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Decision

RIIO-2 Final Determinations – GD Sector Annex (REVISED)

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Our aim for the RIIO-2 price controls is to ensure energy consumers across GB get better value for money, better quality of service and environmentally sustainable outcomes from their networks.

In 2019, we set out the framework for the price controls in our Sector Specific Methodology Decisions. In December 2019, Transmission and Gas Distribution network companies and the Electricity System Operator (ESO) submitted their business plans to Ofgem setting out proposed expenditure for RIIO-2. We assessed these plans and published our consultation on Draft Determinations for company allowances under the RIIO-2 price controls in July 2020.

This document and others published alongside it, set out our Final Determinations for company allowances under the RIIO-2 price control, which will commence on 1 April 2021.

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1. Introduction and overall package

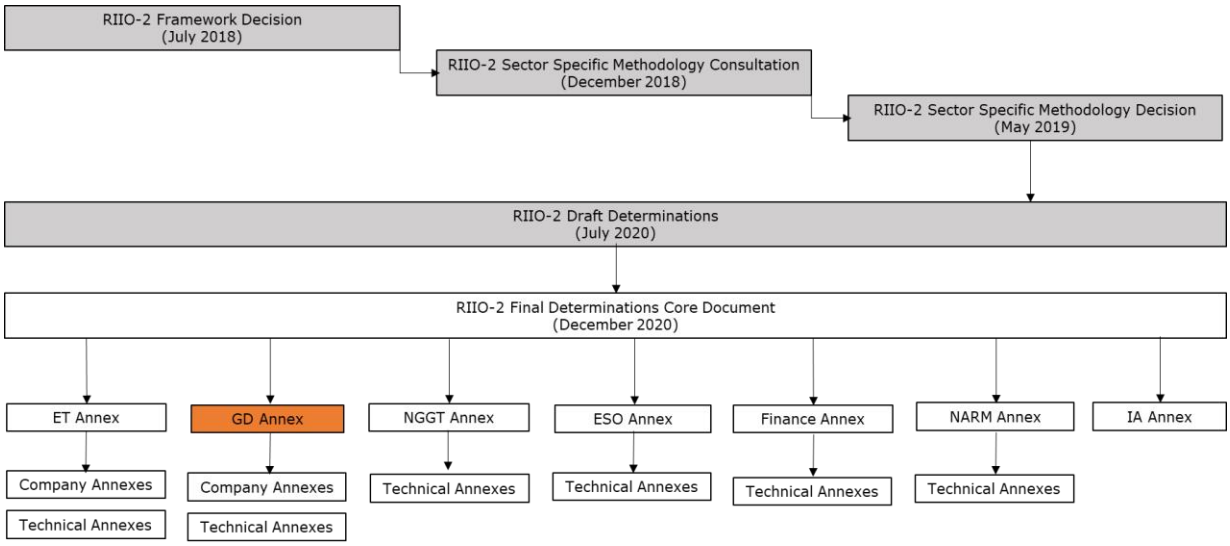
Purpose of this document

1.2 This document sets out our Final Determinations (FDs) for the Gas Distribution (GD) price control (RIIO-GD2), for the areas that are common to all gas distribution networks (GDNs). This price control covers the five-year period from 1 April 2021 to 31 March 2026. All figures are in 2018/19 prices unless stated.

1.3 In reaching our Final Determinations, we have duly considered all company and wider stakeholder feedback and new evidence provided as part of the Draft Determinations responses. In a number of areas, we have decided to amend our Draft Determinations position in response to this feedback.

1.4 This document is to be read alongside the RIIO-2 Final Determinations Core Document (Core Document), the RIIO-GD2 Final Determinations company annexes and the RIIO-2 Final Determinations Impact Assessment Annex (IA Annex). Figure 1 shows the suite of RIIO-2 documents.

Figure 1: RIIO-2 Final Determinations documents map



What do we expect RIIO-GD2 to deliver for consumers?

1.5 The gas distribution network companies (GDNs) are responsible for transporting gas locally to approximately 22 million homes and businesses, industry and power stations in Great Britain (GB). Four GDNs, own, operate and maintain, the eight gas distribution network regions in GB - Cadent (North West, West Midlands, East of England and North London), NGN (Northern England), SGN (Scotland and South East England) and WWU (Wales and West Utilities).

1.6 Gas plays a major role in the day-to-day heating of households, the functioning of industrial and manufacturing processes and the generation of electricity. However, the energy system will need to change to support the transition to a carbon-free economy by 2050 to achieve Net Zero. While it is not known exactly how GB will reach the Net Zero target, researchers and policy makers are exploring potential pathways, including electrification, local low carbon heat networks, and hydrogen networks. Each possible pathway or combination of interventions would result in a very different future use of the gas distribution networks.

A regulatory regime that supports the transition to Net Zero…

1.7 RIIO-GD2 will play a key role in supporting the transition to Net Zero. We've reviewed our suite of Net Zero-related mechanisms and listened to stakeholders' feedback that our framework needs to be agile and that we can do more to facilitate initial innovations potentially flowing through to the rollout of large commercial investments. We have responded in Final Determinations by:

- Increasing our Network Innovation Allowance to £93m (and introducing the ability to raise it further), which alongside our Strategic Innovation Fund, lays the groundwork for new technologies needed to advance the decarbonisation of the energy system.
- Establishing a new dedicated 'Use It Or Lose It' allowance of £40m for small scale Net Zero related pre-construction work and small Net Zero facilitation projects. In addition, we have introduced a new, agile, re-opener for more material pre-construction work and Net Zero facilitation projects that aren't material enough for the bigger re-openers like the Net Zero Re-opener.
- Providing over £12m of early design funding to support the potential creation of GB's first Hydrogen pipeline serving an Industrial Cluster in the North West.

1.8 In addition, as clarity on the decarbonisation pathway emerges, uncertainty mechanisms such as the Net-Zero and Heat Policy re-openers will ensure that the price control can adapt quickly and provide significant additional funding if this is required.

Clear outputs to ensure a high quality of service…

1.9 During RIIO-GD2, we want to see a GD sector that is:

- **Meeting the needs of consumers and network users**, with a focus on supporting those in vulnerable situations.
  - A step change in funding and protections for consumers including providing GDNs with a new £60 million allowance for consumers in vulnerable situations and carbon monoxide safety. In response to stakeholders' feedback we have doubled this level of funding from Draft Determinations and increased the scope to cover the repair/replacement of condemned boilers, where appropriate, to ensure GDN engineers don't leave those in most need without heating. Combined with the continuation of our Fuel Poor Networks Extension Scheme and innovation funding, this will enable GDNs to work with local partners, going further to help those who need it most. This also recognises the additional impacts Covid-19 may have on vulnerability.
  - We expect excellent customer service in RIIO-GD2. Companies that can 'raise the bar' and deliver exceptional customer service will be rewarded, while poor service will be penalised. Penalty payments made directly to consumers when minimum standards are not met, have been doubled.
  - We expect GDNs to be focused on keeping interruption times down, particularly for consumers in blocks of flats. We will penalise companies if performance deteriorates and will require them to be accountable.
  - We have introduced a new output for collaborative streetworks in Greater London, recognising the importance to stakeholders of reducing disruption from closed roads and the potential benefits of utilities working together.

- **Maintaining a safe and resilient network**, while keeping costs to customers as low as possible.
  - Delivering the HSE's replacement expenditure (Repex) programme improves safety and resilience and reduces leakage of greenhouse gases.
  - We have increased allowed Repex expenditure by £411m from Draft Determinations, in response to the GDNs providing additional, and more

granular, evidence to justify their proposals. This will ensure that GDNs have sufficient funding to efficiently deliver the work, meet their statutory obligations, and meet consumers' quality of service expectations. However, we are protecting consumers from the risks of paying for assets that may not be needed in the future, due to uncertainty about the future of the gas network, by only funding non-mandatory Repex that pays back before 2037 and not funding accelerated programmes of work.

