Cadent
Your Gas Network

Heat Policy and Energy Efficiency Re-opener Submission

28 March 2024
Classification: Confidential

Contents

Ofgem Requirement

The table below outlines which section of the application relates to the individual requirements set out in Special Condition 3.19 and 9.4 of our Gas Transporter licence as well as Ofgem's requirements as set out in their Re-opener Guidance and Application Requirements document.

Ofgem requirement	Application chapter / section
GT licence: Special Condition 3.19 Heat policy and energy efficiency Re-opener (HPRAt) / Special Condition 9.4.3, Part A: Requirement to comply with the Re-opener Guidance and Application Requirements Document	
Circumstances for applying to Ofgem for Re-opener (Para 3.7.5)	Chapter 2 - Alignment with our RIIO-GD2 business plan, business strategy and future price controls Chapter 3 - Problem Statement and Needs Case
Application requirements *(para 3.7.7 (a-e) and 3.7.8b)*	Chapter 1 – Executive Summary Chapter 2 - Alignment with our RIIO-GD2 business plan, business strategy and future price controls Chapter 3 - Problem Statement and Needs Case Chapter 4 – Options Analysis and Preferred Option Chapter 5 – Stakeholder Engagement Chapter 6 – Project Delivery Chapter 7 – Cost Information
Re-opener Guidance and Application Requirements Document: Version 3 (Feb 2023)	
Introduction *(para 3.1)*	Chapter 1 – Executive Summary
Gas Distribution Sector *(para 3.6)*	Chapter 1 – Executive Summary Chapter 7 – Cost Information
Needs case and problem statement (para 3.8-3.9)	Chapter 3 – Problem Statement and Needs Case
Consideration of options and methodology for selection of the preferred option (para 3.13)	Chapter 4 – Options Analysis and Preferred Option
Preferred Option (para 3.14-3.15)	Chapter 4.2 – Preferred Option
Stakeholder engagement and whole system opportunities (para 3.6)	Chapter 5 – Stakeholder Engagement
Cost Information (para 3.19-3.20)	Chapter 7 – Cost Information

For security reasons and commercial sensitivities some of the content in this application submission will be redacted prior to publication on our external website.

Point of Contact

We have included the point of contact for this Re-opener application in our cover letter.

Chapter 1.0
Executive Summary

This paper is Cadent's application to the Authority requesting an adjustment to our RIIO-GD2 allowances under the Heat Policy and Energy Efficiency Re-opener mechanism.

Cadent Gas Limited ("Cadent") is making this Re-opener submission under Special Condition 3.19 Heat policy and energy efficiency licence condition, triggered by a modification to the connection charging arrangements for Distributed Entry Connections. This modification is necessary to address a recognised barrier to higher levels of distributed entry gas seeking to use our gas network.

Removing such barriers aligns with the Government's ambition to support higher levels of biomethane production. In a recent call for evidence, the UK Government recognised 'the role that increasing domestic biomethane production can play to reduce carbon emissions, decrease reliance on fossil methane, provide diversity in gas supply and increase UK energy security'[1].

To address this barrier, a change to the connection charging rules is necessary. This Re-opener is a consequence of and an enabler to modify the Connections Charging Methodology 4B Statement under the terms of our Gas Transporter license. This Connection Charging Methodology change is subject to its own distinct governance process, but this will be coordinated as far as possible with this Re-opener to ensure the Authority is able to make a decision on all aspects of the proposals at the same time.

During the engagement phase of the RIIO-GD2 business planning process, network capacity issues were highlighted by stakeholders. This led us to recognise that the current charging arrangements for connecting entry gas mean that connections are usually only pursued where there is existing capacity, establishing a large disincentive and barrier to entry.

As a result, as part of our Environmental Action Plan endorsed by Ofgem within the RIIO-GD2 determinations, we initiated a review of the existing charging and access arrangements, with a view to develop a commercial regime that encourages additional distributed entry gas connections on to our network. To support this, the RIIO-GD2 framework included a Re-opener mechanism to allow an adjustment to our RIIO-GD2 revenue framework, following the approval of revised charging arrangements for distributed entry connections.

Since publishing our RIIO-GD2 business plan, our progress in this area has matured, with a consultation document published in June 2022 assessing the options to socialise a portion of the reinforcement costs for distributed entry connections. There was strong feedback received from a wide pool of stakeholders, including trade bodies and green gas producers, that an overall change to the current arrangements was required. This Re-opener submission builds on the stakeholder insights taken from the consultation document and suggests ways in which

[1] Department for Energy Security and Net Zero 'Future Policy Framework for Biomethane Production' Future policy framework for biomethane production: call for evidence (publishing.service.gov.uk)

socialised reinforcement costs could be funded across RIIO-GD2. It also represents a funding solution for the RIIO-GD3 period, but we note this is outside the scope of this Re-opener.

Base Requirements

This Re-opener requests the establishment of a new Entry Reinforcement Actual Cost Recovery Mechanism to be deployed across the remainder of RIIO-GD2 and RIIO-GD3.

Additional Requirements for Ofgem Consideration

Should Ofgem conclude an additional efficiency incentive is required to cover the expenditure arising from Entry Reinforcements carried out because of these proposals, then we believe an ex-Post review of significant costs would be the most appropriate approach. We would support the design and implementation of a clear framework for such an ex-Post review, which would include any criteria or methodologies that will be applied, including how projects that will be reviewed are identified. We are happy to work with Ofgem to establish a framework before any new arrangements Go-Live. Should this not be possible by Go-Live, then we would expect any subsequent framework to be applicable to costs incurred once the new arrangements are in place. We anticipate any assessment criteria within the framework will be carefully calibrated to recognise the significant uncertainty regarding costs and designed to identify any clearly inefficient or wasteful expenditure incurred.

We also suggest a financial incentive that rewards the networks for innovation, driving efficiencies, collaboration, and actively sharing and implementing best practise.

Chapter 2.0
Alignment with our RIIO-GD2 business plan

Cadent's gas network plays a critical role in delivering affordable, safe, and reliable heating to 11 million homes and businesses, fuelling major industry, homes, businesses, schools, and hospitals in England.

In our RIIO-GD2 business plan, we made the commitment to promote a whole system energy approach, with a key outcome focused on tackling climate change and improving the environment. A priority under this outcome was to support the facilitation of the low emission energy system transition, with Entry Capacity Enablement; the ability to provide flexible network capacity to facilitate the connection of new clean gas resources such as biomethane plants, outlined as a key output.[2] The output case described the way in which we can make the entry of gas from different sources easier, supporting the future decarbonisation of heat. As a result, we committed to establish:

- Robust, sustainable, and scalable distributed entry gas commercial arrangements
- Flexible funding regimes for entry gas reinforcements, supported by an appropriate Uncertainty Mechanism (UM)
- Standardisation of Entry Gas Connection arrangements

The requirement to invest in entry capacity was a strong theme voiced across a wide pool of stakeholders from the initiation of the RIIO-GD2 business planning process. As we move towards future price control periods, the need for a robust and balanced whole system energy system is magnified. Hence, the proposed change to the existing connection charging arrangements for distributed entry connections supports this wider ambition, with a flexible funding regime required for both the remainder of the current and potentially the future price control period.

A cross-GDN working group was established to identify solutions that address the key output areas, with a focus on defining processes to increase the viability of increased green gas production entering the gas grid. The group published a consultation in Summer 2022 alongside National Grid Gas (NGG) which explored four options to reduce the entry barrier by socialising a proportion of the reinforcement cost. The outcome and responses of this consultation will shape the final connection charging change proposals.

