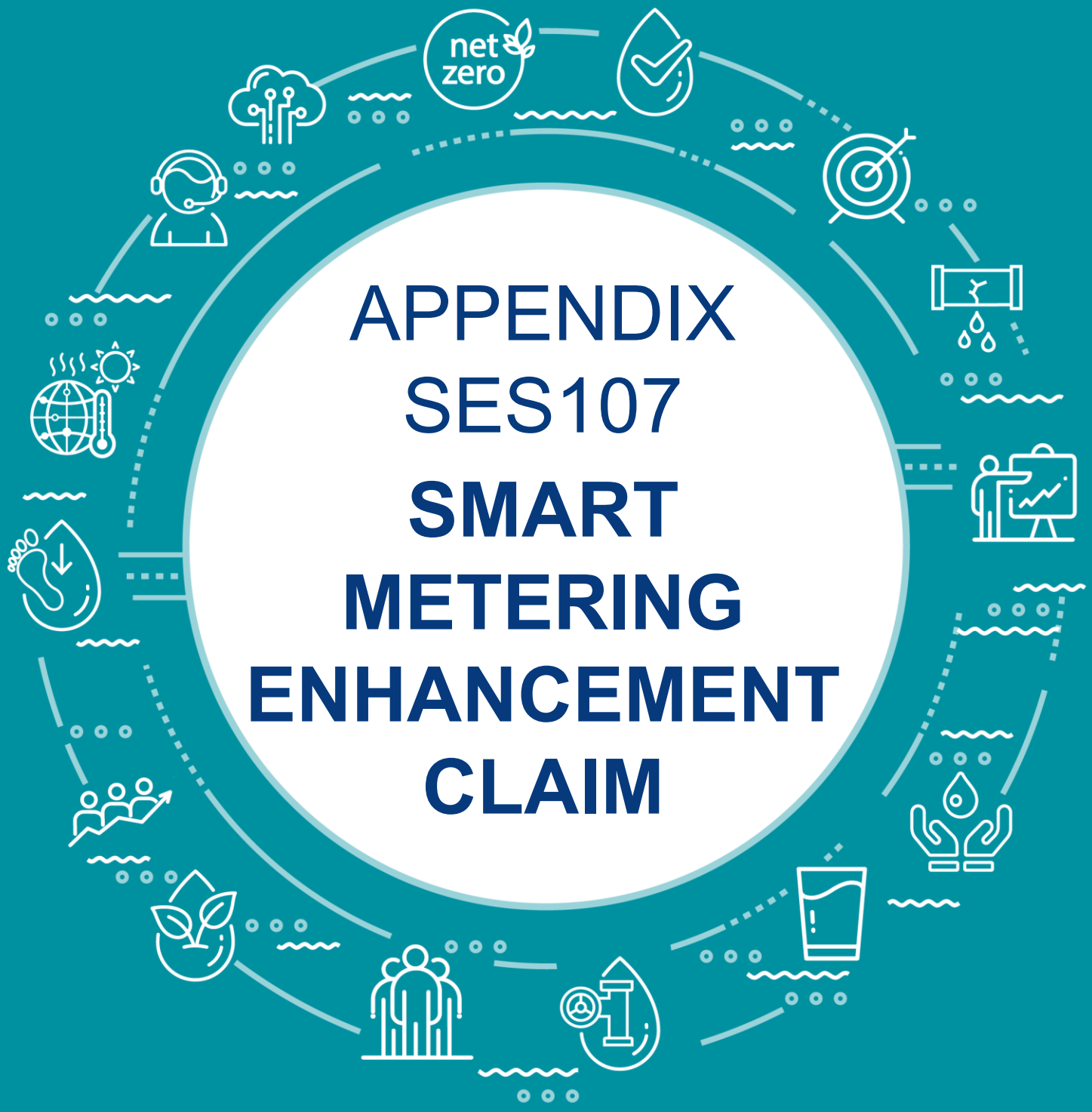
APPENDIX SES107

SMART METERING ENHANCEMENT CLAIM



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APPENDIX SES107: SMART METERING ENHANCEMENT CLAIM

In this appendix, we provide our response to Ofwat's draft determination on the smart metering programme. Specifically, we comment on the enhancement totex allowance we have been provided, how that compares against our view of the cost of the programme, and on the design of the price control deliverable (PCD) associated with the programme.

The rollout of smart metering is the largest enhancement programme we will deliver over AMP8. It is driven by the urgent need to reduce household and business consumption in line with our Water Resources Management Plan (WRMP) to secure resilient and sustainable water supplies for the future.

In our Business Plan, we submitted a cost estimate for the enhancement element of our AMI smart metering programme of £22.89 million.[1] We also separately included £0.50 million of enhancement expenditure associated with customer-side leakage as part of our regional planning enhancement cost estimate, which Ofwat reallocated to smart metering within its assessment. As such Ofwat assessed the cost of our AMI smart metering programme as £23.39 million.

We have since become aware that when updating our data tables during the Ofwat post-submission query process, we understated the cost of new meters (by accidentally excluding certain years) by £1.40 million, relative to our intended Business Plan estimate. Our intended cost estimate, at Business Plan submission stage, was therefore £24.79 million.

In its draft determinations, Ofwat has provided us with an enhancement allowance of £17.78 million for AMI smart metering – 28% lower than the intended cost estimate of £24.79 million. Ofwat's allowance was based on econometric benchmarking of company cost estimates.

In this representation we present our updated view that the cost of the enhancement element of the smart meter rollout is £25.39 million over AMP8, £0.60 million higher than our intended cost estimate at Business Plan. This is driven by higher unit costs following thorough market analysis and insight as part of our ongoing procurement activity.

Our original enhancement case presented cost estimates based on the best information available to us at the time, which importantly, did not include any adjustment for uncertainty or optimism bias. Now that we have undertaken detailed market engagement on the cost of purchasing, installing, operating

[1] This formed part of a wider smart water customer experience enhancement case, which included separate enhancement cases for cyber security and open data. Part of this enhancement also related to our retail business and so, was excluded from our wholesale enhancement cost estimate.

and maintaining meters, we consider our original submission to be an underestimate.

This means the difference between our revised view of smart metering enhancement costs and the enhancement allowance provided in Ofwat's draft determinations, represents a gap of £7.61 million.

Nevertheless, we are seeking only our original intended cost estimate of £24.79 million in enhancement expenditure (which includes the £0.50 million enhancement expenditure for customer-side leakage). Therefore, while we are expecting our costs to be greater than this, we are accepting an additional challenge to deliver more through base expenditure.