- Our suite of outputs and uncertainty mechanisms will ensure GDNs are only funded for what they deliver, but will enable changes to funding, including if Net Zero policy developments significantly change if the scope of the work changes significantly during RIIO-GD2.

- **Supporting the delivery of an environmentally sustainable network,** including playing a full role in heat decarbonisation by:
  - Actively supporting GDNs to reduce their business carbon footprints, by funding most of their Environmental Action Plan initiatives. This, alongside, the new annual reporting of GDNs' environmental actions will provide transparency on their targets and deliverables.
  - Including a new output for Electric Vehicles (EVs) or other zero emission vehicles, which will see GDNs decarbonising their commercial fleets by replacing up to 2,100 vehicles.
  - Delivering the Repex programme will continue to drive down leakage, alongside our shrinkage and environmental emissions incentive and several bespoke outputs focussed on rolling out new techniques to manage leakage and increase biogas volumes.

Reductions in the cost of service by setting high expectations for the GDNs to deliver efficiency improvements…

1.10 To deliver these outputs as cost efficiently as possible, we have set baseline totex allowances for all GDNs only where both the need for the work and the efficient cost of the work are sufficiently certain. Underpinning our baseline totex allowances for RIIO-GD2 is an efficiency challenge we have set the GDNs in two parts:

- a catch-up efficiency challenge based on the notional company benchmark performance we expect all GDNs to strive for, or exceed; and
- an ongoing efficiency improvement which we expect all GDNs to able to achieve year-on-year.

1.11 For the catch-up efficiency challenge, we have set the target efficiency frontier at the 85th percentile but in a change from Draft Determinations, our Final Determinations have allowed for a 3-year glidepath. This is to enable time for less efficient companies to catch up from a starting point in Year 1 of 75th percentile, which is the target benchmark performance for the last year of RIIO-GD1 and is itself the culmination of a glidepath over the course of RIIO-GD1.

1.12 We have set stretching ongoing efficiency targets of 1.2% per annum for the GDNs based on our assessment of efficiencies delivered in other sectors of the economy, and the specific context of the energy sector relative to other sectors. This means GDNs will continue to be incentivised to look for new ways to drive costs lower, including by becoming more productive and innovative across RIIO-GD2.

An overall package that drives efficient delivery whilst being flexible to meet future needs…

1.13 We have set the total baseline allowances in the GD sector at £9.7bn which is a £1.1bn reduction from the £10.8bn sought by the GDNs in their Business Plans. This is a result of our review of further evidence received since Draft Determinations, updates to our modelling and the efficiency challenge.

Table 1: Summary of baseline totex (£m, 2018/19 prices)

Network company	Company submitted totex (Dec 19)	Ofgem Draft Determination totex	Ofgem Final Determination totex
Cadent	5,317	4,067	4,708
NGN	1,249	1,075	1,186
SGN	3,058	2,524	2,680
WWU	1,182	997	1,157
Industry total	**10,806**	**8,663**	**9,730**

1.14 Over 50% of the baseline allowance relates to defined deliverables (ie they are linked to Price Control Deliverables (PCDs) or volume drivers). This ensures that customers are protected from non-delivery of specific workloads and that costs to consumers only reflect what is delivered.

1.15 We have put in place a range of re-openers allowing us to assess future projects as the need, cost or timing becomes clear within RIIO-GD2. This ensures that consumers fund projects only when there is clear evidence of benefit and that the

RIIO-GD2 price control has flexibility to respond to uncertainty, including around future government policy.

1.16 The Totex Incentive Mechanism (TIM) provides GDNs with a powerful incentive to deliver the required investments efficiently. We are reducing the totex sharing factor from an average of 63% in RIIO-GD1 to an average of 49% in RIIO-GD2. This means that customers will share more of the benefits of any outperformance while contributing a larger share of any underperformance against allowances.

1.17 As a result of our decisions for RIIO-GD2 on baseline totex allowances, in combination with our decisions on financing, we expect to see average reductions of around 12% in gas distribution network charges relative to RIIO-GD1. This could reduce the average annual household bill by around £15 per year.

2. Setting outputs for RIIO-GD2

Introduction

2.1 This Chapter sets out the package of outputs that will apply in RIIO-GD2, including Licence Obligations (LOs), Price Control Deliverables (PCDs) and Output Delivery Incentives (ODIs).[1] It focuses on the common outputs (which apply to all GDNs). For details of bespoke outputs (which only apply to a single GDN) see the company annexes. Where there are company specific parameters these are also covered in the company annexes. The outputs are grouped into three output categories:

- Meeting the needs of consumers and network users.
- Maintaining a safe and resilient network.
- Delivering an environmentally sustainable network.

2.2 Table 2 outlines all the RIIO-GD2 outputs, both common and bespoke, and sets out where you can find full details of their application.

Table 1: RIIO-GD2 outputs

Output name	Output type	Companies applied to	Final Determination section
Common outputs			
Meeting the needs of consumers and network users			
Consumer vulnerability minimum standards	LO	All	Chapter 2[2]
Consumer vulnerability reputational incentive	ODI-R	All	
Vulnerability and carbon monoxide allowance	UIOLI output[3]	All	
Fuel Poor Network Extension Scheme	ODI-R and capped volume driver	All	
Customer satisfaction survey	ODI-F	All	
Complaints metric	ODI-F	All	
Guaranteed Standards of Performance (GSOPs)	LO[4]	All	

[1] ODIs can be either financial (ODI-F) or reputational (ODI-R).
[2] Where the source document is not stated, we are referring to this document (GD Annex).
[3] The Vulnerability and Carbon Monoxide Allowance is a UIOLI but has output status.
[4] GSOPs are set out in statutory instruments due to the requirement for network companies to make direct payments to their customers. Some GSOPs also have accompanying target pass rates (percentage of times the standard has been met). These are set out in the licence to provide additional protection to customers.

Output name	Output type	Companies applied to	Final Determination section
Emergency response time	LO	All	
Unplanned interruptions	ODI-F	All (except Cadent North London)	
Digitalisation Strategy and Action Plan	LO	All	Core Document
Data Best Practice	LO	All	
Maintain a safe and resilient network			
Repex - tier 1 mains replacement	PCD	All	Chapter 2
Repex - tier 1 services	PCD	All	
Gas holder demolitions	PCD	All	
Network Asset Risk Metric	PCD and ODI-F	All	NARM Annex
Capital projects	PCD	All	Chapter 2
Cyber resilience Operational Technology (OT)	UIOLI and PCD	All	Core Document Confidential annexes
Cyber resilience IT	PCD	All	
Deliver an environmentally sustainable network			
Shrinkage and environmental emissions	ODI-F and ODI-R	All	Chapter 2
Commercial Fleet EV PCD	PCD	All	
Environmental action plan and annual environmental report	LO and ODI-R	All	Core Document, Chapter 2
Business Carbon Footprint (BCF) reporting	ODI-R	All	Core Document
Bespoke Outputs			
Meeting the needs of consumers and network users			
Collaborative streetworks	ODI-F	Cadent (EoE, Lon) and SGN (So)	Chapter 2
Multiple occupancy building (MOB) interruptions and Non-MOB interruptions	ODI-F x 2	Cadent	Chapter 2 (Unplanned interruptions)
High-rise building plans	ODI-R	Cadent	
Personalising welfare facilities	PCD	Cadent	
Maintaining a safe and resilient network			
London Medium Pressure	PCD	Cadent	Cadent Annex
Job completion lead-time including re-instatement	ODI-R	NGN	NGN Annex
Deliver an environmentally sustainable network			
Gas escape reduction	PCD	SGN	SGN Annex
Biomethane improved access rollout	PCD	SGN	
Intermediate pressure reconfigurations	PCD	SGN	
Remote pressure management	PCD	SGN	
HyNet Front End Engineering Design (FEED)	PCD	Cadent	Cadent Annex

Meeting the needs of consumers and network users

2.3 Our RIIO-2 Framework supports the delivery of high quality and reliable service to all network users and consumers, including those in vulnerable situations. This section sets out each of the outputs common to the GD sector related to meeting the needs of consumers and network users.