The justification for the charging change will be presented within the governance for changes to our Connection Charging Methodology Statement. Hence, this Re-opener submission focuses on the flexible funding regimes for entry gas reinforcements to enable the charging change implementation. This Re-opener considers various options to support and enforce a robust, sustainable, and scalable distributed entry gas commercial arrangement.

[2] Cadent RIIO-GD2 Business Plan, Appendix 07.04.08 Entry Capacity Enablement

Chapter 3.0
Problem Statement and Needs Case

3.1 Problem Statement

Heat accounts for a large, and growing proportion of the UK's greenhouse gas emissions. Decarbonisation of heat at scale will be required to meet the UK's commitment to reduce all greenhouse gas emissions to net zero by 2050. One of the potential routes to decarbonising heat is the greater use of low and zero carbon alternatives to fossil natural gas to heat homes and businesses. Greener sources of gas, including biogas and landfill gas are typically smaller and more decentralised, but currently face significant entry barriers compared to those in electricity, if they choose to pursue entry onto the gas distribution grid. Hence, to facilitate increased levels of direct gas injections directly on to the distribution grid, changes to the commercial frameworks are required.

If connectees request to connect onto the gas grid where existing entry network capacity is not available, reinforcement is required to create the additional capacity to accommodate these future requirements. In the current charging arrangements for entry, the reinforcement cost associated with connecting falls entirely on the connecting party, rendering many projects economically unviable. This means customers are typically only able to pursue realistic connections where there is existing capacity within the gas network to transport additional gas volumes.

Charging the party initially triggering a reinforcement assumes all entry connections are independent, however, in many cases we have seen dependent and interacting connection requests. Where multiple producers are requesting to connect on to the same part of the network, mutually beneficial reinforcements are an option, rather than discrete reinforcements designed and paid for by each connectee. The deep connection cost, lack of cost socialisation and independence assumptions provide a great disincentive to entry. These factors act as a barrier to new entrants who are unable to secure network capacity at an affordable price and within acceptable timescales. This is inconsistent with achieving our net zero aims that are seeking to increase the proportion of green gas in our network.

In their recent call for evidence, DESNZ recognise the limitations on grid capacity in some locations, making it harder for plants to secure Network Entry Agreements (NEA) with high enough injection capacities. In response, they emphasise their intention to work across Government to include grid capacity issues within their strategic priorities for the future of the gas grid.[3] Likewise, with the Green Gas Support Scheme (GGSS) currently in place until 2028 to incentivise biomethane production; DESNZ are keen to continue and expand this level of support post this date, and are currently consulting on the future policy framework for biomethane production. This has been cited as being a key step in decarbonising and providing greater energy security in the UK.

[3] Department for Energy Security and Net Zero 'Future Policy Framework for Biomethane Production' Future policy framework for biomethane production: call for evidence (publishing.service.gov.uk)

The current level of gas network support can be regarded as asymmetric at a whole system level, with previous stakeholder sentiment reinforcing the view that current connection charging arrangements and the consequential constraint on network capacity provision, present a barrier to entry gas. With gas entering the distribution networks at scale still a relatively new concept, the current distribution charging arrangements are not as cognisant of entry gas requirements as they could be, as they are understandably focused on demand, rather than facilitating large scale decentralised production.

Cadent is therefore proposing a change to the Connection Charging Methodology that if approved would reduce or in some cases completely remove the charge for reinforcement from the overall connection charge. However, if no other action is taken and the charging change is approved, the reinforcement costs which were previously paid for by the connectee, would be unfunded. Hence this Re-opener is required to enable the implementation of such a Connection Charge change, by providing the necessary funding to allow timely and efficient reinforcements or other solutions to create network capacity.

When considering the ways in which to provide this funding to facilitate green gas producers connecting on to our network, a conventional ex-ante allowance approach would not be deemed practical due to the cost and volume uncertainty. With connections being customer driven, future demand post the implemented change is impossible to predict with any confidence. In addition, there is little to no cost evidence from previous schemes as current arrangements have discouraged reinforcements.

It is therefore extremely difficult to forecast accurate cost and volume requirements. Hence, a suitable funding mechanism is required that recognises this uncertainty, while allowing the initial flexibility to provide the required capacity at pace.

3.2 Investment Needs Case

To accommodate increased levels of decentralised gas sources onto Cadent's distribution network, our customers need to be able to access the network in an economically and environmentally effective way. To facilitate this, we need to provide the network capacity when and where it is required, supported by a robust, sustainable and fair network pricing regime. If changes to the commercial regime are made, including the development of a network pricing approach to socialise these costs, and to support entry gas, the need for entry-network reinforcements would be triggered. This type of investment has not historically taken place, due primarily to the incentives and cost allocation under the existing pricing arrangements, as explored in the problem statement. We recognise from extensive engagement with stakeholders that if changes to the commercial and pricing regime are made to support entry gas, there could be significant increases in the demand for entry capacity.

In June 2022, a consultation was collectively published by the GDN's to address the issues stemming from the current entry arrangements, by developing and evaluating four options to socialise a proportion of reinforcement cost (see Appendix 1). The consultation identified the High-Cost Cap (HCC) as the preferred option, with reinforcement costs socialised to the cap level and the connectee covering the increment above the cap. Such a mechanism is simple and transparent and allows costs to be shared between the triggering party and wider network users, whilst protecting demand customers from excessive reinforcement costs. We also note

that a HCC approach is in place for the equivalent power generation connections in electricity distribution. As reinforced from stakeholder feedback, consistency with other regimes is a considerable advantage, especially as the proposed approach is deemed acceptable and workable in the electricity sector.

A broad range of stakeholders were consulted as part of the consultation process, with responses from across the gas industry, supply chain, biomethane and renewable energy producers, energy suppliers and shippers. As expected, there was a strong recognition amongst respondents (92%) for the need for change. Respondents stated there is an increasing number of biomethane and gas entry plants in general which are already creating congestion on the network. There is also potential for this to get worse as volumes increase, requiring the need for greater reinforcement. When considering the type of mechanism to allow this, most respondents (73%) were supportive of a High-Cost Cap over the other options presented in the consultation.

To facilitate the transition to a shallower connection boundary, allowing reinforcement costs to be socialised to some extent, a change to the Gas Transporter License Special Condition 4B, Connection Charging Methodology will need to be submitted. By triggering this Re-opener we can be sure Cadent has funding available to support all new and existing biomethane producers responding to the revised charging arrangements and seeking to inject additional gas onto our gas network. With a flexible funding approach, necessary reinforcements can be undertaken without introducing new delays, like if each reinforcement required its own funding application.

Risks

The following risks have been identified and considered in the design of the Re-opener mechanism. These risks have been explored in more detail in Section ‘4.2 Options analysis methodology’. Each option presented is assessed against how well they can mitigate these risks.

Risk:
Accessing funding results in delays to new entry gas connections
Entry reinforcements are not delivered efficiently
The funding mechanism is resource intensive to administer
The funding mechanism creates a disincentive on the gas networks to invest at pace
There is a limited knowledge of future costs and volumes
There is no funding for efficient operating costs associated with entry reinforcements
Reinforcement decisions are favouring high Opex low Capex options compared to low Opex, high Capex
Cadent receives windfall gains from events outside of their control.

Whilst it is outside of Cadent’s control, there is a wider risk that a charging change and supporting Re-opener approved for Cadent’s networks, but not for other GDNs, would create a ‘post-code lottery’ for new developers.