More broadly, through this representation, we demonstrate how Ofwat has accepted our ambitions in terms of the outcomes we intend to deliver for customers but has not provided a commensurate efficient enhancement allowance. We explain how our higher cost relates to our proposed investment in high-tech back-office infrastructure, which will allow us to better identify instances of customer-side leakage and plumbing losses, and to better target behavioural change interventions. As such, the difference in the cost of our smart metering programme relative to the other companies, reflects more ambitious proposed reductions in household and non-household water consumption from the rolling out of smart meters.

Ofwat has not properly reflected this difference in ambition within its draft determinations, partly due to inconsistencies in how various companies have allocated costs between demand reduction interventions and the smart metering programme. Consequently, this risks our ability to deliver these outcomes, and to deliver our WRMP and the regional Water Resources South East (WRSE) plan more broadly.

Finally, our representation seeks to highlight the overlaps between the price PCDs for the metering programme and the associated outcome delivery incentives (ODIs) for per capita consumption (PCC), business demand and leakage reductions. The cumulative impact of these incentives creates significant downside risk that is disproportionate to the outcome that Ofwat is attempting to incentivise.

Given Ofwat's technical parameters for determining whether a meter has been delivered for PCD purposes, it is easy to envisage a scenario where we have undertaken the investment but are deemed to have only delivered 70% of our smart metering programme. Under such a scenario, the PCD penalty would be -£5.36 million, nearly a third of the cost we would have incurred. Including additional ODI penalties that we may miss, would lead to a downward risk to RoRE of 0.67%.

We consider a small number of technical fixes to the design of the PCD could resolve many of the issues we have identified. These include setting the PCD

rate based on the variable cost of installing a smart meter instead of the average cost, calibrating the rate to offset ODI penalties, and engaging more closely with the sector to agree the parameters for determining whether a meter has been delivered.

A. Introduction

1. This appendix sets out our view on Ofwat's proposals for smart metering in the PR24 draft determinations. We specifically comment on the enhancement allowance we have been provided and on the design of the price control deliverable (PCD) for smart metering,
2. Our smart metering programme will deliver our biggest ever investment in smart assets, as well as supporting infrastructure and technologies. Our commitments to reduce household water consumption, business demand, and leakage, which are the foundations of our Water Resources Management Plan (WRMP) and is dependent on the delivery of this programme. It is, therefore, an essential component of our plan to increase the resilience of our supply-demand balance, and to enhance the environment by reducing abstractions over the longer-term.
3. Since our original Business Plan submission, we have undertaken further market engagement, which has provided us with a much better view of how best to roll out smart meters to our customers and of how much it will cost. While we now consider that the cost of our smart metering programme will be higher than we originally envisaged, we have not adjusted the value of our claim accordingly. Instead, we intend to challenge ourselves to deliver the programme within the envelope of the original claim value of £24.79 million – made up of our £22.89 million submission for smart meter rollout plus £0.50 million reallocated from our leakage enhancement case representing spending on customer-side leakage, and £1.40 million under-stated costs following Ofwat post-submission query process.
4. We have reviewed Ofwat's draft determination proposals in the light of our improved understanding of the costs and in the context of the specific base adjustment for meter renewals. We have concluded that Ofwat's proposals, even with the base adjustment, would not allow us to feasibly deliver the ambition we presented in our Business Plan. The proposals also expose us to excessive and disproportionate penalties for events that are out of our control.
5. We set out in this appendix why we consider our original submitted cost estimate to be efficient, and propose small, targeted changes to the design of the PCD to make it more proportionate.

Context to our Smart Water Customer Experience enhancement case

6. The installation of smart meters alone is not sufficient to manage water use, achieve the ambitious reductions we and the Government are targeting, and allow us to maximise the potential for data to transform our business. In our Business Plan, we therefore developed a holistic smart water customer experience enhancement case that covered multiple areas where enhancement expenditure would be needed to deliver our ambition and the requirements of the WRMP.
7. Our smart customer ambition builds on the transformation we have delivered in AMP7, including our industry-leading and award-winning iDMA (intelligent District Metered Area) network, the industry's first combined Billing and Customer Relationship Management system (CRM) within the Salesforce platform, and new self-service MyAccount channel. Our enhancement case consisted of three main components, namely:

   (a) Enhanced Water Management (AMI Smart Metering);

   (b) CAF and eCAF Cyber Security; and

   (c) Open Data in the Water Industry.

8. In this representation, we focus on "(a) Enhanced Water Management (AMI Smart Metering)" and the associated expenditure, as that relates to what we consider to be core smart metering expenditure. We do not represent specifically on item (b) though we present views on the shallow dive efficiency challenge in Appendix SES110: Enhancement Efficiency Challenge. And while we maintain that there is value to the customer from opening up smart meter and smart network data, we do not represent on item (c).

Summary of our views of Ofwat's draft determination

9. Ofwat has provided a base allowance of £22.96 million (pre-RPE and OE) and an enhancement allowance of £17.78 million as part of its draft determinations. The enhancement allowance compares unfavourably to our Business Plan submission for £22.89 million, and our revised representation of £24.79 million (which includes customer-side leakage activity), creating a gap of £7.01 million.

10. We consider the difference between Ofwat's proposed allowance and our own estimate of the cost exists because of three main factors, which if not adequately addressed and therefore funded, will result in deliverability issues, risk to outcomes for customers and our water resources plans, as well as place an unfavourable balance of risk on our Business Plan. The factors are:

    (a) Ofwat has not reflected our higher ambition for reduction in household and non-household water consumption, and in leakage because of rolling out smart meters, in the setting of the enhancement totex allowances,

    (b) The benchmarking does not include a consistent treatment of risk, optimism bias and uncertainty adjustments between companies, which serves to reduced modelled allowances, and

    (c) The benchmarking does not recognise that a proportion of costs are driven by the cumulative number of installs rather than the in-year number of installs.

Structure of this appendix

11. This rest of this appendix is structured as follows:

    - **Section** Error! Reference source not found. provides our updated view on the cost of our smart metering programme and explains how this compares against our Business Plan estimate;
    - **Section C** provides our comments on Ofwat's approach to benchmarking our smart metering costs against the rest of the sector;
    - **Section D** explains the consequences of a lower enhancement allowance on our ability to deliver the performance commitments on per capita consumption, business demand and leakage;
    - **Section E** provides our comments on the draft price control deliverables (PCDs) and outcome delivery incentives (ODIs) and the downside risk exposure this represents.

B. Explaining the costs of our smart metering programme

12. In this section we provide our updated view on how the cost of the smart metering programme and explain how and why these have changed since our Business Plan. We provide:

    (a) A breakdown of our current view of the cost of the programme, following the market engagement we have undertaken over the past year;

    (b) A more detailed comparison between the assumptions that fed into our original Business Plan submitted cost estimate and our current view;

    (c) An explanation of what market engagement and testing of costs we have undertaken; and

    (d) A summary of the costs we are proposing through this representation.

