Cadent
Your Gas Network

Appendix 10.06

Uncertainty Mechanism Case

Smart meter roll-out costs

Cadent
Your Gas Network

Cadent's systematic approach to developing uncertainty mechanisms to manage forecast uncertainty

1. Defining our customers' needs

- What is the area?
- Why is it important to customers and stakeholders?
- What insights are shaping our thinking?
  - Customer insights
  - Stakeholder insights
  - Legislative insights
  - BAU operational information
  - Historic insights
  - Wider research

2. Evidencing forecast uncertainty

- What do we know about future workload & costs in this area?
- Why can't expenditure be forecast with sufficient confidence?
  - For example using historical / independent benchmarks
- Why are levels of expenditure outside of network control?
- What customer / network impacts could there be from a forecast error?
- What network behaviours could arise from inclusion within the base plan?
  - What would the customer impact be?

3. Qualitative assessment of the options

- What options other than inclusion in the base plan are available?
- Why are they the options?
- What option(s) are we proposing and why?
- How would the mechanism(s) work? (Implementation, triggers, materiality thresholds etc.)
- What are the customer benefits & drawbacks of the mechanism(s)? (Inc. simplicity)
- Why do the customer benefits outweigh the drawbacks?
- What network behaviours could the mechanism drive?
  - What would the customer impact be?

4. Quantitative assessment of the proposed options

- How do we know our 'input variables' are the best available? (i.e. ranges of workload, costs, trigger points, frequency, probability)
- How are we assuring our modelling results?
- What is the best view of materiality for the area?
- What is the modelled cost volatility for the area?
- How does the proposed mechanism(s) deliver value for money?

5. Quantifying the overall customer impact

- What is the overall customer impact of all areas of forecast uncertainty – with and without mechanisms?
- What does this mean for the balance of forecast risk between customers and networks?
- What does this mean for customer bills?

6. Setting standards that customers love

- Are our proposals, and the associated impacts, easy to understand?
- Can it be demonstrated that they protect customers and investors?
- Is our suite of proposed mechanisms acceptable to customers and stakeholders?

Uncertainty area			
Demand uncertainty	**Legislative uncertainty**	Cost confidence	Heat policy

Smart meter roll-out costs

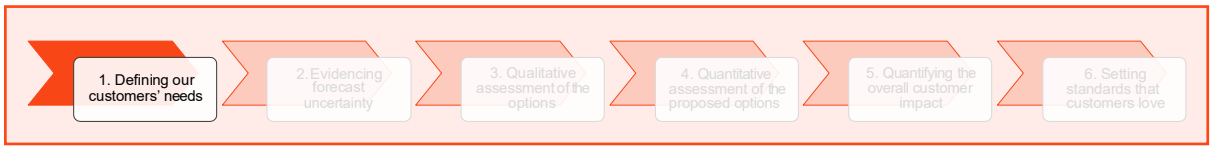
Referenced in Ofgem SSMD

Proposed Pass Through mechanism, triggered by mandate

The Government's smart meter implementation programme requires energy suppliers to install smart meters for their domestic and small-business customers. While we are not responsible for the installation of smart meters, we are sometimes required to intervene to correct faults. With recent Government announcements, greater certainty has been provided for the remainder of the roll-out timetable, and therefore intervention costs and volumes have been included in our base plan.

However, uncertainty remains as to whether we may be required in the future to become a full user of the Data Communications Company (DCC), who operate the smart meter network and provide data to relevant parties. This membership would have associated costs through the system requirements we would need to meet.

1. Defining the need



1.1. What is the area?

The Government's smart meter implementation programme requires energy suppliers to install smart meters for their domestic and small-business customers. The roll-out of the programme has been delayed, resulting in further workloads during the RIIO-2 period. Occasionally, we intervene in response to potential faults or safety concerns with installed meters. Examples of this include reliability issues with installed SMETS1 and SMETS2 meters, compatibility issues associated with our network (such as emergency control valves) or responding to issues created through installation.

Associated with the smart meter roll-out programme, the Data Communications Company (DCC) is responsible for establishing and managing the smart metering data and communications infrastructure. Users of the DCC are required to meet a range of entry requirements so that they can communicate with DCC smart metering devices.

The Smart Energy Code (SEC) sets out the terms of provisions of the DCC's services and the provisions that suppliers and network operators must meet. It also contains the requirements other parties must meet to become full users.

At present, domestic energy suppliers and distributed network operators (DNOs) are obliged to become DCC users through their licence conditions. This obligation does not currently extend to gas distribution networks (GDNs).