Given the strong industry support and clear compatibility with Government policy, we do not believe that such an issue should be dealt with by forcing Cadent’s current and future customers to wait for other network companies to pursue their own changes. We would support the other gas networks taking steps to align their own charging arrangements at the earliest possible opportunity.

Furthermore, if these proposals are approved, we do not believe Cadent should be disadvantaged by acting as the first mover. A network committing significant resource to lead and champion a key industry development should be recognised, rather than penalised. Cadent's customers have effectively funded the establishment of new or revised policy, processes, and procedures, as well as the associated Intellectual Property.

We would like to note that Cadent has sought to ensure a consistent approach across all GDNs as these proposals have been developed, as we believe this is what our customers and stakeholders expect. This has inevitably resulted in Cadent's customers being adversely impacted already, by a far slower implementation than if we had simply pursued these changes in our own networks. We believe a Cadent only approach could have been deployed at least 1-2 years earlier, with more of Cadent's entry gas customers benefiting. Any further detrimental impact on Cadent's customers would send out a strong signal for similar future developments, by discouraging first movers and necessitating such framework changes being led by Ofgem rather than the networks.

We note that this whole initiative does provide evidence that an effective incentive is required to drive the right whole system coordination behaviours across networks.

Chapter 4.0
Options Evaluation

Chapter 4.1 – Option Consideration

By initiating a review of existing charging arrangements, with a view to developing a commercial regime that encourages new distributed entry gas connections to Cadent's network, a mechanism in which to socialise reinforcement costs will be required. These costs will need to be recovered from a wider base than just the triggering party, with the nature of the costs requiring a robust and flexible funding mechanism.

As it stands, there is great uncertainty over the level of entry gas that may need to be connected in RIIO-GD2 and beyond, and further uncertainty over whether the location of future connections can access existing spare network capacity. There is therefore a significant level of uncertainty regarding the total level of reinforcements required. Over the course of this chapter, we explore the funding options which could be implemented upon the change in charging arrangements.

The funding options we will be assessing over the course of this chapter and their key characteristics, in the context of entry arrangements, are outlined in Table 1:

Funding Mechanism Options	Description
Use It Or Lose It (UIOLI)	A UIOLI refers to a bank of funds allocated during the price control period for required, non-transferable activities, with uncertain costs and volumes. The allowance must be used within the allocated period, providing licensees with the flexibility to deliver qualifying activities, but protecting consumers by only funding actual costs incurred.
Actual Cost Recovery	A mechanism that allows actual costs to be passed through the appropriate fast and slow money revenue recovery channels. This could be achieved in several ways, but our assumption for this Re-opener is an adjustment to Capex/Opex/Repex in the Price Control Financial Model (PCFM) each year. Rather than a conventional fixed £ adjustment set out in our Licence, this would be described as the Capex/Opex/Repex Actual Costs incurred in the year, net of any customer contribution.
PCD	A Price Control Deliverable (PCD) is funding linked to delivering outputs specified in our license, outlining delivery requirements, date, and associated allowances. This includes a mechanism to refund consumers if an output is not delivered (or not delivered to standard). There are two types of PCDs, Mechanistic (allowances linked to easily defined units of work) and Evaluative (allowances linked to discrete projects or pieces of work).
Volume Driver	Volume Drivers are used in circumstances where there is uncertainty around the volume of work required over the price control period. The mechanism relies on the use of a relevant unit cost estimate to adjust allowances in line with actual volumes.

Delay to next price control (RIIO-GD3)	Delaying to the next price control (RIIO-GD3), would involve delaying progression of the overall entry charging arrangements to ensure there is a suitable scheme and corresponding funding mechanism in place for RIIO-GD3. A delay would also slow down the accrual of robust cost and workload information to a more refined funding mechanisms to be deployed at a later date.
Ex-Ante Allowance (Additional Totex, not ringfenced)	This would involve generating an additional ex-ante Totex allowance which is not ringfenced to entry reinforcements, providing an estimated allowance to cover the socialised cost of the work.
Do Nothing	By 'doing nothing', we would progress the entry charging change arrangements without a funding mechanism in place to support it. Cadent would need to fund the socialised portion of the works through our existing Totex allowances.

Table 1

4.2 Option Analysis Methodology

To form a comprehensive view of the effectiveness and suitability of the mechanisms and options outlined in Table 1, we have undertaken a qualitative assessment to outline the risks and challenges the options must aim to address. These qualitative factors will form the basis of the criteria used to assess the potential funding mechanisms.

Volume risk: Our work is currently driven by the requirements and demand of green gas producers, resulting in uncertain future workload which is out of our control. Macroeconomic factors influencing demand will also impact forecasted volume, including changes to network pricing, Government policy decisions around green gas and hydrogen blending.

An additional element of volume risk is the uncertainty over the location of new connections, as some schemes could connect where there is already spare network capacity, not requiring reinforcement. For example, the first 10 connection applications received could all require no reinforcements, and the next 10 could trigger significant works.

When forecasting the expected volume of work over the price control period, there is a credible risk that our estimate could hugely under or over predict future volumes of required reinforcement work. Hence, the given funding mechanism will need to allow for this level of volume risk to ensure we have adequate funding when uncertain volumes of reinforcement work is triggered. Conversely, Cadent should not benefit from unused funds where volumes are much lower than anticipated.

Unit cost risk: It is extremely difficult to obtain an accurate unit cost estimate for connection reinforcements. Due to the current charging methodology incentive for entry gas projects to avoid a connection triggering reinforcements, we have little evidence over GD1 and GD2 price controls to base our cost estimates upon. Looking forward, standardised industry specifications and procedures will be required to enable robust and consistent cost allowances across the gas networks. A further consideration is the range of reinforcement options available to the networks, including compressor stations, new pipelines, pressure management systems and new metering arrangements.

Delivery risk: This area of uncertainty is largely focused around ensuring funding enables consistent and timely delivery of the overall entry enablement scheme. Hence, the chosen funding mechanism should support this, ensuring customer driven reinforcements can be delivered consistently across the price control period with no further blockers. Delivery risk will also be dependent on the wider programme delivery plan, including the need for a robust

delivery process, service level agreements (SLAs) and contractual Terms and Conditions (T&Cs).

Material cost / bill impact: Whilst the potential costs involved are unlikely to be small, they are low relative to overall gas network allowances, and much smaller than the £/kW equivalent for the reinforcements to connect the many renewable electricity projects. We need to ensure the socialised connections do not result in a substantial bill impact.

The actual bill impact will depend in the short term on how the Re-opener funding is implemented in the gas networks revenue models. The greater the allocation to Capex or 'slow money', the lower the bill impact as costs can be recovered over many decades.

We note that the default allocation rates in the Price Control Finance Model for the Heat Policy Re-opener are 30% Capex, 30% Opex, and 40% Repex. However, we anticipate that bespoke arrangements driven by the detailed design of the funding mechanism are likely to be required for this specific entry reinforcement Re-opener.

Flexibility: The explored uncertainties across the program will mean a flexible mechanism is required to facilitate the overall change, adjust to the needs of the individual connectees and remove the current barriers to entry. The mechanism should be free of excessive regulatory burden and allow for timely access. As posed previously, the huge variations in the requirements of each scheme will require flexibility to accommodate for all new and existing entry gas producers, without discrimination.

Proactivity: To implement a scheme that allows for timely entry enablement, we need to ensure we have effective mechanisms in place, up-front with available funds. This will ensure we are prepared and prevents us seeking funding in a reactive, uncertain fashion.