Our updated view on the cost of our smart metering programme

13. Table 1 below provides a breakdown of our updated cost estimates, split by the different components, including new installations and upgrades, and internal vs external installations. The purpose of this table is to demonstrate what makes up our need for enhancement expenditure, although as stated above (in paragraph 3) we are seeking only our original submission of £23.39 million for smart metering enhancement expenditure (including customer-side leakage activity), giving ourselves an additional efficiency challenge.

Table 1: Our current view of cost of moving to AMI smart metering, pre-RPE and OE (£m, 2022/23 prices)

[redacted]

Source: SES Water analysis of required enhancement expenditure for Smart Metering.

14. The above table summarises the enhancement expenditure that is required to deliver smart metering compared with our Business Plan and representation. Through market engagement and analysis, this demonstrates the programme will cost £2.00 million more than we submitted in our Business Plan, however we are challenging ourselves to deliver the programme within the original submitted estimate of £23.39 million.

Corrections to our original Business Plan estimates

15. In this section, we clarify certain errors in the submitted data tables within our original Business Plan that resulted in our estimate being £1.40 million lower than intended:

    (a) Costs of new meters – Our original Business Plan submission excluded the cost of new meter installations to newly connected properties, within data table CW3 (CW3.60 to CW3.68). Through subsequent clarifications from the Ofwat query process, we added a cost estimate of £0.615 million to the data table to reflect these costs, aligning them with the figures in data table CW7. However this was done incorrectly and excluded certain years of data (2025/26, 2027/28, 2028/29) and excluded costs for business meter installations. In doing so, we understated the costs by £1.25 million.

    (b) Smart meter infrastructure costs – Our original submission of data table CW3 included the full cost of the AMI smart metering programme together (CW3.87 to CW3.89), without separating out the cost of different types of meter upgrades from smart meter infrastructure costs. During the Ofwat query process, we were asked to split those costs out and when doing so, we accidentally removed £0.15 million of smart meter infrastructure costs that existed in our original submission.

Differences in costs between our original Business Plan submission and our current view following detailed market engagement

16. Our original Business Plan costs were estimated on a bottom-up basis and validated using a top-down estimate, all sourced from independent analysis provided to us by Artesia following a report by Artesia and Frontier Economics[2]. After making a high-level assumption on the proportion of this cost that related to base expenditure, we used the enhancement element for our Business Plan submission. We assumed a high-level split of 25% of costs in base and the remaining 75% as enhancement expenditure. This was based on our view that while most of our programme relates to meter upgrades rather than new installations, we are proposing to upgrade meters at a much quicker pace than we would otherwise have renewed them.

17. Since our submission of the Business Plan, we have commenced a competitive procurement exercise and through market engagement undertaken as part of that exercise, developed an improved and more granular assessment of the cost. In **Error! Reference source not found.** and **Error! Reference source not found.**, we summarise and compare the cost estimates that informed our Business Plan submission against our current view. We have also adjusted our assessment of what is treated as base expenditure versus enhancement expenditure in light of Ofwat's separate adjustment to base costs for meter renewals, and we have deflated the cost estimates from our market engagement back to 2022/23 prices.

18. To demonstrate the comparison and change in costs .

[2] SES Water Business Plan Appendix SES051 Cost Benefit Analysis Smart Metering for more information.

19. Table 2 below, focuses on the variable element of a smart meter roll out by comparing metering unit costs only, which we assessed to include the following, in keeping with Artesia's original top-down assessments:

    - Meter cost by type; new or upgrade, and internal or external
    - SIM cards
    - Installation by type; new or upgrade, and internal or external
    - Meter data management systems
    - Meter maintenance
    - Meter Data communications

20. .

21. Table 2 (next page) excludes “other” capex and opex expenditure pertaining to additional technologies and back-office requirements. We have excluded these from our unit cost analysis on the basis they are not directly related to the variable costs i.e. the provision and installation of meters or return of data, but instead are fixed costs in nature, and this is in keeping with Artesia’s original top-down assessments. These costs are included and described in As summarised in the .

22. Table 2 above, our Business Plan submitted costs relied heavily on estimates from independent analysis by Artesia following their summary report with Frontier Economics. This analysis provided an overall estimate of the costs of the smart metering programme, tailored to each company, based on an assumed rollout profile.

23. When preparing our original enhancement case, we began by reviewing the cost of the meter installation component, validating it with market intelligence where it was available, and updating it to match the 7-year rollout profile in our best value option. Both in the top-down estimate from Artesia / Frontier Economics, and in our reconstructed estimate, the assumed unit cost for a meter and its installation was £69.43. At the stage of Business Plan submission, we did not have access to more granular information; our cost estimates were based on the best information we had access to at the time of submission.

24. By comparison, following our market engagement exercises, we are now able to provide a more granular and precise breakdown of costs, which results in a weighted average unit cost of £127.05 per meter. This is £57.61 per meter higher than our Business Plan estimates.

Market engagement and testing of costs

25. The revised and more granular cost breakdown, and therefore, the resulting higher unit cost has been obtained through our ongoing market engagement exercise which commenced in March 2024 and has so far included the following:

- A completed pre-market engagement exercise in March, including a Procurement prior information notice (PIN) process with standard selection questionnaire (SQ) and pre-qualification questionnaire (PQQ) covering over 300 questions in total across each part of the exercise.
- 26 separate suppliers have engaged in our process across meter hardware, communication and infrastructure technology, meter installation and exchange/upgrade, and meter data management systems.
- The market engagement was structured into the following lots to help ensure optimum competitive pricing as well as demonstration of vendor suitability and expertise to each delivery component, including the option for multi-lot consortiums:
  - **(i)** Lot 1: Different types of AMI meters (in-line / concentric) and sizes
  - **(ii)** Lot 2: Communication technology selection
  - **(iii)** Lot 3: Meter deployment on ground (meter swaps and new installations.)
  - **(iv)** Lot 4: Meter maintenance
  - **(v)** Lot 5: Meter data management software & customer facing application to receive, store, analyse and share data patterns.

26. The PIN, SQ and PQQ represents a robust and strategic approach to fully leveraging the available market options, tailoring specific providers to each lot while also considering the intricate interdependencies among suppliers, which may benefit from consortium-style joint delivery models. Through our pre-market engagement, we've gained valuable insights into the key criteria that significantly influence costs and often lead to rework or information flow disruptions, such as varying protocols.

27. In addition, we have examined comprehensive data solutions, extensively engaging with the market, including demonstrations of head-end and master data management (MDM) systems from both established and emerging providers. These engagements have deepened our understanding of their capabilities, particularly their ability to innovate and develop new solutions. This extends to customer-facing applications, with potential expansions into data analytics.