Vulnerability package

Overview

2.4 Our Sector Specific Methodology Decision (SSMD) set out a package of outputs to support consumers in vulnerable situations in RIIO-GD2.[5] This package comprises minimum standards, flexible funding for activities, and incentives to encourage best practice and collaborative activities. There are also other parts of the RIIO-GD2 package that support consumers in vulnerable situations, including some bespoke outputs and GSOPs.

2.5 Stakeholders who commented on our vulnerability package at Draft Determinations generally considered that it was not ambitious enough and that the scope, and value of support did not adequately reflect the needs of consumers in vulnerable situations or stakeholder views. Respondents also encouraged us to consider the impacts of Covid-19 on consumer vulnerability.

2.6 We have considered these overarching views when making our decisions on both the common outputs, which are set out below, and the bespoke outputs, which are set out in the company annexes.

2.7 Some consumer representative groups thought that the scope of gas emergency services should be extended to testing gas appliances for carbon monoxide (CO). This requirement sits outside of the price control and we do not consider that an extension of the GDNs' role in this area has been justified. Under the current legislation and licence conditions,[6] GDNs only have a short amount of time to 'make safe' gas emergencies and, if appropriate, carry out repairs to comply with their safety cases. Primary responsibility for regulating gas safety lies with the

[5] SSMD GD Annex, paragraphs 2.14-2.17.
[6] The Gas Safety (Management) Regulations 1996 and Standard Special Condition A8: Emergency Services and Enquiry Service Obligations.

HSE so if it considered that there was sufficient safety justification to extend the scope of the gas emergency service, we would take such advice into account and review our position.

Vulnerability and Carbon Monoxide Allowance (VCMA)

Purpose: A use-it or lose-it allowance (UIOLI) for GDNs to fund activities addressing consumer vulnerability and CO safety.

Benefits: This will allow GDNs to provide bespoke services to support consumers in vulnerable situations and raise awareness of CO.

Final Determinations decision

Output parameter	**Final Determination**	**Draft Determinations[7]**
Type	Mechanistic	Same as FD
Output	A UIOLI for GDNs to fund a specified scope of vulnerability initiatives	Narrower scope than FD
Delivery date	31 March 2026	Same as FD
Totex baseline allowances	£60m apportioned between the GDNs based on number of domestic gas customers	£30m
Re-opener	No	Same as FD
Reporting method	Reporting requirements for individual projects will be set out in the VCMA Governance Document	
Adjustment mechanism	Formula defined in the licence	
Companies applied to	All GDNs	
Licence condition	Special Condition 5.4 Vulnerability and Carbon Monoxide Allowance (VCM_t)	N/A
Associated Document	VCMA Governance Document	

Final Determination rationale and Draft Determination responses

Funding

2.8 We have decided to double the allowance to £60m in response to stakeholder feedback. A wide range of stakeholders disagreed with the £30m we set in our 2019 SSMD.[8] Stakeholders argued that the context has changed since then (especially due to Covid-19). Some suggested we had not taken on board

[7] Draft Determinations GD Annex paragraphs 2.12-2.15.
[8] SSMD GD Annex, paragraph 2.34.

stakeholder evidence that Ofgem should go further and they made reference to studies that customers are willing to pay.

2.9 We think increasing the allowance is appropriate as it will enable all GDNs to raise their ambition in line with stakeholder views, without adding significant cost to customers' bills. Funding will be automatically returned to consumers if GDNs do not use it.

2.10 The £60m will be apportioned between GDNs based on the forecast number of GB domestic gas customers served in the first year of RIIO-GD2 (see Table 2).

2.11 As set out in the SSMD decision, 25% of the VCMA must be spent on projects involving collaboration between GDNs.[9] Collaborative funding can be accessed if a project involves two, or more, GDNs and meets the requirements which will be set out in the VCMA Governance Document. Two stakeholders thought that this should be wider than GDNs, requiring collaboration with other parties (eg DNOs). We agree that the GDNs should collaborate with other parties. All VCMA projects (including those funded through individual company allowances) should be developed through stakeholder engagement and with third party organisations.

Table 2: VCMA by GDN (£m, 2018/19 prices)

Network Company	Allowance
Cadent	22.31
NGN	5.16
SGN	12.19
WWU	5.34
Collaborative projects	15.00

Scope

2.12 We have decided to revise the scope of the VCMA to enable funding to be used for some condemned boiler repairs or replacements. Specifically, GDNs will be able to use the VCMA for reactive funding when other funding sources are insufficient or not available, to avoid leaving a vulnerable consumer without gas if they cannot afford repairs when a GDN has to isolate and condemn an unsafe appliance

[9] SSMD GD Annex, paragraph 2.36. To administer this, we have apportioned the collaborative pot so each GDN receives a share on top of its company allowance based on its forecast percentage of GB domestic gas customers served in the first year of RIIO-GD2. The share for each company is set out in the company annexes.

following a supply interruption or as part of its emergency service role. We will set out full details in the VCMA Governance Document.[10]

2.13 We think this decision addresses several concerns raised by stakeholders who provided evidence to support this change, including to show that:

- while some government funding is available, there remains a funding gap
- there is a strong benefits case for work to ensure that these consumers are not left without heating.

2.14 Cadent's Customer Engagement Group (CEG), several consumer representative groups and one environmental group asked us to broaden the scope of the VCMA to include the installation of energy efficiency measures. We do not think funding should include this, as government funding is available, including the Energy Company Obligation (ECO) in England and Wales, the Green Homes Grant in England and the Home Energy Efficiency Programmes (HEEPS) in Scotland. Under the Heat Policy re-opener, there are also explicit provisions for energy efficiency funding that could be triggered if governments decide GDNs should have a role in this area (see Chapter 4).

Consumer vulnerability reputational incentive

Purpose: A reputational output delivery incentive (ODI-R) with a requirement to host an annual showcase event and six reporting metrics to highlight GDN performance related to consumers in vulnerable situations and CO awareness.

Benefits: Provides greater focus on these areas including comparison and knowledge sharing between GDNs.

[10] One of the requirements to use the VCMA in this area will be that the household cannot access other funding sources to fully fund the repairs.

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Output parameter	Final Determination	Draft Determinations[11]
ODI type	Reputational	Same as FD
Measurement	Deliver an annual showcase event and report on six metrics, against three key themes: **Priority services register (PSR)** • Average Customer Satisfaction for PSR customers **Fuel Poor Network Extension Scheme (FPNES)** • Number of FPNES connections • Percentage of the company specific FPNES target delivered • Percentage of FPNES connections delivered compared to the volume driver cap **CO awareness** • Average CO awareness score via a common survey • Number of consumers reached through CO awareness sessions	Deliver an annual showcase event and reporting against three measures: • Average Customer Satisfaction for PSR customers • Number of FPNES connections, and percentage of FPNES target delivered • Average CO awareness score via a common survey
Performance target	• First annual showcase event in 2021/22 • FPNES targets set out in the company annexes • Comparative performance against PSR and CO metrics	First annual showcase event in 2021/22.
Reporting method	Annual Regulatory Reporting Pack (RRP) reporting	Same as FD
Applied to	All GDNs	
Licence condition	No	N/A

Final Determination rationale and Draft Determination responses

Reporting metrics

2.15 We have decided to implement six common reporting metrics, against three key themes (PSR, FPNES and CO awareness), which will be reported on publicly each year. There will also be separate requirements to report the outcomes of activities funded through the VCMA, which will be specified in the VCMA Governance Document.