Efficiency: When proposing a suitable funding mechanism, we need to consider how we can ensure funds are being channelled in the most efficient way. While the ability to socialise a proportion of the reinforcement costs will contribute towards our overall ambitions, we need to ensure the work is being committed to in the most efficient and cost-effective way. Hence, the chosen mechanism should include consideration as to whether any additional steps are required to ensure costs and workload are allocated efficiently.

In Table 2, each Funding Mechanism option has been scored against the key risks and considerations outlined above.

Funding Mechanism Options	*Does the option manage **Volume Risk?***	*Does the option manage **Unit Cost Risk?***	*Does the option manage **Delivery Risk?***	*Does the option mitigate the **Material Cost/ Bill Impact?***	*Does the option promote **Flexibility?***	*Does the option promote **Proactivity?***	*Does the option promote **Efficiency?***
Use It Or Lose It (UIOLI)	**Yes** *Flexible allowance mitigates volume uncertainty*	**Yes** *Flexible allowance mitigates cost uncertainty*	**Yes** *Funding confirmed and available for delivery to occur*	**Somewhat** *Unspent allowances returned to customers but only supports fast money with higher bill impact*	**Yes** *Flexible allowance to mitigate individual scheme uncertainties and variation*	**Yes** *Specific funding mechanism in place to allow work to commence*	**No** *A supplementary mechanism to review efficiency would be required*
Actual Cost Recovery	**Yes** *Fully flexible actual cost recovery mitigates volume uncertainty*	**Yes** *Fully flexible actual cost recovery mitigates cost uncertainty*	**Yes** *Fully flexible with confidence actual costs can be recovered*	**Yes** *Only efficient costs recovered and through appropriate fast/slow money channels minimising bill impact*	**Yes** *Fully flexible to mitigate individual scheme uncertainties and variation*	**Yes** *Specific funding mechanism in place to allow work to commence*	**No** *A supplementary mechanism to review efficiency would be required*
PCD	**Yes** *Volume flexibility based on a unit cost estimate*	**No** *Unable to obtain representative unit cost estimate*	**Yes** *Mechanism in place to enable delivery*	**Somewhat** *Unspent allowances returned to customers*	**Somewhat** *Based on a unit cost estimate so may not be representative of all schemes*	**Yes** *Specific funding mechanism in place to allow work to commence*	**Somewhat** *Based on a unit cost estimate*
Volume Driver	**Yes** *Volume flexibility based on a unit cost estimate*	**No** *Unable to obtain representative unit cost estimate*	**Yes** *Mechanism in place to enable delivery*	**Somewhat** *Unspent allowances returned to customers*	**Somewhat** *Based on a unit cost estimate so may not be representative of all schemes*	**Yes** *Specific funding mechanism in place to allow work to commence*	**Somewhat** *Based on a unit cost estimate*
Delay to next price control (RIIO-GD3)	**No** *Will prolong the current volume uncertainties*	**No** *Will prolong the current cost uncertainties*	**No** *Will prolong the current delivery barriers*	**Yes** *No GD2 bill impact*	**N/A**	**No** *Lack of proactivity in driving the scheme forward*	**N/A**
Ex-Ante Allowance (Additional Totex, not ringfenced)	**Yes** *Flexible allowance mitigates volume uncertainty*	**Yes** *Flexible allowance mitigates cost uncertainty*	**Somewhat** *Funding will be available upfront to allow work to commence*	**No** *Allowance not ringfenced and not returned to customers if unspent*	**Somewhat** *However poses risk of allowance being used for other things*	**Somewhat** *Funding will be available upfront to allow work to commence*	**Somewhat** *Funding will fall under the overall totex efficiency incentive mechanism*
Do Nothing	**No** Large volume risk as Cadent will need to fund uncertain volumes of work	**No** Large cost risk as Cadent will need to fund uncertain schemes	**No** No funding in place will delay delivery of schemes	**Yes** *No customer bill impact, existing allowances used*	**N/A**	**No** Reactive approach, funding may not be available	**N/A**

Table 2

To explore the mechanisms further and build on the summary provided in Table 2, a comprehensive view of the advantages and disadvantages are outlined below in Table 3:

Funding Mechanism Options	Advantages	Disadvantages
Use It Or Lose It (UIOLI)	• Manages cost and volume uncertainties. • Good trial/ starting point, can provide the basis and evidence for a future BAU mechanism. • Flexible, with the potential to be 'topped up' if needed. • Removal of Regulatory burden, easy to draw down from and accessible to all network areas (including those with zero/no reinforcement forecast). • Consumer Protection: unused allowances returned to customers. • Aligns with existing Net Zero UIOLI funds used across GD2 for Net Zero uncertainty.	• Cost efficiency and lack of assurance: An additional supplementary mechanism could be required to ensure work is being committed in the most efficient way. • Forecast: How can we ensure we are providing a robust and accurate forecast to ensure the UIOLI is appropriately sized? If the UIOLI is set too low, this may introduce further delays and disincentive to producers. • All funding through a 'fast money' route therefore impact on annual consumer bills is amplified and not in part smoothed by depreciation in the RAB.
Actual Cost Recovery	• Fully flexible for all uncertainties. • Accessible to all network areas. • No scope for unused allowances or windfall gains. • Compatible with the proposed charging approach of a High-Cost Cap which can be used to set the size of the fund and control and future amendments. • Allows elements of slow money to smooth the impact of consumer bills.	• Cost efficiency and lack of assurance: an additional supplementary mechanism could be required if additional measures were considered necessary to ensure work is being committed in the most efficient way.
PCD	• Consumers protected with unused allowances returned to customers. • Ringfenced funding: specific deliverables linked to funding, ensuring sufficient funds are available.	• No clear deliverable: It is unclear what the 'deliverable' will look like in the case of entry connections as all schemes will have different requirements.

	• Allows elements of slow money to smooth the impact of consumer bills.	• No unit cost available: at this stage we do not have a representative unit cost and it is unclear if this will ever be able to be achieved. • Lack of assurance: PCDs only measure if the work has been completed. In this case we require a framework that ensures costs are allocated efficiently.
Volume Driver	• Consumers protected with the management of some of the volume risk uncertainty. • There is an existing domestic connections volume driver which could be extended/utilised in the future. • Ringfenced funding: only funded for work that has been delivered. • Allows elements of slow money to smooth the impact of consumer bills.	• No unit cost available: No representative unit cost available which is required for a volume driver, and it is unclear if this will ever be able to be achieved. • Hard to identify volume definition as some projects will have no works and others could have significant. The lack of a large volume of connections to average over, further exacerbates the risk of a gap between actual and a volume driver desktop average.
Delay to next price control (RIIO-GD3)	• No customer bill impact in RIIO-GD2. • Provides more time to ensure all other aspects of the overall entry enablement programme are prepared e.g. end to end processes, T&Cs, SLAs.	• Directly against RIIO-GD2 commitments and ambitions as outlined in our business plan. • Further delay to green gas entry, directly contradicting net zero ambitions and government policy. • Slows down the accrual of actual cost and workload data which will impact future refinement of funding approach.
Ex-Ante Allowance (Additional Totex)	• Simple with little additional admin, not requiring the additional reporting capabilities the other mechanisms would require. • Aligns with how entry enablement is likely to be funded in the future, so removes the	• Customers not protected; unspent allowances will not be returned to customers. • Funding is not ringfenced, the funds may not be used on entry gas

	additional time elapsed by trialling an additional mechanism. • Allows elements of slow money to smooth the impact of consumer bills.	enablement creating potential barriers to deliver works at pace. • Difficult to form representative allowance forecast as costs are unknown.
Do Nothing	• No customer bill impact.	• Reactive approach to funding which would delay the connection process as the customer would be unaware of when to expect funding. • Risk that future demand may not be met due to no agreed approach to funding. • Little encouragement for green gas producers by not removing an accepted barrier to new connections.