28. Our aim is to ensure that we only pay for high-quality, complete meter read data, and that the data collected is not just for billing, but also to provide actionable insights that can help reduce household and non-household water consumption and address customer-side leakage.

Other costs and our assessment summary

29. In addition to the direct costs associated with installing, operating and maintaining our meters, our smart metering enhancement case also included associated fixed costs in line with the Artesia / Frontier Economics report. These fixed costs covered back-office and high-tech activities related to data sharing and data integration infrastructure, analytics and customer engagement.
30. This investment is a key element of our smart metering enhancement case, given the limited opportunity to deliver improved outcomes for customers solely from rolling out smart meters. Without this investment, we will not be able to deliver and achieve the performance improvements we wish to deliver in leakage, PCC and business demand reduction. We also risk negative performance outcomes on C-MeX, D-MeX and BR-MeX.
31. This is because these technologies enable the secure and high-quality integration and management of our data, as well as the syndication of meter and consumption data with our asset and customer data. This means we will utilise, share and display the data accurately with our customers for the purposes of core billing, including being able to introduce innovative and progressive tariffs. The technology will also allow us to engage more effectively with our customers to reduce their consumption, including through better targeting of behavioural change interventions and identification of customer side leakage.
32. At the time of our Business Plan submission, the Artesia / Frontier Economics report has estimated the cost of this back office and high-tech infrastructure to be £17.30 million. However, when validating this estimate through a bottom-up analysis, we calculated the required costs to be £13.62 million. As we had in this case identified an opportunity to reduce our costs, we used the lower figure in our Business Plan submission.
33. Our subsequent market engagement has also helped us to further validate and scrutinise these fixed costs. We have compared the costs within our original Business Plan submission, with an internal bottom-up estimate derived from our initial market engagement(s) and an extrapolation of existing technology costs for the growth in data management and storage. Through this validation exercise, we assess the expenditure need for these items to be £11.06 million, which is £2.55 million (19%) lower. This is partly driven by further efficiencies we have identified, including a portion of data consumption-related opex which we had accounted for twice, and have now deduplicated and removed.

Assessment summary

34. **Error! Not a valid bookmark self-reference.** below compares the total enhancement costs submitted as part of our Business Plan, the enhancement allowance provided within Ofwat's draft determinations, our current view of the costs of the smart metering programme, and the value of the programme within this representation. Core opex relates to meter maintenance, and meter data communication and management. Other capex and other opex relate to smart meter infrastructure.
35. Table 3.

Table 2: Comparison of unit costs (base and enhancement) between our Business Plan submission and our current view (excluding fixed infrastructure and systems)

[redacted]	Business Plan		Our Current View	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]		[redacted]		[redacted]

Source: SES Water analysis.
** Data point was not available to form part of our Business Plan submission top-down assessment.*
*** Included within "Capex: Meters" unit cost as part of Artesia top-down assessment.*

36. As summarised in the .

37. Table 2 above, our Business Plan submitted costs relied heavily on estimates from independent analysis by Artesia following their summary report with Frontier Economics. This analysis provided an overall estimate of the costs of the smart metering programme, tailored to each company, based on an assumed rollout profile.

38. When preparing our original enhancement case, we began by reviewing the cost of the meter installation component, validating it with market intelligence where it was available, and updating it to match the 7-year rollout profile in our best value option. Both in the top-down estimate from Artesia / Frontier Economics, and in our reconstructed estimate, the assumed unit cost for a meter and its installation was £69.43. At the stage of Business Plan submission, we did not have access to more granular information; our cost estimates were based on the best information we had access to at the time of submission.

39. By comparison, following our market engagement exercises, we are now able to provide a more granular and precise breakdown of costs, which results in a weighted average unit cost of £127.05 per meter. This is £57.61 per meter higher than our Business Plan estimates.

Market engagement and testing of costs

40. The revised and more granular cost breakdown, and therefore, the resulting higher unit cost has been obtained through our ongoing market engagement exercise which commenced in March 2024 and has so far included the following:

- A completed pre-market engagement exercise in March, including a Procurement prior information notice (PIN) process with standard selection questionnaire (SQ) and pre-qualification questionnaire (PQQ) covering over 300 questions in total across each part of the exercise.
- 26 separate suppliers have engaged in our process across meter hardware, communication and infrastructure technology, meter installation and exchange/upgrade, and meter data management systems.
- The market engagement was structured into the following lots to help ensure optimum competitive pricing as well as demonstration of vendor suitability and expertise to each delivery component, including the option for multi-lot consortiums:

  (vi) Lot 1: Different types of AMI meters (in-line / concentric) and sizes

  (vii) Lot 2: Communication technology selection

  (viii) Lot 3: Meter deployment on ground (meter swaps and new installations.)

  (ix) Lot 4: Meter maintenance

  (x) Lot 5: Meter data management software & customer facing application to receive, store, analyse and share data patterns.

41. The PIN, SQ and PQQ represents a robust and strategic approach to fully leveraging the available market options, tailoring specific providers to each lot while also considering the intricate interdependencies among suppliers, which may benefit from consortium-style joint delivery models. Through our pre-market engagement, we've gained valuable insights into the key criteria that significantly influence costs and often lead to rework or information flow disruptions, such as varying protocols.

42. In addition, we have examined comprehensive data solutions, extensively engaging with the market, including demonstrations of head-end and master data management (MDM) systems from both established and emerging providers. These engagements have deepened our understanding of their capabilities, particularly their ability to innovate and develop new solutions. This extends to customer-facing applications, with potential expansions into data analytics.

43. Our aim is to ensure that we only pay for high-quality, complete meter read data, and that the data collected is not just for billing, but also to provide actionable insights that can help reduce household and non-household water consumption and address customer-side leakage.

Other costs and our assessment summary

44. In addition to the direct costs associated with installing, operating and maintaining our meters, our smart metering enhancement case also included associated fixed costs in line with the Artesia / Frontier Economics report. These fixed costs covered back-office and high-tech activities related to data sharing and data integration infrastructure, analytics and customer engagement.

45. This investment is a key element of our smart metering enhancement case, given the limited opportunity to deliver improved outcomes for customers solely from rolling out smart meters. Without this investment, we will not be able to deliver and achieve the performance improvements we wish to deliver in leakage, PCC and business demand reduction. We also risk negative performance outcomes on C-MeX, D-MeX and BR-MeX.

46. This is because these technologies enable the secure and high-quality integration and management of our data, as well as the syndication of meter and consumption data with our asset and customer data. This means we will utilise, share and display the data accurately with our customers for the purposes of core billing, including being able to introduce innovative and progressive tariffs. The technology will also allow us to engage more effectively with our customers to reduce their consumption, including through better targeting of behavioural change interventions and identification of customer side leakage.