PSR

2.16 We have decided to implement the PSR metric we proposed at Draft Determinations. Stakeholders generally supported our proposed metric to assess the average customer satisfaction for PSR customers. However, some consumer representative groups thought we should also monitor quality of support and how

[11] Draft Determinations GD Annex paragraph 2.5-2.11.

accessible and inclusive key services are, for example through mystery shopping.[12] We do not think this is needed as all GDNs made Business Plan commitments to achieve and maintain BSI accreditation for inclusive service provision, which includes audits of their performance in this area. We encourage GDNs to report on this to their stakeholders.

2.17 A consumer representative group suggested that we monitor PSR reach by needs codes. GDNs do not own their own PSR, so any change in PSR reach might not be solely attributable to their work. However, we think improving PSR reach is an important activity that can be funded through the VCMA. We will not include this as an ODI-R metric but we will require the GDNs to present on developments in this at the annual showcase event as part of the VCMA governance.[13] Some respondents also thought the number, and type of services provided to PSR customers should be monitored. We also think that activities in this area should be reported at the annual showcase event and through VCMA reporting.

FPNES

2.18 We have decided to implement the FPNES metric we proposed at Draft Determinations on number of FPNES connections and percentage of the FPNES target delivered. We provide clarity of how the percentage should be calculated as part of our FPNES decision later in this chapter.

2.19 We will not include an ODI-R metric on targeting FPNES as we retain our Draft Determinations position that evidencing fuel poverty can be an intrusive process and not possible in all cases. However, we encourage the GDNs to improve targeting through VCMA projects and will require FPNES targeting to be discussed at the annual showcase event. We note stakeholder responses that highlighted this as an area of continued interest and think this goes some way to address their concerns; but agree with evidence from the GDNs highlighting that it would be difficult for them to collect this information from their fuel poor partner organisations for some community projects.

CO awareness

2.20 We have decided to include a metric to report the average CO awareness survey score proposed at Draft Determinations. Some stakeholders who commented on

[12] Mystery shopping involves an assessor impersonating a customer to assess the service provided and customer experience.
[13] This can be found in the VCMA Governance Document.

our proposals were not supportive as they thought reporting could prevent GDN collaboration. We disagree as GDN collaboration is well developed in this area.

2.21 We have also decided to introduce a metric to report the number of consumers reached through CO awareness sessions, proposed by WWU. We have decided to include this metric as it will encourage GDNs to deliver the CO awareness message to a wide range of customers. Cadent suggested measuring percentage of customers with CO alarms. However, we have decided not to include this as an ODI-R metric because it might not reflect that different GDNs' stakeholders wanted them to fund different numbers of CO alarms. It also might not drive the right behaviours by shifting focus to number of alarms installed rather than raising awareness or targeting those who are most at risk.

Other reporting areas

2.22 Some stakeholders noted that a Social Return on Investment (SROI) metric should be developed through RIIO-GD2, as a way of ensuring value for money and benefit for consumers. The GDNs currently do not have a common SROI tool, so we are unable to implement this metric for the start of RIIO-GD2. However, we encourage GDNs to work together to develop this during RIIO-GD2 so we can look to implement a SROI metric in the future.

Annual showcase event

2.23 We have decided that there should be a national annual showcase event, which is held in a different network each year. We also encourage GDNs to carry out smaller events for their regional stakeholders. Stakeholders highlighted benefits to both national and regional events. Due to the disruption caused by Covid-19, events can be held or streamed online if necessary.

2.24 Some stakeholders stressed that the events should be a genuine opportunity to showcase work to a wide range of stakeholders including local innovators. Several also felt that more frequent regional events would be valuable. We agree and expect GDNs to ensure they invite a wide range of interested third parties, including local stakeholders, to the events.

Fuel Poor Network Extension Scheme (FPNES)

Purpose: To help tackle fuel poverty by supporting off-grid, fuel poor households to connect to the gas network.

Benefits: Provides access to affordable heating for off gas grid fuel poor households.

Final Determinations decision

FPNES Capped volume driver

UM parameter	Draft Determinations	Draft Determinations
UM type	Capped Volume Driver	Same as FD
Volume Driver parameters	Company specific caps on number of connections and unit costs (set out in the company annexes)	
Additional requirements	The FPNES Governance Document will set out the regulation, governance, and administration requirements	
Re-opener	The licence includes the provision for us to stop the scheme in response to changes in governments' policy	
Applied to	All GDNs	
Licence condition	Special Condition 3.14 Fuel Poor Network Extension Scheme Volume Driver (FPAt)	N/A
Associated Document	FPNES Governance Document	

FPNES ODI-R (part of the consumer vulnerability reputational incentive)

Output parameter	Final Determination	Draft Determinations[14]
ODI type	Reputational	Same as FD
Measurement	• Number of FPNES connections • Percentage of the company specific FPNES target delivered • Percentage of FPNES connections delivered compared to the volume driver cap	• Number of FPNES connections • Percentage of FPNES target delivered
Performance target	Company specific targets set out in the company annexes	Same as FD
Reporting method	Annual RRP reporting	
Applied to	All GDNs	
Licence condition	No	N/A

Final Determination rationale and Draft Determination responses

Mechanism

2.25 We have decided that the FPNES will be a capped volume driver coupled with an ODI-R. Most respondents agreed with changing the FPNES from a PCD to a volume driver to enable GDNs to exceed their targets. However, some respondents were concerned that an ODI-R is a weaker incentive than a PCD and could lead to under-delivery. We disagree. The move to an ODI-R (from a PCD)

[14] Draft Determinations GD Annex paragraphs 2.16-2.22.

does not change the reputational incentive for GDNs to deliver their FPNES targets. Any under-delivery will be clear to stakeholders and the financial consequence is the same due to the volume driver mechanism - GDNs would only be funded for the number of FPNES connections delivered.

Measurement

2.26 We have decided to implement the company specific targets and caps on the number of connections as set out at Draft Determinations. These are outlined in the company annexes. A consumer group thought we should increase the targets because we are proposing some changes to the eligibility criteria, as set out in the consultation on our draft FPNES Governance Document.[15] We do not have sufficient evidence of the impact of this change to be able to increase the targets, but the volume driver mechanism provides some flexibility for the GDNs to deliver an ambitious number of FPNES connections.

2.27 For the ODI-R, we will require annual reporting through the RRPs on the:

- number of Fuel Poor Network Extension Scheme (FPNES) connections
- percentage of the company specific FPNES target delivered
- percentage of FPNES connections delivered compared to the volume driver cap.

2.28 At Draft Determinations, we consulted on requiring the GDNs to report on number of FPNES connections and percentage of the FPNES target delivered. Some stakeholders were unclear whether the percentage of the FPNES target delivered would be calculated against the baseline targets or the volume driver cap. SGN thought this metric should be compared to the volume driver cap so it is not disadvantaged for proposing more ambitious targets in its Business Plan. To provide clear visibility, GDNs should report both:

- connections delivered as both a percentage of their baseline target - so stakeholders can clearly see if they are meeting their Business Plan commitments
- connections as a percentage of the volume driver cap - to provide an incentive to deliver more connections up to the volume driver cap.