1.2. Why is it important?

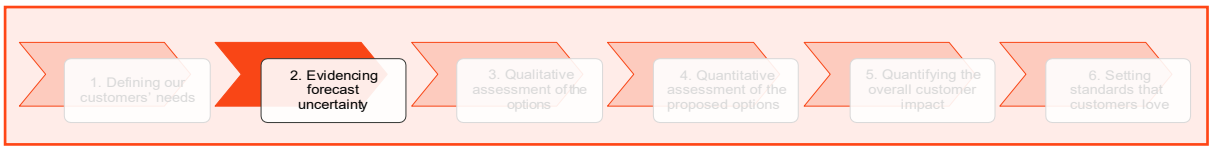
We have a responsibility to support the roll out of the smart meter implementation programme, which ultimately aims to improve customer control over energy consumption. It is also important for us to ensure that any smart meters that are installed to customers across our network are done so safely.

Our assessment shows that the benefits associated with full DCC membership at this time do not outweigh the costs. As such, this is not something we can suggest is good value for our customers. Whilst the cost benefit analysis is not currently favourable for GDNs to become full DCC users, as the roll-out works towards achieving 85% installation rates by the end of 2024, the economic benefits associated with the programme will continue to increase. This may result in the cost benefit analysis reaching a level where GDNs are required to become full DCC users.

1.3. What insights are shaping our thinking?

We have considered the cost implications of full DCC membership, as summarised in Section 4, by evaluating the experience of DNOs that are currently mandated to become full users as part of their licence obligations. We have also engaged with BEIS on the subject in the context of the smart meter roll-out programme, which has attributed significant economic benefits to the programme. This has informed our view that our membership may be mandated in the future as the roll-out progresses.

2. Evidencing the uncertainty



2.1. What we know about the future

To date, installations for customers across our network have averaged approximately 1.2 million per annum. We also know that across these installed meters, we have had to make an intervention in approximately 3% of cases, although this value varies by network. Based on recent announcements for the timetable of the smart meter roll-out, we have included forecast intervention volumes in our base plan.

We know through engagement with BEIS that there is a strategic direction for networks and suppliers to become full users of the DCC. As the roll out continues to progress, this may strengthen as the economic benefits of the programme grow.

Comparing uncertainty to costs included in our base plan

Our base plan does not include any costs associated with becoming a member of the DCC. Only costs associated with future smart meter interventions have been included in our proposals, with forecasts developed based on unit cost estimates and future volumes according to the latest roll-out timetable.

Our proposal for an uncertainty mechanism does not interact with these costs. As discussed in Section 4, the costs we propose to reclaim through this mechanism relate to costs that may be triggered in response to external changes in our licence conditions and obligations.

2.2. Why we face forecasting difficulties

There is uncertainty over future regulatory requirements as to whether we will be mandated to become a full user of the DCC, which would have associated implementation costs.

We are not able to control any decision that may be made by BEIS on this matter. While we continue to participate fully in conversations on future policy, we will ultimately be required to comply with any changes to our licence conditions. If a decision is made in the future that requires GDNs to become full users of the DCC, we will be able to develop a **better view** of potential costs through fully evaluating the implications of any policy decision.

2.3. Network impacts and behaviours from including in our base plan

The risk with including costs in our base plan for full user costs associated with the DCC is that no policy change has yet to be announced requiring this. This creates a risk that our estimate fails to fund the activity mandated by new requirements, or alternatively that we receive funding for policy changes that do not materialise in RIIO-2.

If we were to include costs in the base plan to become a full DCC user, there is a credible **risk** that our estimates would fail to align with the specific actions we may be mandated to take. We would face an incentive to price risk into our base plan estimates, to pre-empt the scope of changes from our regulators to our licence conditions.

However, this creates a **risk to customers.** Future requirements may not be introduced or may apply in a limited capacity. This may have a significant cost impact on our business yet creates an opportunity for windfall gains.

Excluding this expenditure from our base plan ensures that customers will only pay for actions that we are mandated to take by changes to our licence condition. The alternative would be to include a speculative investment in our proposals, which will not have been developed in line with the specifics of any changes introduced by BEIS or Ofgem. This could be done through a PCD.