47. At the time of our Business Plan submission, the Artesia / Frontier Economics report has estimated the cost of this back office and high-tech infrastructure to be £17.30 million. However, when validating this estimate through a bottom-up analysis, we calculated the required costs to be £13.62 million.[3] As we had in this case identified an opportunity to reduce our costs, we used the lower figure in our Business Plan submission.

48. Our subsequent market engagement has also helped us to further validate and scrutinise these fixed costs. We have compared the costs within our original Business Plan submission, with an internal bottom-up estimate derived from our initial market engagement(s) and an extrapolation of existing technology costs for the growth in data management and storage. Through this validation exercise, we assess the expenditure need for these items to be £11.06 million,[4] which is £2.55 million (19%) lower. This is partly driven by further efficiencies we have identified, including a portion of data consumption-related opex which we had accounted for twice, and have now deduplicated and removed.

Assessment summary

49. **Error! Not a valid bookmark self-reference.** below compares the total enhancement costs submitted as part of our Business Plan, the enhancement allowance provided within Ofwat's draft determinations, our current view of the costs of the smart metering programme, and the value of the programme within this representation. Core opex relates to meter maintenance, and meter data communication and management. Other capex and other opex relate to smart meter infrastructure.

[3] See sum of "Other capex" and "Other opex", under "Our Business Plan", within Table 3.
[4] See sum of "Other capex" and "Other opex", under "Our Business Plan", within Table 3.

Table 3: Comparison of smart metering enhancement costs between our Business Plan, Ofwat's draft determination and our current view (£m, 2022/23 prices)

Expenditure Item	Our BP (as submitted)	Our BP (corrected)	Ofwat DDs	Our current view	This rep.
Capex	**17.78**	**19.08**	**-**	**19.59**	**19.08**
Meters & installation	8.41	9.70	-	11.02	9.70
Other capex	9.37	9.37	-	8.57	9.37
Opex	**5.11**	**5.72**	**-**	**5.80**	**5.72**
Core opex	1.55	1.55	-	3.12	1.55
Other opex	3.56	3.67	-	2.18	3.67
CSL	0.50	0.50		0.50	0.50
Totex	**23.39**	**24.79**	**17.78**	**25.39**	**24.79**

Source: SES Water analysis.

50. We can see from the table that as part of our Business Plan, we submitted an enhancement expenditure requirement of £23.39 million for AMI smart metering, including the £0.50 million customer-side leakage expenditure reallocated to smart metering. This compares with Ofwat's draft determination of £17.78 million and our current view that the enhancement element of the programme will cost £25.39 million.

51. As previously described (in paragraph 3), this current view of the cost, at £25.39 million, is £2.00 million more than our submitted Business Plan, and £0.60 million more than we are seeking through this representation. We are challenging ourselves to deliver and keep to our original Business Plan request of £24.79 million.

52. However, the value of this representation remains £7.01 million higher than the draft allowance provided within Ofwat's draft determinations.

C. Setting of efficient allowances

53. We acknowledge the challenges Ofwat has encountered in benchmarking smart metering costs across the industry. We also recognise that Ofwat has endeavoured to be pragmatic in applying these benchmarks to establish an allowance, opting to use the median benchmark allowance rather than the upper quartile benchmark. However, there remain issues with the approach Ofwat has taken, which has resulted in a totex allowance for us that does not accurately reflect the efficient costs we are likely to incur in rolling out our smart metering programme.

54. These issues can be broadly summarised into the following themes:

(a) Ofwat has not properly considered differences in ambition when benchmarking costs. There is significant overlap between the aims of the smart metering programme and the aims of other interventions to improve supply and demand balance. The allocation of costs and associated demand reductions between metering and supply-demand enhancements, has had the inadvertent effect of reducing our totex allowance, while committing us to the demand reduction ambition.

(b) Ofwat has not undertaken a top-down sense check of the implied unit costs of the meter rollout against evidence emerging from the market. And given limited experience to date of smart metering in the water sector, Ofwat has not appropriately considered the need for risk, optimism bias and/or uncertainty adjustments.

(c) Ofwat has used an inappropriate cost driver for benchmarking metering opex that fails to recognise that such costs are driven by the total number of smart meters installed, and not the in-year number of installs.

Differences in ambition

Consumption reductions through smart metering

55. Ofwat's benchmark models of smart metering costs only use the number of smart meters installed as a cost driver, and not any assessment of ambition. Importantly, the benchmarking does not account for differences between companies in terms of the assumed reduction in household consumption (i.e. PCC), business demand and leakage from the smart meter rollout.

56. **Household consumption:** We observe that our PCC target implicitly assumes a 5% incremental reduction in consumption through engagement and behavioural change from upgrading standard visual read and AMR meters to smart meters. On the other hand, most other companies have assumed a 3% incremental reduction,[5] with one company assuming 4%[6] and another assuming 2%.[7] As described in the subsequent section, the additional investment we are proposing to deliver through the smart metering programme, is driving both our higher cost and our higher ambition.

57. We recognise that other companies who are more advanced in their smart meter roll out programmes have achieved their reductions primarily through a focus on customer-side leakage interventions, and therefore, we do not consider this to be a common comparable basis for the fixed costs pertaining to infrastructure and technology. This is because our plan is strategically designed to effect change in consumption and demand behaviours, meaning we are investing in several technologies to enable the secure and high-quality integration and management of our data from our iDMA (intelligent District Metered Area) network, smart meters, and customer data. We believe this makes our plan unique, both in our approach and by virtue of being the only company with a preexisting smart network to connect with smart meter data.

[5] Upon a review of the metering enhancement cases of Yorkshire Water, Northumbrian Water, Thames Water, and Affinity Water
[6] Southern Water
[7] South Staffs Water

58. **Business Demand:** Similarly, our business demand reduction assumes a 95 l/d reduction for every smart meter installed, with a 0.8 Ml/day reduction by the end of the AMP. This again is based on a 5% incremental reduction in consumption from upgrading AMR meters to smart meters, which appears to be higher than the rest of the sector.

59. **Leakage:** Finally, our leakage reduction commitments assume a 0.5 Ml/day reduction in customer-side leakage by the end of the AMP, attributable to the smart meter rollout.

60. The table below summarises the cumulative Ml/day reduction assumed to be delivered through our smart metering programme.

Table 4: Assumed reduction in water demand over AMP8 through the smart metering programme (Ml/day)

	2025-26	2026-27	2027-28	2028-29	2029-30	AMP8 end
PCC	0.72	1.52	2.23	2.95	3.67	**3.67**
Business demand	0.16	0.33	0.49	0.65	0.82	**0.82**
Leakage	0.1	0.2	0.3	0.4	0.5	**0.5**
Total	**0.98**	**2.04**	**3.02**	**4.01**	**4.99**	**4.99**

Source: SES Water analysis

61. As noted above, the implied Ml/day reduction we have assumed will be delivered through our smart metering programme is more ambitious than what we observe from other water companies. We consider that part of this is due to genuine differences in ambition while some of it is due to how costs (and associated demand reduction benefits) have been allocated between the smart metering enhancement area and the demand reduction enhancement area.