Table 3

Chapter 4.2 – Preferred Option

With the above analysis and risks considered, we believe the best option for consumers in the context of entry enablement is an Actual Cost Recovery funding mechanism.

As explored in 'Chapter 3: Demonstration of the Problem Statement and the Needs Case', to support producers to enter their gas onto the distribution network, a conventional ex-ante allowance approach would not address the risks highlighted. With connections being customer driven, uncertain demand post the implemented change, and little to no evidence from previous schemes, it is difficult to forecast accurate cost and volume requirements. Hence, to accommodate this level of uncertainty, an actual cost recovery mechanism is deemed most appropriate to flexibly provide the required funding to deliver timely network capacity. As explored in Table 2 and 3, the mechanism manages uncertain cost and volume demand, protects customers, and allows the costs to be passed through as either fast or slow money in the revenue model, smoothing the impact on customer bills.

Moreover, when evaluating the benefits of the mechanism, we must consider the impact to the customer, and in this case, customers can be identified as producers (those requesting to connect to the network) and the bill paying consumer. For new and existing connectees, the proactive funding arrangement removes a recognised barrier to new or expanded entry gas connections. It would allow producers to commit to projects which were previously deemed financially unviable and align gas distribution with other regimes in the energy sector where the concept of delivering entry reinforcements and socialising the costs is long established.

As discussed in the associated connection charging methodology change report, we do not expect the financial impact on customer bills to be significant in the initial years. Any impact will be reduced by the specific design of the funding mechanism and its deployment in the gas networks revenue and pricing models. Consumers will be protected from excessive reinforcement costs as producers will fund costs over a set level, as determined under the High-Cost cap mechanism. Recovering a large proportion of costs over the lifetime of the assets would result in lower bill impact and is an approach we would support at this initial stage.

Also, we note in the charging consultation that as future volumes are unpredictable and the costs relative to our overall revenues is quite small, at this stage we do not believe it is the right time to undertake a wider charging review. However, if entry reinforcement costs become significant, it will be necessary to consider the wider charging arrangements and whether new entry capacity tariffs are needed. This would almost certainly trigger a complete review of entry and exit charges, as the principles will be universal, and some of the cost allocation options would impact the demand side. We believe this would warrant an Ofgem led approach under a Significant Code Review as has been the practice in other similar areas e.g. electricity network charging arrangements.

In the analysis of the options above, we identified disadvantages from this approach relating to the costs incurred. These can be mitigated in the following ways:

Efficiency

We believe we are strongly incentivised to deliver and operate Entry reinforcements as efficiently as possible through the existing regulatory obligations and supporting framework. We are also strongly motivated by our reputational duty to ensure the new regime we have championed, is a recognised and demonstrable success.

We note that at this stage it is not practical to include these costs within the overall Totex Incentive Mechanism, as this is built on and requires strong historic benchmarking. Whilst these costs will move under Totex at some future point, when actual costs and cost drivers are better

understood, at this stage it is not feasible to include this expenditure within the wider business efficiency incentive.

It could be possible to design a bespoke financial incentive, however the level of uncertainties involved makes this quite difficult. We therefore propose an ex-Post review approach is used if an additional efficiency incentive is considered necessary. This would be applied to relevant projects and designed to identify clearly inefficient or wasteful expenditure.

To facilitate an ex-Post mechanism for Entry costs, we would support the design and implementation of a clear framework, which would include any criteria or methodologies that will be applied. We are happy to work with Ofgem to establish a framework before any new arrangements Go-Live. Should this not be possible by Go-Live, then we would expect any subsequent framework to be applicable to costs incurred and costing decisions taken once the framework is in place. We anticipate any assessment criteria within the framework will be carefully calibrated to recognise the significant uncertainty regarding costs and cost drivers and designed to identify any clearly inefficient or wasteful expenditure incurred.

The framework should also consider the practicalities of delivering large multi-year construction projects, where a review can only meaningfully carried out at the end, once all costs have been finalised.

For the incentive of disallowed expenditure from an ex-Post review mechanism to be fully effective on Cadent's actions, whilst not putting an undesirable check on the important network investments that customers will need us to make at pace, a clear review methodology will be critical.

If Ofgem wished to incentivise further, we would support a separate financial incentive that rewards innovation to deliver lower costs or to provide an improved level of service to entry gas customers.

Should other networks adopt a similar approach to supporting entry connections, we would be cautious about any incentive that creates unhelpful competition between network companies. We firmly believe that knowledge sharing of both successes and failures is vital. Furthermore, our customers operate across network boundaries and will expect a level of commonality so that they do not incur additional costs managing multiple company processes. Given the value of collaboration at this stage where all networks are at the bottom of the learning curve, sharing and implementing best practice, and rewarding first movers, could be included in a bespoke entry connection financial incentive.

We recognise that the proposed new financial incentive may not be deliverable within this Re-opener, and if this is the case, then this could become a consideration for the RIIO-GD3 price control business planning process.

Control over the level of Actual Costs Incurred

The level of costs that could be passed through the HCC Cost Recovery Mechanism would not be unlimited and would be constrained by the High-Cost Cap itself. This is designed as a Totex HCC, with the costs categorised as either Capex or Opex when they are entered into the revenue recovery models.

Example 1:

Totex High Cost Cap of £3000/m^3

A reinforcement is carried out for an 800scm/h entry gas connection, with the reinforcement costing £500k to construct over 2 years - £200k in one year and £300k in the second. The reinforcement has a typical ongoing annual operating cost of £10k.

With 15 years of operating costs included the overall Totex cost = £500,000 + 15 x £10,000 = **£650,000**

The HCC to be applied = £3000 x 800 = £2.4m

The total cost of the reinforcement is below the HCC, therefore it can all be recovered through the HCC Actual Cost Recovery Mechanism. £200k would go through Capex into the revenue recovery model for the first year of construction. £300k would go through as Capex in the second year. £10k of Opex would also go through from the first year of operation.

Example 2:

Totex High Cost Cap of £3000/m^3

A reinforcement is carried out for a 1000scm/h entry gas connection, with a compressor reinforcement costing £1.7m to construct over 2 years - £800k in one year and £900k in the second. The reinforcement has a typical ongoing annual operating cost of £100k.

With 15 years of operating costs included the overall Totex cost = £1,700,000 + 15 x £100,000 = **£3.2m**
Note: Capex = 44% and Opex = 56% of total cost.

The HCC to be applied = £3000 x 1000 = £3m

The total cost of the reinforcement is above the HCC, therefore the connecting party will make a contribution, with the remainder recovered through the HCC Actual Cost Recovery Mechanism. £500k would go through Capex into the revenue recovery model for the first year of construction. £700k would go through as Capex in the second year. £100k of Opex would also go through each year, from the first year of operation. A credit of 44% of the customer contribution would be added to Capex and 56% to the Opex costs put through the Actual Cost Recovery Mechanism.

Overall, the High-Cost Cap will limit the total levels of costs passed through the High-Cost Cap Actual Cost Recovery Mechanism.