3. Qualitative assessment

3.1. Options for addressing uncertainty

Given the uncertainty on future requirements to become a full DCC user, we have identified and evaluated other mechanisms that could be used to address this risk:

Table 1: Evaluating options for uncertainty mechanisms

Mechanism Option	Description
Volume driver	A volume driver is not applicable in this setting. Future costs for becoming a DCC user are not associated with volume uncertainty, and do not have an associated unit cost.
Reopener mechanism	A reopener accounts for uncertainty in costs when both the design and requirement for projects in RIIO-2 is unknown. Costs for DCC membership could be considered for this. However, if costs are to be incurred, this will result from a change to our licence conditions that we are mandated to comply with. This will also be based on charges determined through the separate price control for the DCC. Therefore, the application of a materiality threshold would not be appropriate.
Use it or lose it allowance **(PCD)**	This would involve a price control deliverable (PCD) as part of our RIIO-2 plan. While this would protect customers from under delivery, a PCD does not address the challenge we face in forecasting a total cost at present, given the unknown scope of any change we may be mandated to comply with. There is a risk that a PCD may be introduced which does not adequately fund the costs we are mandated to incur, for example if the DCC costs changed in the intervening period.
Pass through mechanism	This would be the most appropriate option. This would allow costs, which will be incurred in line with charges pre-determined by the DCC to be passed through to customers. This mechanism could apply equally to all GDNs.

We have also undertaken a qualitative assessment of uncertainty in this area to further understand the need for an uncertainty mechanism for smart meter interventions.

Table 2: Qualitative assessment of risks posed by smart meters

Risk	Volume risk	Unit cost risk	Impact on outputs	Material cost / bill impact
Smart meter roll out costs	**Medium**	**High**	**Low**	**Medium**

Further detail on our assessment is provided below:

- **Volume risk**: Our work in this area is solely determined by whether an external policy decision is made that requires us to become a full DCC user.
- **Unit cost risk:** There is uncertainty over future cost forecasts, driven largely by uncertainty in the future scope of any policy changes we may have to comply with.
- **Impact on outputs**: This area will not impact other aspects of our plan.
- **Material cost/bill impact:** As discussed further in Section 5, this may be a material area of cost in RIIO-2 will implications for bills. There is significant uncertainty over the timing of any future decision that may be made.

3.2. Our proposed uncertainty mechanism

We are proposing to address uncertainty related to smart meter interventions using a **pass-through mechanism** in RIIO-2. In practice, this mechanism would involve demonstrating costs that have been incurred through relevant activity and reporting these to Ofgem.

Operation of the proposed pass through in practice

- **Form of the trigger:** Costs incurred in relation to becoming a full DCC user. This will be triggered externally by a change in licence conditions that would apply to all GDNs.
- **Mitigating the likelihood of the trigger:** While the trigger would be externally determined, we would undertake proactive engagement with the Government and Ofgem on this position. However, if such a decision is made, we would be mandated to comply.
- **Reclaiming costs:** As outlined above, we have proposed that costs are treated on a pass-through basis, given that these will largely be externally determined, and can be compared against similar costs incurred by DNOs.

3.3. Evaluating our proposed uncertainty mechanism

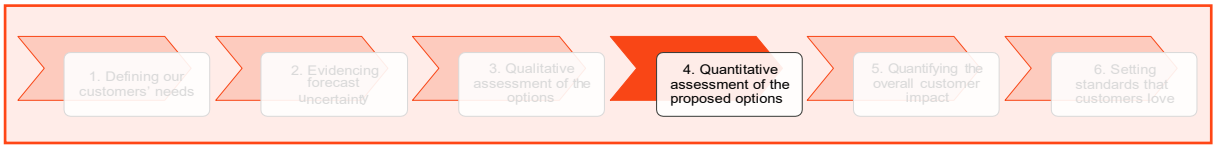
A pass-through item ensures that costs are only passed through to customers if a licence change requires us to become a full DCC member. These costs will also be mandated upon us; therefore, it would not be appropriate to compare them against a materiality threshold. As outlined in Section 2.3, there are risks associated with including a cost estimate in the base plan at present, creating opportunities for Cadent to make windfall gains or losses.

Nevertheless, it is important to fully evaluate the behaviours that our proposed uncertainty mechanism will encourage, to ensure they it does not create perverse incentives. Below, we consider positive behaviours that a mechanism should promote.

Table 3: Evaluating incentives created by our proposed uncertainty mechanism

Behaviours and incentives	Evaluation
To minimise costs	The costs we submit to Ofgem on a pass-through basis will be largely externally determined by charges levied by the DCC. Any costs within our control will also apply to other networks, therefore benchmarking can be undertaken. This creates an incentive to focus on incurring efficient costs, where we have a degree of control.
To deliver required work	Any work required to become a full DCC user will be driven by a change in our licence conditions. Therefore, we would be mandated to comply with these conditions, removing any incentive to avoid undertaking required work.
To take a whole systems approach or identify strategic solutions	This incentive is not applicable in the case of costs that would be associated with becoming a full DCC member. We would be mandated to meet the requirements associated with membership, which are described in detail in the Smart Energy Code.