62. We observe that other companies have been funded through separate enhancement allowances for further PCC and business demand reductions, beyond what will be delivered through their smart metering programmes. It appears to be a perverse outcome of Owat's draft determination, that we have been provided with a lower enhancement allowance for our smart metering programme, because of how we have allocated the costs and associated benefits of the programme.

63. The impact of not considering differences in ambition is material. This can be demonstrated through the cost benchmarks Ofwat has estimated to assess the efficiency of demand-reduction enhancement initiatives, such as household and non-household water efficiency visits. This is presented in Table 5 and elaborated further below (next page).

Table 5: Value (£m) of assumed reduction in water demand over AMP8 through the smart metering programme (Ml/day)

	PCC	Business demand
Total assumed AMP8 savings through smart metering (Ml/day)	3.67	0.82
- of which baseline saving based on 3% increment (Ml/day)	2.20	0.49
- of which additional ambition by SES Water (Ml/day)	1.47	0.33
Median unit cost of demand reduction (£m per Ml/day)	1.16	1.16
Value of demand reduction (£m)	**1.70**	**0.38**

Source: SES Water analysis

64. Based on company submissions, Ofwat has estimated that the unit cost for delivering a Ml/day reduction in demand is £1.158 million.[8] Taking the PCC assumption of 5% incremental reduction through AMI meter upgrades and comparing it against the 3% efficiency saving used by most of the rest of the sector, we have committed to delivering a further 1.47 Ml/day reduction in water demand. This additional ambition is worth £1.70 million in totex based on the allowance Ofwat has provided for other demand reduction enhancement schemes.

65. Extending this analysis to include business demand would increase the value of our ambition to £2.08 million, partly bridging the allowance gap between our request and Ofwat's draft determination position. Furthermore, we would like to highlight that we are committing to deliver an additional £3.39 million worth of demand reduction, both household and non-household, through base water efficiency activities.

Cost allocation of smart meter data sharing and customer engagement infrastructure

66. We observe that companies have taken varying approaches to capturing the data sharing and customer engagement costs associated with the smart meter rollout. This includes investment in:

    (a) Data sharing with customers to encourage behaviour change, as a means of reducing PCC and business demand.

    (b) Data management and IT infrastructure, to analyse and develop insights at a property level, to allow us to identify potential leaks at customer properties and internal plumbing losses (hence reducing PCC).

    (c) Data management and IT infrastructure, to analyse and develop insights at an area level, to allow us to better pinpoint leaks in the distribution network.

67. We see this data infrastructure as an essential component for delivering on our demand and leakage reduction targets. This is because:

    - Given most of our customers already have meters, much of the incremental reduction in consumption will be achieved through behaviour change, with a smaller proportion achieved through the quicker identification of customer-side plumbing losses. Given the nature of such reductions, it will not be possible to deliver this improvement without appropriate levels of investment in data sharing infrastructure, customer engagement and analytics capability. This is particularly the case as we serve an area of relative affluence, where customer demand is relatively inelastic to the price of water.

[8] Ofwat (2024) PR24 draft determinations: Demand-side improvements model, v1. Tab: Unit Costs, Cell D22

- Similarly, the leakage reduction targets are reliant on our investment in the analytics capability to identify and fix network and customer-side leaks more rapidly than it is currently able to do so, and area we have demonstrated clearly and with credibility through the implementation of our industry-first iDMA (intelligent District Metered Area) network, of which our smart metering programme is an extension of.

68. We have treated all these costs as smart meter infrastructure. We can see that in some instances, Ofwat has re-allocated such costs to smart meter infrastructure, e.g. in the case of Severn Trent. However, it is apparent that this has not been done systematically.

69. We note, for example, that:

    (a) **South East Water** appears to have included the cost of such infrastructure within its estimated of company-led household water efficiency initiatives.[9]

    (b) **South West Water** has included a separate enhancement case that covers a move towards a single customer system and channel, some of which overlaps with the activity included within SES Water's smart metering enhancement case.[10]

    (c) **Welsh Water** appears to have included such costs within its supply-demand balance investment line. [11]

70. This inconsistency means that, again, much of the cost associated with the smart metering investment is being captured as inefficiency, instead of being recognised as differences in cost allocation between companies or differences in ambition. And importantly, the balance of fixed versus variable costs for such data sharing and analytics infrastructure will be more heavily weighted towards fixed costs than the cost of rolling out the smart meters themselves.

71. We consider that it would be more appropriate to assess such investment in data and technology on a consistent basis between different water companies. While it appears that Ofwat has tried to reallocate costs to ensure consistency across different enhancement cases, we do not believe that has been done so successfully in all cases.

Top-down sense checks and consistency in maturity of cost estimates

Emerging evidence from the market

72. We are surprised that Ofwat does not appear to have undertaken any market engagement to sense check the unit costs it has derived from its benchmarking. Given most companies are at the start of their smart meter rollout journeys, any cost estimates they submit will inevitably be more uncertain when compared against enhancements that relate to more routine activities.

73. Nevertheless, Ofwat's benchmarking has treated all submitted cost estimates as of equal value despite some companies being further progressed on their smart meter rollouts and, therefore, having a much better understanding of the costs.

Accounting for risk, optimism bias, and uncertainty

74. We understand that in their submitted estimates of smart metering costs, some companies included explicit adjustments for optimism bias, risk, and uncertainty, while others, including ourselves, did not. Similarly, some company estimates were based on the results of market engagement where the programme to roll out smart meters was

[9] See Ofwat (2024) PR24 draft determinations: Demand-side improvements model. Tab: Inputs CW8
[10] See Ofwat (2024) PR24 draft determinations: PR24 CA30 Freeform, Tab: SWB - Data management
[11] See description of CW3b.47 in Appendix A of Dŵr Cymru (2023) Enhancement Investment Case: WSH58-RS02 – Reducing Drought Risks and Improving Customer Visibility of Usage for PCC Management

relatively well-progressed, whereas others including ours, relied on cost estimates provided by the independent study from Artesia/Frontier Economics or elsewhere.

75. Ultimately this means that the estimates are not meaningfully comparable without adjusting for these differences. Disregarding such differences in the benchmarking exercise will likely result in them being captured in the residual and, therefore, be interpreted as inefficiency. And unless those companies that have adjusted for optimism bias and/or risk have done so excessively, the overall effect of not adjusting them would be to downwardly bias modelled allowances.