Based on a High-Cost Cap of £3000m^3 a 50% average utilisation of the HCC over all connections, and an average plant size of 800m^3; if the new arrangements result in 20 new connections in RIIO-GD2, then the total additional Totex would be £24m. If this is treated as capex 'slow money' then the impact on customer bills would be <10p per annum.

4.2.1 Interaction with RIIO-GD3

We propose the HCC Actual Cost Recovery Mechanism would be implemented for both the current price control period (RIIO-GD2) and the future price control period (RIIO-GD3). This approach provides a strong starting benchmark for the early years of deployment, to build an understanding of likely demand, cost, and volume requirements, which can then be fed into 'business as usual' activities in future.

The proposed delivery timelines (as demonstrated in Chapter 5: Project Delivery and Monitoring) mean there is little scope and time to gather sufficient evidence across the RIIO-GD2 framework to inform the business planning process for RIIO-GD3. Hence, we feel it is most suitable to utilise

the mechanism across a longer timescale to provide the widest scope to inform future budget, cost and volume requirements. The proposed design of the mechanism would make its continued use in RIIO-GD3 straightforward.

The Heat Policy Re-opener can however only be applied to deliver incremental funding within the current RIIO-GD2 period. The continued use of the same arrangements would of course be a decision that would need to be made as part of the RIIO-GD3 business planning process.

4.2.2 Reporting and Assurance

Despite, the HCC Actual Cost Recovery Mechanism being categorised as the preferred option, we recognise the mechanism alone is not sufficient to mitigate the workload, assurance and cost efficiency concerns raised. Hence, we have set out above our thoughts on an additional layer of assurance, should Ofgem consider this beneficial. This would rely on how costs are assured and reported to Ofgem, and this is explored below in Chapter 6, Project Delivery and Monitoring.

Chapter 5.0
Stakeholder Engagement

Chapter 5.1 – June 2022 Consultation

As previously mentioned, the GDNs alongside National Gas, ran a consultation for eight weeks from 24th June 2022 to 19th August 2022 which proposed changes to gas distribution entry charging arrangements. The consultation first addressed the current issues with the existing arrangements and proposed four mechanism options to socialise a portion of the reinforcement costs. The consultation is available in Appendix 1, along with the four options considered.

The consultation sought views from a broad range of stakeholders on themes including: the need for change, the cost socialisation option, the suggested level of cost socialisation, implications, implementation, and whether a broader review was required across entry and exit. In total, ten written consultation responses were received, with respondents representing organisations including: green gas producers and consultants, IGTs, trade bodies and shipper groups.

There was a strong recognition amongst respondents for the overall need for change to the connections charging methodology. 92% supported the need for change, with respondents recognising there are an increasing number of biomethane and gas entry plants which are already creating congestion on the network. It was anticipated this would get worse as volumes increase, and hence respondents urged this to be actioned immediately, predominately to support the scale of biomethane growth required to meet net zero ambitions and improve our energy security.

We also consulted on our preferred cost socialisation mechanism, the High-Cost Cap, see Appendix 2 for more detail. When compared to the other options presented in the consultation, 73% of respondents were supportive of the HCC. Overall, respondents understood the principle and considered it to be the most sensible approach to proceed with. The approach is regarded simple to understand and apply, transparent and draws parallels to the electricity sector regime, of which stakeholders are familiar with and has operated successfully for several years.

One area that has progressed since the consultation was published is the level of the HCC. This is explored further in the draft Connections Charging Methodology Change Report which is included in Appendix 3. The level initially proposed as an approximation was £200 per kW, which was supported by 62% of respondents. However, upon further consideration we have since adjusted the assumptions to better meet the explored requirements. It was raised in the consultation that the level of the HCC would be subject to review once thinking in this area has matured.

While thinking has matured in some areas since the consultation was published, the overarching messages and issues explored remain unchanged. Hence, we haven't felt it necessary to publish a further consultation, however, we have taken steps to maintain communication with the impacted groups regularly to keep them informed of any market advancements.

Chapter 5.2 – Engagement with Ofgem

We have kept Ofgem engaged as advancements have occurred within this space. Ofgem were an active participant in the consultation published in June 2022 and we have since held further sessions to provide updates on the key principles to be raised across both the Re-opener and the wider Entry Charging Methodology Change. To date, the response to our proposed approach has been positively received by Ofgem.

Chapter 5.3 – Engagement with the GDNs

We have aimed to take a coordinated approach to tackle the entry connection barriers in place across all Gas Distribution Networks. Since the consultation was published in 2022, Cadent have led the cross-industry PMO on a bi-weekly basis, alongside a series of in-person workshops. Within these sessions, we have worked through a range of different issues and solutions, planning a co-ordinated implementation approach.

Unfortunately, within weeks of the submission window for this Re-opener, the other GDNs took the decision not to participate in the final Heat Policy Re-opener window in March 2024.

Chapter 6.0
Project Delivery

Chapter 5.1 – Project Delivery and Monitoring

Project Delivery

For a new regime to implemented, there are various steps and process changes required in preparation. These include both primary and secondary procedural changes, and most importantly the driver of the change, the modification to the Connections Charging Methodology 4B statement.

This Re-opener submission commences the first step in the implementation of the overall Entry Connections Charging Change. To support this submission, we have attached a draft of the proposal report in Appendix 3 to outline the required change to the Charging Methodology 4B Statement. This sets out our recommended option to socialise reinforcement costs, and this will need to be formally submitted to Ofgem for a decision. We are working on the basis that Ofgem will want to take the decision on the charging change and the Re-opener funding request at the

same time, and hence, we propose the charging change will need to be formally submitted in Spring/Early Summer 2024. This is illustrated in the timeline included in Figure 1, which highlights the fixed timescales for the charging change which defines the overall critical path.

Should an Impact Assessment be required by Ofgem to support the charging change, we are very happy to provide the additional supporting information Ofgem may need to successfully aid completion.