4. Quantitative assessment



4.1. Inputs for uncertainty modelling

We have first considered the likelihood that we may be mandated to become a full DCC user during RIIO-2. Our view is that this remains unlikely. However, as the smart meter roll-out progresses during the period, this may become a further area of focus for BEIS.

Table 4: Input assumption – likelihood of being mandated as a full DCC user

Likelihood of mandate to become a full DCC user (%)	21/22	22/23	23/24	24/25	25/26
Likelihood	0%	0%	0%	10%	20%

Secondly, we have considered the potential costs that may be associated with system integration required to become a full DCC user. These estimates outlined below include:

- An initial capex cost of approximately £5m for our system to interface with the DCC systems. This investment will be required in order for smart meter data to effectively be communicated. Our estimate is based on indicative quotes received, and feedback from DNO's on the costs they incurred to become full members.
- A recurring membership fee payable to the DCC. This charge is externally determined through the DCC's own price control process. To develop our estimate, we have considered the existing per meter charge that is currently applied to DNO's for 2019/20 and scaled this cost by the number of meter points in our network.

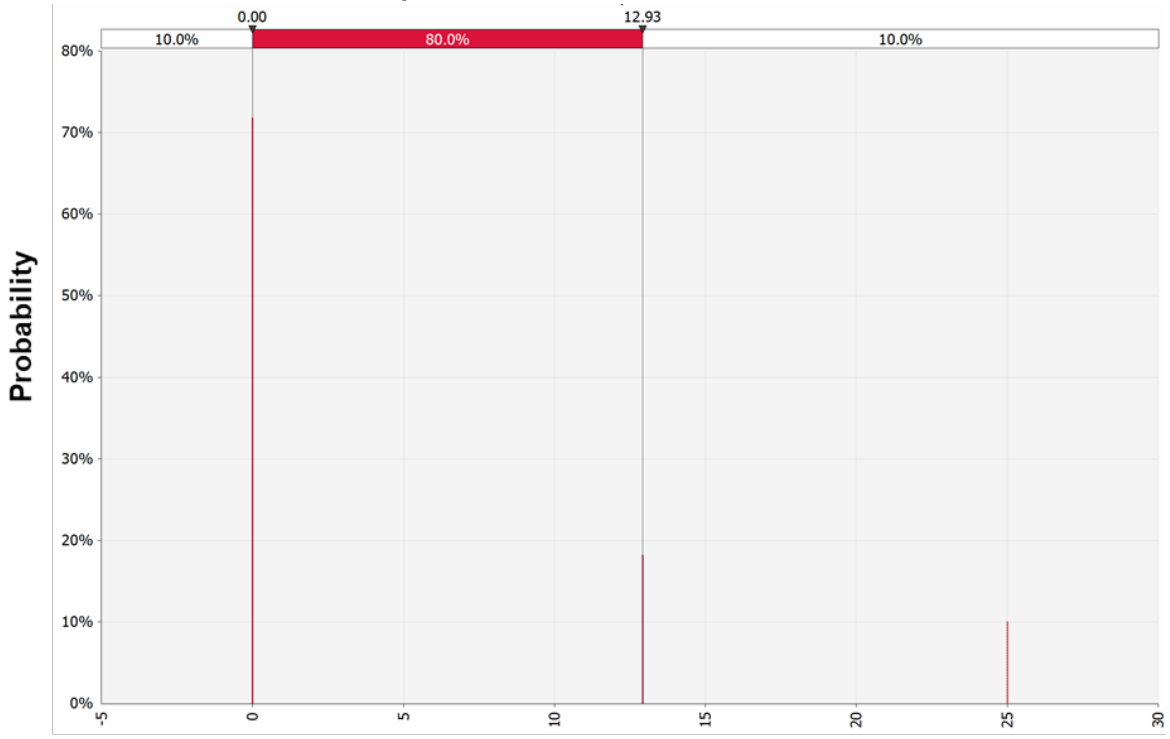
Table 5: Cost estimate to become a full DCC user

Cost estimates	Year licence change is implemented	Subsequent periods
Capex	£5m	
Opex	£10m	£10m

4.2. Assessing uncertainty

Using our input data described above, we have undertaken Monte Carlo analysis to understand the range of cost impacts for this area of uncertainty in RIIO-2. This provides a distribution of the potential cost outcomes, based on 10,000 iterations. This approach illustrates the high and low scenarios of uncertain costs, alongside the mean cost outcome and associated volatility. Figure 1 below summarises this distribution.