76. We challenged ourselves by submitting a cost plan that did not include any adjustment for risk or optimism bias. Instead, we used the central cost figures from the Artesia analysis and report as an independent view of the cost of the rollout. As described in Section B, we have progressed our development of the smart meter rollout programme and undertaken considerable market engagement, and as a result of the insight gained from the market engagement, our estimates of the cost of the rollout have increased.

77. In our Business Plan estimate, we included several cost items that would allow us to use the data gathered from smart meters to improve our own decision-making and to support behaviour change on the part of customers. We consider these essential for achieving our planned reduction in PCC, business demand and leakage over the longer-term, in line with our WRMP. The results of Ofwat's benchmarking, on the other hand, has had the effect of excluding these additional costs while making limited to no provisioning for optimism bias, risk and uncertainty. We are therefore seriously concerned that the overall smart metering package only includes downside cost risk, compounded further by the combination of performance commitment ODIs and PCDs.

78. As a matter of principle, a programme of works of this scale and this speed, requires making appropriate adjustments for optimism bias and/or risk and uncertainty. For ourselves, the enhancement element of our smart metering programme represents approximately 5% of totex, while the full programme represents nearly 10% of totex, making it the largest programme the company will have delivered. By not recognising the need for such adjustments and ensuring a degree of consistency between company estimates, Ofwat is inconsistent with its own approach for strategic water resources solutions, where it has recognised the need to account for risk and optimism bias.[12]

79. We request Ofwat re-runs its benchmarking but with a consistent treatment of optimism bias and/or uncertainty and risk. This could involve either pre- or post-modelling adjustments.

Opex element

80. Another comparably smaller issue with the benchmarking that Ofwat has undertaken relates to the assessment of Opex costs. Most of the Opex associated with the smart metering roll-out relates to the number of smart meter installations rather than the in-year number of installs. For example, data reading and communication, meter maintenance, and on-going customer engagement are all operating costs that broadly scale in proportion to the total number of installed smart meters. On the other hand, Ofwat's modelling benchmarks Capex and Opex together, and uses only the in-year number of installs as a relevant cost driver.

81. The ultimate impact of this approach will differ from company to company and depend on both the profile of installs over the AMP as well as the total number of planned installs.

82. We would therefore suggest either benchmarking the Opex element separately or including the cumulative number of installed meters as an additional cost driver. In theory, this should improve the model performance.

[12] See Section 8.1 in RAPID (2022) Strategic regional water resources solutions guidance for gate two and Section 8 in RAPID (2023) Strategic regional water resource solutions guidance for gate three.

D. Impact and Consequences to Performance Outcomes

83. In this section we explore and illustrate the effects on critical performance outcomes for customers in the case where we are underfunded.

84. As described earlier in this document, Ofwat have allowed for £17.78 million of enhancement compared with our corrected Business Plan submission of £24.79 million, an expenditure gap of £7.01 million (-28%). Compared with our current view of the cost of the programme, which is £25.39 million, the gap is £7.61 million (-30%).

85. The following Table 6 uses our analysis from Table 4 and Table 5 (in Section C - Setting of efficient allowances) in which we demonstrated our increased ambition for PCC, business demand and leakage reduction, and showed how Ofwat has estimated that the unit cost for delivering a Ml/day reduction in demand is £1.158 million.[13] As a result, Table 6 demonstrates the effects of Ofwat's draft determination funding gap on our ambition and outcomes for customers, namely PCC, business demand and leakage reduction.

Table 6: Effects of underfunding on assumed reduction in water demand over AMP8 through the smart metering programme

	AMP8 total Ml/day Reduction	Underfunding Apportionment Ml/day Reduction Equivalent	Estimated Ml/day Reduction with Ofwat DD Funding level
PCC	3.67	-0.88	2.79
Business demand	0.82	-0.20	0.62
Leakage	0.50	-0.12	0.38
Total	**4.99**	**-1.20**	**3.79**

Source: SES Water analysis

86. The above table illustrates how a -28% funding gap can directly correlate to a 24% loss in value and outcomes for customers. In this case, the -28% funding gap will lead to an overall shortfall in Ml/day reduction associated with metering of 1.20 Ml/day by 2029-30. This would comprise of 0.88 Ml/day less in PCC reduction, 0.20 Ml/day less in business demand reduction, and 0.12 Ml/day less in leakage reduction.

87. In addition, the consequences of this in our WRMP is likely to include missing the interim EIP target, and reducing our headroom such that we rely on drought permits in dry years and must consider whether supply support to regional companies is appropriate and achievable.

88. In the next, and final section of this document, section E, price control deliverables (PCDs) and outcome delivery incentives (ODIs), we go on to examine and demonstrate our concerns and recommendations with regards to the PCD specifically, and the importance of this in relation to the above risks to performance outcomes for customers, relative to the potential underfunding of our plan.

[13] Ofwat (2024) PR24 draft determinations: Demand-side improvements model, v1. Tab: Unit Costs, Cell D22

E. Price control deliverables (PCDs) and outcome delivery incentives (ODIs)

89. As part of the draft determination Ofwat has proposed a PCD for the delivery of smart meters, and this includes two main operability performance thresholds, and two financial penalty mechanisms, summarised as follows:

    (a) Completeness Threshold – to measure and record water consumption data at least once an hour with a 95% or higher success rate.

    (b) Connectivity Threshold – to transmit the recorded consumption data to the smart infrastructural network at least once every 24-hours with a 95% or higher success rate.

    (c) Non-Delivery Payments – will apply to funded meters which are not delivered nor meeting the active thresholds by the end of the price control period.

    (d) Time Under / Over Performance Payments – will apply for any given year for New Installs, Meter Replacements, or Meter Upgrades where performance falls short of the PCD roll out target.

90. Separately, Ofwat has also proposed ODIs for three performance commitments that are directly affected by the smart meter rollout – reductions in PCC, business demand and leakage. We understand that Ofwat has proposed a PCD for the smart meter rollout as it considers the ODIs in isolation, do not provide sufficient protection to customers from failure to deliver the smart meter rollout.

Cumulative effect of PCDs and ODIs

91. We are concerned about the cumulative effect of the PCD incentives associated with the smart meter rollout programme and the ODIs for the PCC and leakage reduction targets. As the smart metering programme is ultimately intended to reduce PCC and to a lesser extent leakage, Ofwat's approach in its draft determination is incentivising companies at both the output level and outcome level. Ultimately, this means that we risk being penalised multiple times for the same outcome. For example, if we do not deliver the planned number of smart meters. We would:

    (a) incur a PCD non-delivery penalty based on the number of smart meters not installed,

    (b) incur an additional PCD time-incentive penalty based on delayed delivery, and

    (c) incur an ODI penalty based on a failure to deliver the planned PCC and leakage reductions and are also likely to see this negatively impact C-MeX and BR-MeX outcomes.