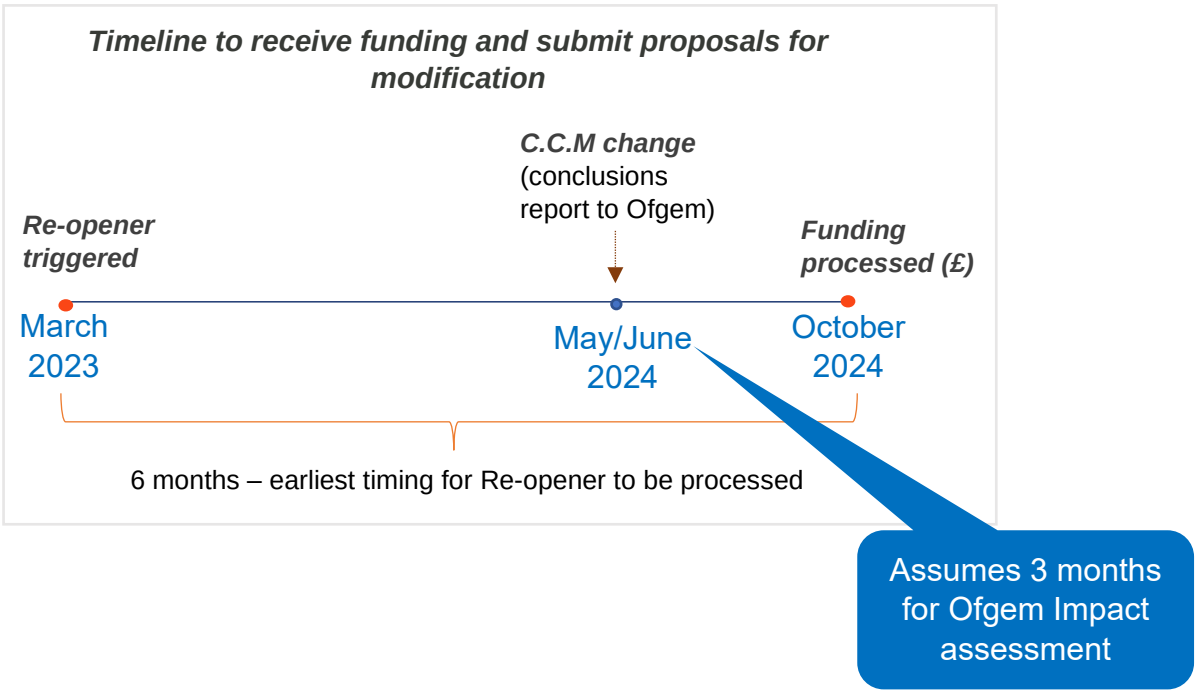

Figure 1

The above timeline works on the assumption that post the Re-opener being triggered (25th- 31st March 2024), the funding request will take an estimated 6 months to be processed. To interact with this, if we assume a 3-month period for Ofgem's impact assessment post the submission of the Charging Methodology conclusions report, the earliest this change could be implemented would fall around October 2024.

These timescales are not all within Cadent's control and therefore we would need to liaise closely with Ofgem to ensure overall coordination, and ideally to enable the final decision date to be as early as possible.

Implementation Considerations

In the context of the wider charging regime project delivery, there are several primary changes that need to be considered, including those impacting the HCC Actual Cost Recovery Mechanism, which interact with the timeline illustrated in Figure 1. These considerations are demonstrated across the overall project timeline in Figure 2 and explored further in the corresponding Draft Charging Conclusions Report (Appendix 3).

In the context of implementing the HCC Actual Cost Recovery Mechanism, a significant consideration lies around financial security, including what happens if a producer's business fails and is unable to pay for any works made redundant by the project not proceeding. Whilst this is a matter for the Connection Charging Methodology, the working assumption is that the connectee will be liable and have suitable security in place to protect gas consumers from the

stranding risk. We need to also consider how future replacement, general reinforcement and decommissioning costs will be treated.

Unless Ofgem indicate to the contrary, our expectation is that future replacement, general reinforcements or decommissioning costs will be dealt with in the same manner as other similar network costs, with appropriate allowances provided to enable an efficient level of works to be carried out. For the avoidance of doubt, general reinforcements are works required to maintain the necessary level of network capacity to an entry customer, should there be wider changes on the system, such as demand reductions, which are outside of Cadent's control.

We also need to take into consideration how the HCC Actual Cost Recovery Mechanism will interact with the Totex Incentive Mechanism (TIM). Our expectation is that it would operate with the TIM. There would however be no material impact as the Allowed Totex = Claimed Totex, so there would be no gain or loss.

The HCC Actual Cost Recovery Mechanism includes Opex costs, however this cannot reasonably continue in perpetuity. We therefore propose that Opex costs for each Entry Reinforcement moves into the overall Totex allowance from the next relevant price control period. This would be the next period if the project completes more than 2 years ahead of the period, or the next plus one if commissioned within the last two years.

Reinforcement Considerations

As a change to entry charging arrangements is implemented, we need to ensure the efficient reinforcements identified for our customers are consistent, the most suitable, reflect network conditions and provide value for money for customers. Reinforcement options are dependent on a customer's contracted NEA flow rate, and the reinforcement should ensure the customer can get their gas away under representative minimum conditions. There may be less frequent more 'extreme' minimum conditions, but we do not believe efficient reinforcements should be based on such instances. If infrequent minimum flow conditions were adopted, then a reinforcement may be identified that is more expensive and is rarely fully utilised. This approach does however mean that there will be rare occasions where the Entry facility may not be able to get their gas away.

To provide a consistent basis to assess reinforcement options, we will use a representative minimum summer demand day for temperature sensitive domestic and commercial demand.

For non-temperature sensitive commercial demand, we will use a 25% demand level, unless we have better metered demand data available from loads that have an appreciable impact on the relevant network flows.

These assumptions were agreed across all GDNs in preparation for this Re-opener submission.

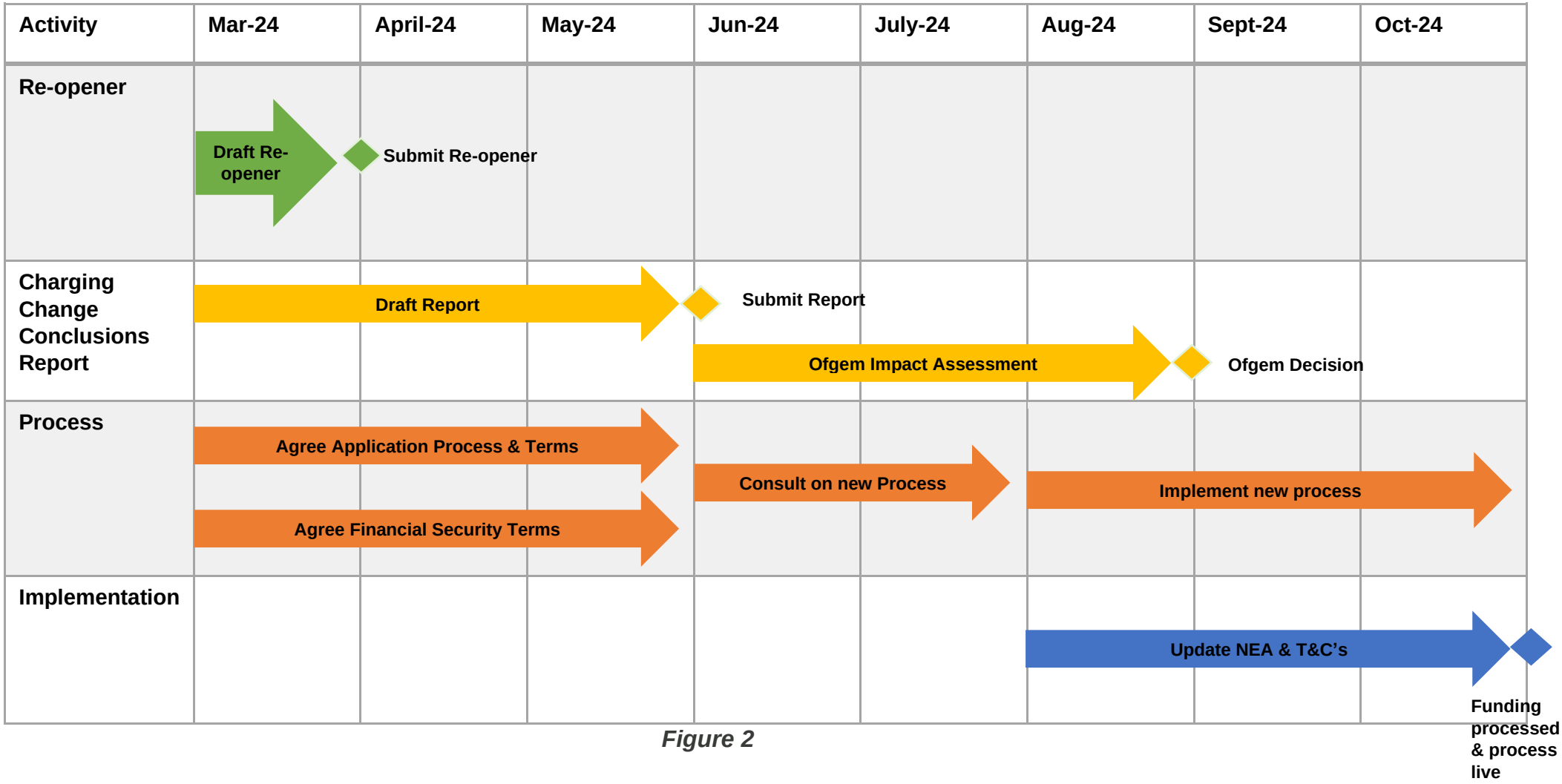

Figure 2

Project Governance and Monitoring

If it is considered necessary to implement an ex-post cost review framework to drive efficient expenditure, we must also consider how this would be deployed.