[15] https://www.ofgem.gov.uk/publications-and-updates/consultation-gas-network-vulnerability-and-carbon-monoxide-allowance-vcma-and-fuel-poor-network-extension-scheme-fpnes-governance-documents

Re-opener and governance of the FPNES

2.29 We are retaining the flexibility to stop FPNES in response to governments' decisions on heat. Several respondents commented on Net Zero goals and urged us to consider how to integrate these within FPNES. Through the FPNES Governance Document, we will require GDNs, or their partner organisations to assess if gas is the best solution for the customer, including considering if other low carbon heating solutions may be more appropriate. We also note that connections to heat networks, or hybrid heating systems, can be delivered through the FPNES. To the extent that there are barriers to delivering these low carbon solutions we can consider addressing these through the FPNES Governance Document.

2.30 Many stakeholders who commented on the FPNES eligibility criteria, suggested that it be reassessed to:

- better target those who need assistance
- actively decide whether gas is the best option for those living in fuel poverty.

2.31 We published a consultation on our draft FPNES Governance Document in October 2020 which provides more detail on proposed eligibility criteria and the requirement to assess whether gas is the best solution for the customer.[16] We will consult on it again later this month alongside our licence statutory consultation.

Consumer vulnerability minimum standards

Purpose: To ensure there are minimum service standards for consumers in vulnerable situations.

Benefits: Retain the RIIO-GD1 minimum standards (with some improvements) and also introduce a new Licence Obligation to ensure GDNs treat consumers in vulnerable situations fairly.

[16] The FPNES Governance Document paragraphs 2.1-2.9.

Final Determinations Decision

Output parameter	Final Determination	Draft Determinations
Obligation(s) retained from RIIO-1	Retain the Licence Obligation to provide additional priority services to specified customer groups	No change from decision made at SSMD[17]
New obligations for RIIO-2	Introduction of a principles-based Licence Obligation to treat domestic customers fairly, including those in vulnerable situations	
Applied to	All GDNs	
Licence condition	Standard Special Condition (SSC) D13: Provision of services for specific domestic customer groups SSC D21: Treating Domestic Consumers Fairly	

2.32 We have decided to implement the vulnerability minimum standards set out in our SSMD.[18]

Customer satisfaction survey

Purpose: To maintain good customer service and reward GDNs that deliver exceptional performance.

Benefits: Rewards will encourage GDNs to deliver exceptional customer service while penalties will ensure performance does not deteriorate.

Final Determinations decision

Output parameter	Final Determination	Draft Determinations[19]
ODI type	Financial	Same as FD
Incentive type	Reward and Penalty	
Performance measurement	Score based on three weighted surveys[20]	
Performance target	Three separate targets across each survey: Connections: 8.38 out of 10 Planned work: 8.51 out of 10 Unplanned work: 9.37 out of 10	

[17] SSMD GD Annex 2.23-2.26.
[18] SSMD GD Annex 2.23-2.26.
[19] Draft Determinations GD Annex paragraphs 2.33-2.37.
[20] Connections, planned interruptions and emergency and response (unplanned) work weighted equally at 33.33%.

Output parameter	Final Determination	Draft Determinations[19]
Incentive value	Each incremental 0.1 performance deviation from the deadband is worth ±0.41%, ±0.26%, and ±0.09% of Base Revenue on the connections, planned and unplanned work surveys respectively. However, companies will be rewarded, or penalised, based on the actual score down to the 0.01 increment.	Change to application of deadband to include a downside across all surveys[21]
Cap and Collar	± 0.5% of Base Revenue	Same as FD
Applied to	All GDNs	
Licence condition	Special Condition 4.2 Customer Satisfaction Survey output delivery incentive (CS_t)	N/A

Final Determination rationale and Draft Determination responses

2.33 We have decided to implement this ODI-F (as set out in Figure 2) with some changes to our proposed incentive structure in response to stakeholder concerns.

2.34 Most stakeholders agreed with the proposed framework and we have decided to implement most of our Draft Determinations proposals, including the incentive value and new survey implementation. However, there was mixed support for the target levels and application of deadbands. As a result, we have moved the reward and penalty thresholds.

Figure 2: Customer satisfaction survey financial incentive final decision

[21] References to a 'symmetric' deadband mean the inclusion of both an upside (reward) and downside (penalty) deadband either side of the target.

Performance Target

2.35 We have decided to implement the targets set out in our Draft Determinations. All survey score values for this incentive are listed in Table 3.

Table 3: Customer satisfaction survey incentive scores and weights

Survey	Weight	Max penalty score	Penalty score	Target score	Reward score	Max reward score
Connections	33.33%	7.43	8.11	8.38	8.65	9.33
Planned work	33.33%	7.90	8.34	8.51	8.69	9.13
Emergency and response/Unplanned work	33.33%	8.85	9.00	9.37	9.43	9.58
This represents a combined target score of 8.75 across all surveys[22]						

2.36 We have decided to implement our Draft Determinations position to set fixed targets using the average performance during the survey trial. Two consumer representative groups and a supplier support this, recognising that it embeds improved performance over RIIO-GD1.

2.37 Cadent suggested we should consider survey distribution channels (paper, telephone or link via text) and London affluence in setting targets, as these could affect customers' tendency to score higher or lower on surveys. We disagree. All companies have specific socio-demographic features of their customer base and must understand their customers to respond accordingly. Such proposals would add unnecessary complexities to what is otherwise a transparent and comparable ODI.

Deadbands

2.38 We have decided to implement a symmetric deadband for each survey that is ±0.5 standard deviations from the target, except for unplanned works. This is a change to our Draft Determinations position of using the upper quartile to set an upside only deadband. We have taken this decision after further consideration of evidence provided by stakeholders in their responses.

2.39 Two GDN CEGs (WWU and NGN) noted that asymmetric deadbands do not give latitude for GDNs to embed a new process (as given in the Complaints Metric) and may penalise good performance achieved over RIIO-GD1 if scores fall slightly below the target. Both CEGs and two GDNs suggested a symmetrical deadband.

[22] Rewards and penalties are not based on the combined target score.

2.40 We agree that a symmetric deadband responds to concerns about potential data volatility as companies move to the new survey content and methodology. It protects GDNs from small dips in performance but will still apply penalties at performance scores higher than the scores penalties were applied at in RIIO-GD1, to ensure the incentive is stretching.

2.41 We recognise stakeholder views that additional effort may be needed to achieve exceptional performance when scores are already high. A smaller upside deadband provides an improved incentive for GDNs to explore new techniques to better customer service but maintains our position to only reward GDNs for exceptional performance and notable service improvement.

2.42 All GDNs and one consumer representative group noted that consumers consider scores above 9/10 to be excellent, hence penalties should not apply for scores above nine on the unplanned work survey. We agree and have decided to extend the downside deadband to scores of nine for unplanned work only.

2.43 We will set the maximum reward and penalty scores at 1.75 standard deviations around the average target for the connections and planned work surveys. For the unplanned work survey, we will set the maximum penalty score at 8.85.[23] We think it is appropriate for penalties to operate in a small range on unplanned work, given companies' consistent good performance on this survey for some time.

Complaints Metric

Purpose: To ensure that GDNs maintain good performance in their handling of complaints.

Benefits: Having a penalty-only incentive for complaints resolution will incentivise GDNs to deal with consumers' complaints quickly and effectively.

Final Determinations decision

Output parameter	Final Determination	Draft Determinations[24]
ODI type	Financial	Same as FD
Incentive type	Penalty only	

[23] On the unplanned work survey, 1.75 standard deviations from the target would be 9.15, which is higher than the revised penalty score.
[24] Draft Determinations GD Annex paragraphs 2.38-2.43.