Figure 1: Monte Carlo: Total RIIO-2 cost risk for smart meter roll out costs, no mechanism. Costs, £m 18/19 prices.



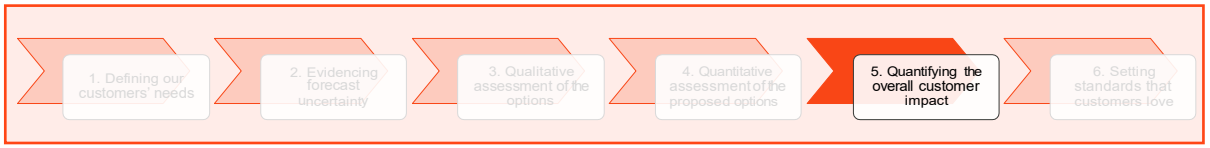
Minimum	Maximum	Mean	Standard Dev	Iterations
£0.00m	£25.00m	£4.83m	£8.32m	10,000

This analysis illustrates the uncertainty in costs associated with becoming a full DCC user. Without the introduction of relevant uncertainty mechanisms, there is a risk that actual costs incurred in RIIO-2 may deviate from an initial estimate proposed as a base line allowance.

4.3. Impact of our proposed uncertainty mechanism

As we have assumed these costs will be treated on a pass-through basis, and given that a materiality threshold is not applicable, our modelling implies from a theoretical perspective that the uncertain cost risk outlined above would be fully mitigated using our proposed mechanism.

5. Quantifying the customer impact



In Section 5 of Appendix 10.00 Our approach to managing risk and uncertainty, we have analysed the overall customer impact of uncertain costs with and without our proposed package of mechanisms. We have also evaluated how our proposed package recognises the trade-off between sharing exposure of cost risk between Cadent and our customers. In Chapters 10 and 11 of our Business Plan, we also quantify the impact of our proposed package of uncertainty mechanisms on customer bills in RIIO-2.

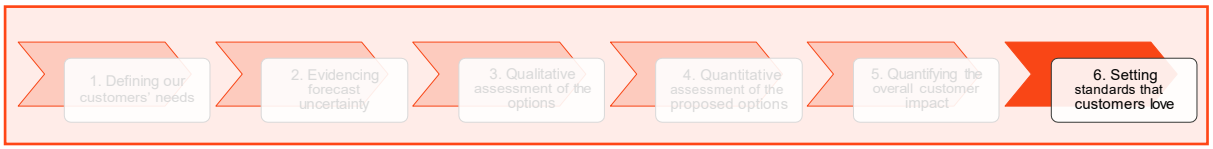
We have also individually quantified the bill impact associated with the pass-through mechanism for smart meter roll-out costs. Table 6 below summarises the potential annual impact by the end of RIIO-2 for the P10, the mean and the P90 costs estimated in our Monte Carlo analysis. As the costs associated with this uncertainty mechanism include an element of capex, this will include a bill impact that extends beyond the RIIO-2 period. For the mean cost impact, this is equivalent to £0.01 per annum.

Table 6: RIIO-2 end bill impact for P10, mean and P90 costs from uncertainty analysis

RIIO-2 end bill impact (£, 18/19 prices)	P10	Mean	P90
East of England	£0.00	£0.21	£0.55
London	£0.00	£0.21	£0.55
North West	£0.00	£0.21	£0.55
West Midlands	£0.00	£0.21	£0.55

For the purpose of constructing bill impact estimates, we have evaluated the impact of the costs implied from our Monte Carlo analysis on a P10, mean and P90 basis. We have not considered the timing effects of revenue recovery from the use of a pass-through item.

6. Setting the standards



Our proposals for a pass-through item are clear and simple for our customers to understand. We only propose to pass through charges from the DCC that would be triggered by a change in our licence condition, mandating us to become a full user.

Our evaluation on the implications of including costs for smart meter roll-out costs in our base plan, as outlined in Section 2.3, and of the incentives associated with our proposed reopener mechanism demonstrate the benefits of this approach for customers and stakeholders.

Our overall approach to managing risk and uncertainty using uncertainty mechanisms has been tested with customers through our acceptability testing. A full discussion of this engagement is provided in Chapter 10. It is noted here that customers found this approach to be acceptable, and that we had been thorough in our work to manage cost risk in RIIO-2.