The framework must be driven by cost reporting; however, this should be pragmatic and recognise the characteristics of the work involved, including the likelihood of a single reinforcement straddling more than one year, with some Opex costs significantly varying year on year depending on the maintenance regime.

We therefore propose to report actual costs annually within the RRP cycle for all Opex and Capex projects completed within the previous calendar year (to allow time to finalise costs in time for the reporting cycle). Both Capex and Opex would be reported for each discrete reinforcement project above a pragmatic level e.g. £0.5m.

We would expect to include forecast expenditure as part of the PCFM updates, with a reconciliation as actual costs are confirmed.

Post the initial implementation, as schemes are undertaken, we will gain a better understanding of the future volumes of reinforcement work, and the corresponding costs, which will help inform future forecasts of work.

We would welcome confirmation from Ofgem on the process and timescales for establishing an ex-post cost review framework, if such a mechanism is required. We are concerned however that we should not be unreasonably disadvantaged by the time taken to complete any review. If a practice we have deployed across several projects is deemed demonstrably inefficient e.g. driven by a particular specification or standard, we would expect an indication of this as early as possible, to reduce our ongoing exposure. We would not want costs disallowed over an extended period when it could have been reasonably avoided by an earlier conclusion, where the practice could have been identified and subsequent deployment prevented.

Project Benefits

The primary purpose of this Re-opener is to enable the implementation of a change to the Connection Charging Methodology, proposed by Cadent and sanctioned by the Authority.

The wider benefits of triggering the Re-opener are realised through the facilitation of Government decarbonisation policy by supporting increased injections of greener gases and biomethane. The overall programme of work directly aligns to the current Government stance to explore the ways in which we can incentivise continued growth in biomethane production, including those impacting network capacity. Additional ‘home-grown’ gas supplies will also improve security of supply by displacing imports, and provide economic benefits through investments, employment, and taxation within the UK.

As we work to remove the recognised barrier to new distributed gas injections, it is anticipated that the route to market for new projects will be simplified, resulting in much higher levels of new greener gas and biomethane connections. Biomethane is currently the only sector that Government Policy is encouraging to pursue connections to the gas grid.

With so many variables conscidered, it is impossible to provide an accurate forecast of future connections the charging change and supporting Re-opener would enable. To illustrate the potential, we have provided an indication of the levels of additional gas that could be supplied in Table 4. This shows the expected additional volumes of gas for different numbers of new connections and assumes an average output of 800scm/h and a load factor of 75%. This is demonstrated across 10 years of output from the connections in one year and the cumulative connections over 10 years.

For example, the top row indicates that 100 additional biomethane entry connections in a year, over 10 years would deliver 55TWh of green gas. If 100 incremental connections took place every year over a 10-year period, the cumulative quantity of additional gas would be 303TWh.

To gauge the savings in terms of reduced carbon, each TWh of biomethane, assuming a 75% carbon emissions reduction, would have an avoided carbon saving of £35m per annum using a central case value from the Government guidance of £256 per tonne of CO_2.

Number of additional enquiries per year	10 year additional gas quantities (per annum)	Cumulative year on year over 10 years (10,9,8,7…)
100	55TWh	303TWh
75	41TWh	227TWh
50	28TWh	151TWh
25	14TWh	76TWh
10	6TWh	30TWh

Table 4

Based on a HCC of £3000m^3, an average utilisation of 50% of the HCC across all new entry connections, and an average plant size of 800m^3, the Totex impact of 10 projects would total £12m.

Project Delivery Risks

The risks to the successful implementation of this Re-opener are largely outside of the network's control once the Re-opener is formally submitted.

We will however respond to all enquiries and information requests received from Ofgem as soon as possible, including any formal Supplementary Questions.

The primary overall risk to the change in the connection charging regime is a delay in the submission of the request to amend the Connection 4B Statement. We have included a draft report alongside this Re-opener (Appendix 3) for Ofgem to consider and feedback any issues prior to its formal submission later in the year.

Chapter 7.0
Cost Information

Cost Information for Preferred Option

Thie Re-opener is not seeking a specific funding allowance but a mechanism to provide enabling funding for a new category of gas distribution network spend, for the early years of roll out.

Cadent will only have funding up to the level of the High-Cost Cap per project, with the inclusion of Opex resulting in the HCC cost recovery over several years. The high-Capex element will mean the overall customer bill impact is small as the costs are depreciated over an extended period.

Cost Methodology

If it is considered necessary to deploy an additional efficiency driver for entry reinforcement costs, then we would propose that costs incurred by the networks will be subject to an ex-Post review mechanism to identify clearly inefficient and wasteful expenditure.

Chapter 8.0
Appendices

Appendix 1:
Proposed change to gas distribution entry charging arrangements Consultation, June 2022

Appendix 2:
Reinforcement Options Table, June 2022
Reinforcement Options considered in the June 2022 GDN consultation which reduce the connectee contribution to reinforcement costs.

Option	Brief description
Reinforcement Prices	Gas distribution networks would publish detailed prices ex-ante to users connecting, having already factored in a proportion of reinforcement costs to be socialised, depending on the demand and capacity in that location. Different prices would be set at different locations.
High Cost Cap	Consists of a uniform cap applied nationally, such that reinforcement costs are socialised up until the cap level, and the connectee would cover the increment above the cap. The level of the cap would be set so that existing customers are protected from costs that would be excessive and uneconomic to bear.
All or Nothing Cap	A common cap would apply across all potential entry sites. This would need to be set at a higher level than the HCC to allow sufficient entry. Below the cap all costs would be socialised, and if reinforcement costs are above the cap, the connectee would pay the full cost.
Entry Test	An entry test applicable to all connectees which values the carbon offset from connections as a benefit and compares this to the reinforcement costs of connection using BEIS carbon values and considering the volume of gas injected. Where the social benefit of connections exceeds the cost of connection, the reinforcement costs are socialised, and where the cost of connection is greater than the social benefit the connectee pays the difference between the excess cost and benefit.

Appendix 3:
Draft Charging Conclusions Report, March 2024

Appendix 4:
Glossary of Terms:

Acronym	**Description**
DESNZ	Department of Energy Security and Net Zero
BAU	Business as Usual
Capex	Capital Expenditure
CCM	Connections Charging Methodology
GDN	Gas Distribution Network
GGSS	Green Gas Support Scheme

HCC	High-Cost Cap
NEA	Network Entry Agreement
NGG	National Grid Gas
Opex	Operational Expenditure
PCD	Price Control Deliverable
PCFM	Price Control Financial Model
PMO	Project Management Office
RRP	Regulatory Reporting Pack
UIOLI	Use it or lose it
SLA	Service Level Agreement
Totex	Total Expenditure
TIM	Totex Incentive Mechanism
UM	Uncertainty Mechanism