Output parameter	Final Determination	Draft Determinations[24]
Performance measure	Score based on four weighted indicators.[25] The lower the score, the better the GDN is at resolving complaints	
Performance target	Companies have a penalty for scores above 5	
Incentive value	Penalties apply linearly above the minimum performance level (ie 0.1% of Base Revenue per one point increase)	
Cap	Not applicable	
Collar	Maximum penalty 0.5% of Base Revenue for scores of ten or above	
Reporting method	Annual reporting in RRP	
Applied to	All GDNs	
Licence condition	Special Condition 4.3 Complaints Metric output delivery incentive (CM_t)	N/A

Final Determinations rationale and Draft Determination responses

2.44 We have decided to implement this ODI-F in line with our Draft Determinations proposals. Most respondents were supportive of our proposals. There were some specific comments on the detailed design:

- Three respondents (one energy supplier and two consumer groups) thought that the incentive could be made more stretching. In particular, individual GDNs' performance could deteriorate relative to current performance, while still meeting the minimum performance level.
- NGN's CEG noted there could be greater focus on reducing the number of complaints under the incentive.

2.45 We think that a minimum performance level of five is appropriate for RIIO-GD2 as it embeds the improved average achieved in RIIO-GD1. While we acknowledge concerns about the level of stretch, we do not consider these are sufficient to justify a change. We think that five represents a good level of service, consistent with recent performance.[26] GDNs will need to aim for levels below this to avoid a

[25] These are the percentages of: Complaints unresolved in one working day (10% weight), Complaints unresolved in 31 working days (30% weight), Repeat complaints (50% weight) and Energy Ombudsman decisions against the GDN as a percentage of total complaints (10% weight).
[26] For illustration, a score of 4.99 by a GDN in RIIO-GD1 equated to 39.5% of complaints outstanding after one day, 1.51% of complaints outstanding after 31 days, 1.16% repeat complaints and 0.09% of Energy Ombudsman findings against the GDN as a percentage of total complaints. It should be noted performance scores can be achieved in a variety of ways.

penalty. Our customer satisfaction survey ODI should continue to reduce the number of complaints by incentivising GDNs to improve their quality of service.

Guaranteed Standards of Performance (GSOPs)[27]

Purpose: GSOPs set common minimum performance standards for GDNs, in the areas of interruptions, connections and customer service.

Benefits: If the GSOPs are not met, the GDN pays compensation to customers.

Final Determinations decision

GSOP Parameter	Final Determination	Draft Determinations[28]
Obligation(s) retained from RIIO-1	All 14 GSOP obligations retained for RIIO-GD2. No changes to GSOP1, GSOP7, GSOP10-11 standards.	Same as FD
New obligations for RIIO-2	**Standards:** Interruptions GSOPs: • GSOP2 (Reinstatement): 3 working days (WD) for PSR customers • GSOP3 (Priority Service Register (PSR) services): 4 or 8 hours, additional services every 24 hours. Exempted time-period for GSOP3 reduced to 10pm-6am • GSOP13 (Notification): 7 WD Consumer communication GSOPs: • GSOP12 (Payment): 10 WD • GSOP14 (Response to complaints): 5 WD; 10 WD if a site visit required Connection GSOPs (≤275kWh): • GSOP4 (Standard Quotations to include disconnections): 4 WD • GSOP 5 (Non-standard quotations to include disconnections): 11 WD • GSOP 6 (Non-standard quotations to include disconnections and diversions): 21 WD • GSOP 8 (Land enquiries to include disconnections): 5 WD • GSOP9 (Commencement and completion dates): 17 WD	Change to apply the 3-day standard under GSOP2 to PSR customers registered at least 30 days prior to the start of reinstatement work. Change for provision of hot water under GSOP3 to PSR customers who have a medical need. Change to extensions to connection GSOPs (see below).
	Payments: • Double all current payment and payment cap levels. Payment and cap levels will be indexed yearly to CPIH, rounded to the nearest £5.	Change for comparing CPIH against a baseline of January 2021 (was February 2021).

[27] For a list of all new GSOPs see Appendix 1.
[28] Draft Determinations GD Annex paragraphs 2.44-2.76.

GSOP Parameter	Final Determination	Draft Determinations[28]
	• Payments for GSOP3 will be required every 24 hours for failure against the standard.	Change to payment level under GSOP3 to £50 for 2021-22.
	Extensions to connection GSOPs: • GSOP4-6 and GSOP8 extended to include disconnections and diversions	Change to no longer extend GSOPs to green gas entry connections, domestic and non-domestic developments >5 properties
Applied to	All GDNs.	Same as FD
Licence condition	Standard Licence Condition 20 Payments in Relation to Standards of Performance SSC D10 Quality of Service Standards	N/A

Final Determination rationale and Draft Determination responses

2.46 We have decided to retain all 14 existing GSOPs with some changes to the standards proposed at Draft Determinations to address stakeholder concerns. Generally, stakeholders supported our proposals and our decisions are set out below.

Payment levels and caps

2.47 We have decided to double GSOP payment levels and associated caps and will link these to inflation (CPIH). All stakeholders that responded supported our proposal. This will place an obligation on GDNs every financial year to compare CPIH to a baseline of January 2021 and increase or decrease payment levels to the nearest £5 once the index has moved sufficiently.[29] This is a change to our Draft Determinations position to use a baseline of February 2021. The change gives time for GDNs to revise payment levels for the new financial year. When payment levels increase, associated payment caps will increase at a commensurate rate.[30]

2.48 We have decided to amend the payment level for GSOP3 to £50, which is a change from our Draft Determinations position to set the payment level at £48, following feedback from GDNs that the payment levels and their associated caps should start as multiples of five. This will ensure consistency across payment

[29] We will refer to monthly CPIH published by Office for National Statistics.
[30] This means the payments caps will be increased in proportion to the percentage increase of payment levels. eg GSOPX requires a payment level of £20 with a cap of £200. Assuming inflation of 2% a year against a base year 0, we should expect GSOPX to move to a payment level of £25 in year 6, by which point the indexed payment would have increased to £22.53, and would therefore require rounding to the new nearest multiple of £5. At this point, the cap will be increased to £250, in line with a 25% payment level increase.

levels and that the caps reflect multiples of the payment levels.[31] It also avoids the need for the GSOP3 payment level to uplift individually in the first year.

2.49 In addition to Draft Determinations, in October 2020, we informally consulted on an early draft of the GSOP Guidance to aid in developing the detail in this policy. We received responses from all GDNs. Two GDNs mentioned that the obligation to update payment levels, when required, should be placed on Ofgem and published on our website to ensure consistency. We disagree. The obligations in the Statutory Instrument (SI)[32] that will implement the GSOP changes rests with the GDNs. The SI will include the payment levels for the 2021-22 financial year, and the formula for how they (and the caps) should be adjusted. Annual assessments to align payments where CPIH triggers a change will be GDNs' responsibility. We expect GDNs to publish new payment levels (if they are revised) on their own websites before they take effect, to facilitate clarity for customers.[33] We may also choose to publish them on our website for illustrative purposes.

2.50 We will consider further stakeholder comments on GSOPs from our informal consultation as part of our next steps (see below).

Standards under GSOP2, GSOP3 and GSOP12

2.51 For GSOP2, we have decided that GDNs should reinstate PSR customer premises within three working days and non-PSR customers within five working days (in line with our Draft Determinations proposal). Customer research showed that five days is too long for vulnerable consumers, particularly in winter and when works affect access to their properties.[34] The revised standard will ensure that the most vulnerable consumers are prioritised for quick reinstatement.