92. In Table 7 below, we illustrate the impact of the PCD incentives under an illustrative P10 scenario where 30% of meters do not report frequently enough to be considered 'delivered' for the purposes of the PCD incentive.

Table 7: Time incentives and non-delivery payments under a delivery scenario in which 70% of the metering programme is delivered annually*

Unit	2025-26	2026-27	2027-28	2028-29	2029-30	Total
New installations						
Delivered meters (cumulative)	749	1,428	2,037	2,576	3,045	**3,045**
Net time-incentive payment (£m)	0.00	-0.01	-0.01	-0.01	-0.02	**-0.05**
Non-delivery payment (£m)	-	-	-	-	-0.50	**-0.50**
Meter upgrades						
Delivered meters (cumulative)	28,354	56,708	85,063	113,417	141,771	**141,771**
Net time-incentive payment (£m)	-0.01	-0.05	-0.08	-0.15	-0.15	**-0.41**
Non-delivery payment (£m)	-	-	-	-	-4.63	**-4.63**
Meter replacements						
Delivered meters (cumulative)	40,536	81,042	12,1548	162,054	202,560	**202,560**
Net time-incentive payment (£m)	0.05	0.05	0.05	0.05	0.05	**0.23**
Non-delivery payment (£m)	-	-	-	-	0.00	**0.00**
Total payment (£m)	**0.03**	**-0.01**	**-0.05**	**-0.08**	**-5.25**	**-5.36**

Source: SES Water analysis
Note: Negative values imply we pay a penalty whereas a positive value implies we receive an outperformance reward.

93. The table shows that even if we were to incur the costs of delivering the full smart metering programme, technology issues would require us to make a payment equivalent to nearly a third of the cost.

94. In Table 8 below, we illustrate the equivalent impact of associated ODI penalties under the same illustrative scenario where 30% of meters do not report frequently enough.

Table 8: ODI penalties for Leakage, PCC and Business Demand under the 70%-delivery scenario

	Unit	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Leakage	£m (pre-tax)	-0.04	-0.04	-0.04	-0.07	-0.10	**-0.30**
	% of RoRE	-0.02	-0.02	-0.02	-0.03	-0.04	**-0.03**
PCC	£m (pre-tax)	-0.16	-0.22	-0.27	-0.31	-0.35	**-1.31**
	% of RoRE	-0.08	-0.10	-0.12	-0.14	-0.15	**-0.12**
Business Demand	£m (pre-tax)	-0.03	-0.04	-0.05	-0.06	-0.08	**-0.26**
	% of RoRE	-0.02	-0.02	-0.03	-0.04	-0.04	**-0.03**

Source: SES Water analysis

95. The table shows that under such a scenario, the risk to RORE from ODI payments would be -0.18%. If you were to include the PCD penalty, the risk to RORE would increase to

-0.67%, as the costs of the meter rollout would be incurred even though the associated allowance is clawed back. The cumulative impact of the ODI and PCD penalties is disproportionate.

96. While we fully intend to deliver the number of smart meters proposed in the draft determinations, any delay in the rollout or any teething issues with the technology would not mean that customers will not ultimately benefit from the investment in technology.

97. We consider that it would be more appropriate for each incentive to be calibrated to account for the net impact of associated incentives. In other words:

    (a) The PCD time incentive would be equivalent to the current gross incentive, minus the expected ODI penalty that would also be payable should such a delay materialise.

    (b) The PCD non-delivery incentive would equivalent to the gross incentive, minus the PCD time incentive and the expected value of the ODI penalty.

98. An additional concern relates to the approach taken to the setting of the PCDs, which are based on the average cost of a smart meter installation rather than the marginal cost. This is problematic as it undermines the main principle underlying the establishments of PCDs, which is to recover allowances provided to companies for specific purposes when they have not been spent. Setting the PCD based on average costs would over-recover allowances given a large proportion of our cost submission relates to fixed costs.

Technical parameters for PCD

99. Ofwat proposes separate PCDs for new meters, meter replacements, meter upgrades, small bulk meter, and large bulk meter installations. Ofwat stipulates that for a meter to be counted as having been delivered it should do the following:

    (a) Measure and record water consumption data at least once an hour with a 95% or higher success rate.

    (b) Transmit the recorded consumption data to the smart infrastructure network at least once every 24 hours with a 95% or higher success rate.

100. We understand that Ofwat based the PCD completeness and connectivity thresholds on the performance of smart meters observed in the energy sector. However, there are important differences in smart metering implementation between the water and energy sectors, such as:

- **Technical parameters:** external factors such the nature of buildings, existing underground infrastructure, topography, vehicles parked over meters and comms devices and population density have a greater effect on the performance of water smart meters.
- **Metering programme and market provision maturity:** the energy sector benefits from the common network infrastructure, the Smart Data Communications Company (DCC), which is not available in the water sector.

101. Whilst our metering programme is based on extensive surveying and previous delivery experience, it would sometimes be necessary to amend our plans in light of new information received from operational teams in the field, once they begin the work. This is to be expected in any operational environment. Therefore, we believe that Ofwat should complement the PCD regime with an appropriate uncertainty mechanism (e.g., caps and collars on the volume of meters delivered) to allow us the flexibility to make the best operational decisions in the interest of consumers.

102. In contrast with Ofwat's 95% or higher targets for the return of data, Ofgem and the DCC measure performance as operating in "smart mode" as defined by Citizens Advice[14]. In

[14] Both Ofgem and the DCC use Citizens Advice's definition of smart mode: "Smart mode means your meter should automatically send readings to your supplier."

doing so, the energy sector has still not demonstrated performance levels comparable with Ofwat's 95% targets, by example, energy smart metering has only achieved between ~80-92% of meters in "smart mode" since 2019 according to the Department for Energy Security and Net Zero (DESNZ). The latest quarterly DESNZ report up to the end of March-24[15], highlights that there are 35.5 million smart and advanced meters in homes and small business across Great Britain; 62% of all meters are now smart or advanced meters. Of the 35.5 million smart or advanced meters installed, only 89% are operating in smart mode (55% of all energy meters are smart and operating in smart mode). Therefore, we do not consider Ofwat's determination of a 95% or higher target to be proportionate or appropriate for the water sector, most notably because this is not a commensurate comparison with the energy sector, and because of the relative immaturity and lack of a representative sample size in the water sector to test and prove this benchmark.

103. In summary, and in the run-up to the final determinations, we would welcome an approach by Ofwat that includes a consultation period with a range of smart metering delivery providers in the water sector (communication providers in particular) to develop sector-appropriate performance levels. Moreover, we would encourage a pilot period in the early years of the price control period to ensure the PCD operability performance levels could be tested and benchmarked, including an appropriate representative sample size from across the sector.

[15] DESNZ Smart meters in Great Britain, quarterly update March 2024: statistical bulletin