2.52 SGN and its CEG questioned having a standard for PSR customers, as it may be more efficient to reinstate households by roads rather than customer type and that there may be a risk of dissatisfaction among other customers. We do not think sufficient evidence was submitted to justify a change from our Draft Determinations proposal, which was originally informed and supported by GDNs' customer research.[35] We think GDNs can meet this standard given their current

[31] See Appendix 1 for 2021-22 GSOP payment levels and caps.
[32] The SI that will implement these GSOP changes will be an amendment to The Gas (Standards of Performance) Regulations 2005 (SI 2005/1135).
[33] GDNs should apply updated payment levels to failures that occur after 1 April.
[34] GDNs commissioned third party research comprising interviews with stakeholders working with customers in a range of vulnerable situations. This indicated a tighter standard for GSOP2 was needed for PSR customers. https://www.ofgem.gov.uk/system/files/docs/2020/11/gsop_phase_1_report_03_0.pdf
[35] https://www.ofgem.gov.uk/system/files/docs/2020/06/riio-gd2_customer_and_social_sg4.5.pdf

performance, and note that other GDNs and wider stakeholders continue to support the proposal.[36] We expect GDNs to ensure customers are aware of GSOPs and the PSR to avoid any customer confusion about prioritisation.[37]

2.53 Cadent said that GSOP2 provisions should only apply to customers who have been on the PSR for a defined time period, as without prior knowledge of a customer's registration at the time of reinstatement work, it is difficult to manage performance.[38] Following further engagement,[39] we agree that this is a challenge for GDNs and think it is appropriate to apply the standard to PSR customers registered at least 30 days before the start of reinstatement work. This is a change to our Draft Determinations proposal, which did not include the 30-day registration requirement.

2.54 For GSOP3, we have decided to focus provision of hot water to PSR customers who have a medical need, two specific PSR needs codes (descriptions of vulnerabilities).[40] This is a change to our Draft Determinations position. Three GDNs raised concerns that extending the provision of hot water to all PSR customers could add significant costs. They suggested that provision of hot water should be for PSR customers with a medical dependency on water to prioritise those most in need. We agree. This will ensure any costs are proportionate, while placing a new minimum standard on GDNs to support those who are most vulnerable.

2.55 We have decided to implement our Draft Determinations proposal for GSOP3 exclusions. All stakeholders agreed with reducing the service exclusion period to 10pm-6am. This is in line with customer research that showed this will enable greater flexibility for PSR customers requiring services during an interruption.

2.56 All GDNs supported the exclusions for additional services under GSOP3, including their application only to include major incidents,[41] and excluding the first 48-hours of the interruption. Cadent also supported extending this to interruptions that

[36] In 2017/18 GDNs completed reinstatement within three working days for all customers 85% of the time on average.
[37] We recommend that information for customers about GSOPs should be easily accessible on companies' websites.
[38] This was because there is a risk that reinstatement work is ordered prior to a customer registering on the PSR, therefore GDNs would not know about such registrations when work commenced (and that the three day standard applies).
[39] At our Customer and Social stakeholder group, attended by all GDNs, Citizens Advice and Citizens Advice Scotland.
[40] Needs code 23 - Medically dependent on showering and needs code 37 - Water dependent for medical reasons. The official list of industry PSR needs codes is available here.
[41] A major incident is where more than 250 customers are affected.

were not major incidents. Three other GDNs considered this was inappropriate, raising concerns about logistical and financial challenges to provide additional services earlier or during a limited[42] interruption. Two consumer representative groups wanted further clarity on why these exemptions are appropriate.

2.57 Customer research highlighted that additional services (hot food, hot water) become more of a necessity for PSR customers during longer interruptions which are more likely in the context of major incidents.[43] We also recognise that major incidents provide scale to formally mobilise services (such as hot food vans) efficiently and so that costs and resources are proportionate to the customer benefits. We agree with GDNs that limiting the applicability of additional services to major incidents, including an initial 48-hour exclusion period, is appropriate. We think this is fair in the context of a minimum standard. We note and welcome that GDNs intend to go further than the GSOP through voluntary and bespoke initiatives,[44] including providing support for limited interruptions.

2.58 We have decided that, for GSOP12, payments should be made within ten days. This is in line with our Draft Determinations proposal. Cadent said GSOP12 should be revised to a less stringent standard to account for potential delays in new systems being implemented. We have discussed this concern with Xoserve who is confident it will have systems in place for the start of RIIO-GD2. We informally re-consulted on this position through the draft GSOP Guidance in October and did not receive further evidence to warrant a change.

Provision of baseline allowances for GSOP payments and ability to apply exemptions

2.59 Cadent commented that an efficient level of funding should be provided for GSOP payments, particularly for GSOP1 in relation to MOBs interruptions. This is because MOBs interruptions tend to last longer due to factors GDNs consider are outside of their control. Cadent thought it should be able to apply exemptions in such cases.

2.60 We have decided not to provide baseline funding for GSOP payments. Although Cadent submitted further evidence, we consider it insufficiently robust to justify a change. GSOPs represent minimum standards, with payments acknowledging

[42] Interruptions that are shorter in duration or affect fewer people, or both.
[43] Stakeholders indicated the length of the interruption should be considered in the provision of additional services, as the longer the interruption the more likely additional services (eg hot food) will be required.
[44] For example, Cadent's PCD 'Personalising welfare facilities'. Other voluntary initiatives were described in the customer research comparing GDN practices and GDNs have described their intentions to continue offering bespoke support measures in RIIO-GD2, at our Customer and Social stakeholder group.

inconvenience to customers; the GDNs are responsible for alleviating this. Providing baseline funding for payments would result in customers as a whole funding GDNs' failures through their gas bills, which would act as a disincentive for GDNs to exhaust all actions at their disposal to meet the minimum standard.

2.61 There are a number of exemptions to GSOP payments that GDNs can apply where circumstances are out of their control and they have taken all reasonable steps to avoid failure to meet the relevant standard. These are contained in the SI[45] and will remain unchanged for RIIO-GD2. Therefore, we do not think further adjustments are needed.[46]

Extensions to Quotation GSOPs[47]

2.62 We have decided not to extend connections quotations GSOPs[48] to green gas entry requests, which is a change from our Draft Determinations position, and follows consideration of further evidence submitted by GDNs.

2.63 All GDNs stated that providing initial, and full, capacity studies for green gas enquiries is a bespoke process, which is managed differently across networks and involves bilateral continual exchanges with each customer. One concern was that applying a common GSOP could reduce the flexibility of this process, including the quality of engagement and service provided by GDNs. Two CEGs also questioned its need and workability for similar reasons.

2.64 Having considered this feedback, we think that a common GSOP on entry capacity studies could potentially have a detrimental impact on the quality of information provided to customers during the green gas connections process. We will therefore not implement our Draft Determinations position on this.

2.65 We want, however, to support greater accountability and improved service for green gas producers given stakeholder feedback that the entry connection processes are inconsistent and complex across the sector. GDNs have committed to improve their connections processes to support green gas enablement and will

[45] The Gas (Standards of Performance) Regulations 2005 (SI 2005/1135).
[46] The exemptions that can be applied to discharge the obligation to make payments are set out in the SI and GSOP Guidance, to be published in 2021. Ofgem remains able to scrutinise whether exemptions are applied appropriately through our review of GDNs' GSOP performance reporting.
[47] Draft Determinations GD Annex paragraph 2.60 on domestic and non-domestic developments of >5 premises, isolations (ie disconnections) and diversions (including mains diversions and diversions related to pipes of up to 7 bar gauge of pressure) for exit connections.
[48] GSOPs 4, 5, 6 and 8.

report on this through the Annual Environmental Report (AER).[49] This could include collaborative efforts to standardise the content of capacity studies, designs for grid entry units and the rules for green gas entry quotations. If there is limited improvement in service provision for green gas entry connections or coordination between networks, we may consider whether to introduce further requirements for RIIO-GD3.

2.66 We have also decided to not extend connections quotations GSOPs to domestic and non-domestic developments of greater than five new build premises, which is a change from our Draft Determinations position, following consideration of further information submitted by GDNs.[50] Our powers to specify standards of performance under the Gas Act[51] only extend to customers and potential customers of gas suppliers. We think identifying individual gas supply customers for compensation if the GSOP were extended to developments of greater than five domestic/non-domestic new build premises would create excessive regulatory burden and it is unclear how many consumers would benefit. As such, we will leave the existing exemption on domestic and non-domestic developments of greater than five new build premises unchanged.

2.67 There is a voluntary scheme[52] in place for persons requesting works not covered under the GSOPs. We expect GDNs to continue to cover green gas producers, domestic and non-domestic developments where possible under this scheme.

Next steps

2.68 We will address further feedback received as part of the informal consultation on GSOP implementation through the SI drafting and GSOP Guidance. We will formally consult on the SI drafting and the SSC D10 licence condition which forms part of the GSOPs) after Final Determinations. We will also formally consult on the full draft GSOP Guidance next year. We expect the changes will formally come into effect by Summer 2021, but GDNs could voluntarily introduce changes for the start of RIIO-GD2.

[49] See Core Document, Chapter 4 (Environmental Action Plans and Annual Environmental Report) and GD Annex, Chapter 2 (Environmental Action Plan and Annual Environmental Report).
[50] Ofgem held engagement sessions with representatives from the networks to discuss connections GSOPs in August, October, and November 2020. We also received further evidence on connections GSOPs as part of the informal consultation on the GSOP Guidance.
[51] Section 33AA Gas Act 1986.
[52] In 2005, Ofgem and the GDNs agreed to extend the connections guaranteed standards (GSOP4-GSOP11) to apply to consumer groups that are not covered under the Regulations through a voluntary scheme https://www.ofgem.gov.uk/ofgem-publications/49087/guidance-gsop-regs-and-d10-newpdf. More information on the voluntary scheme will be provided in the GSOP Guidance which will be published as part of implementing the RIIO-GD2 changes.

Emergency response

Purpose: A LO to ensure GDNs respond to 97% of reported gas escapes within one hour for uncontrolled escapes and within two hours for controlled escapes.

Benefits: The continuation of the 97% performance standard from RIIO-GD1 places clear focus on this vital service for consumers. Our changes for RIIO-GD2, clarify that we expect, in meeting the performance standard, those attending gas escapes must have sufficient training to deal with the situation competently. This removes the potential that the current performance standard is less effective in ensuring public safety.

Final Determinations decision

Output parameter	**Final Determination**	**Draft Determinations[53]**
Obligation(s) retained from RIIO-1	GDNs respond to 97% of reported gas escapes within one hour for uncontrolled and two hours for controlled escapes	Same as FD
New obligations for RIIO-2	Changes to the licence condition to clarify that in meeting the performance standard: 1. Those attending gas escapes must have sufficient training to deal with the situation competently and appropriately. 2. The licensee must be able to demonstrate that those attending gas escapes can deal with the situation competently and appropriately.	
Applied to	All GDNs	
Licence condition	SSC D10 Quality of Service Standards	N/A

Final Determination rationale and Draft Determination responses

2.69 We have decided to implement our Draft Determinations proposals. Few respondents commented - a GDN and a consumer representative group broadly agreed with our proposals. We think that the new obligations will remove the potential that the current performance standard is less effective in ensuring public safety as they clarify that in meeting the performance standard those attending gas escapes must have sufficient training to deal with the situation competently.

[53] Draft Determinations GD Annex paragraphs 2.77-2.79.

Unplanned Interruptions

Purpose: To protect consumers by ensuring that GDNs' performance on the duration of unplanned interruptions does not deteriorate.

Benefits: Managing the duration of interruptions reduces negative impact on consumers and ensures that they do not experience extended periods without gas.

Final Determinations decision

Common ODI-F for unplanned interruptions (excluding Cadent's networks)

Output parameter	**Final Determination**	**Draft Determinations[54]**
ODI type	Financial	Same as FD
Incentive type	Penalty only	
Performance measure	The average duration of all unplanned interruptions during the year, excluding major incidents[55]	Change: major incidents no longer included
Performance level	Each network will be set a: • Minimum Performance Level in hours - the point at which a penalty will be incurred • Excessive Deterioration Level for each network - the point at which the maximum penalty value will be incurred	Change: Minimum Performance Levels and Excessive Deterioration Levels changed as major incidents no longer included
Incentive value	The penalty will increase linearly between the Minimum Performance Level and Excessive Deterioration Level	Same as FD
Cap	N/A	
Collar	0.5% of Base Revenue	
Reporting method	Annual RRP reporting	
Applied to	All networks except Cadent networks	Change: all networks except Cadent North London
Licence condition	Special Condition 4.5 Unplanned Interruption Mean Duration output delivery incentive (UIP_t)	N/A

[54] Draft Determinations GD Annex paragraphs 2.92-2.101.
[55] Major incident means the loss of supply to more than 250 customers following a single incident.

Two ODI-Fs for Cadent networks: (i)MOB Riser interruptions and (ii) all other interruptions.

Output parameter	Final Determination	Draft Determinations[56]
ODI type	Financial	Same as FD
Incentive type	Penalty only	
Performance measure	Two separate measures for the average durations of unplanned interruptions during the year (excluding major incidents): one based on MOB Riser interruptions, the other on all other interruptions.	Change: major incidents no longer included
Performance level	Each Cadent network will be set two separate Minimum Performance Levels in hours, one for MOB Risers and one for all other interruptions. Likewise, for Excessive Deterioration Levels.	Change: only applied to Cadent North London and levels changed as major incidents no longer included.
Incentive value	The penalty will increase linearly between the Minimum Performance Level and Excessive Deterioration Level.	Same as FD
Cap	N/A	
Collar	0.25% for each ODI	
Reporting method	Annual RRP reporting	
Applied to	All Cadent networks	Change: Cadent North London only
Licence condition	Special Condition 4.5 Unplanned Interruption Mean Duration output delivery incentive (UIP_t)	N/A

Final Determination rationale and Draft Determination responses

Decisions applying to all networks

2.70 We have decided to implement this ODI-F, with some changes to its structure to address stakeholders' concerns relating to Draft Determinations.

2.71 We will implement the following design features proposed in Draft Determinations:

- The ODI will be penalty-only.
- A collar of 0.5% of Base Revenue will apply to the incentive.[57]
- We will set each network an individual Minimum Performance Level, representing the point at which a penalty will be incurred and an Excessive

[56] Draft Determinations GD Annex paragraphs 2.92-2.101
[57] Or in the case of Cadent, 0.5% of Base Revenue in aggregate split equally across two ODIs.

Deterioration Level, where the maximum penalty will be incurred. The penalty will increase linearly between these.

- GDNs that breach their Excessive Deterioration Level will be required to submit an explanatory report.
- MOB Interruptions will be defined as those where a riser must be replaced or repaired before supply can be restored.

2.72 We think that a maximum penalty of 0.5% of base revenue, alongside an explanatory report is appropriate. The overall approach was broadly supported by NGN's CEG, a consumer representative group and the RIIO-2 Challenge Group.

2.73 SGN argued that the maximum penalty level was disproportionate, while Cadent disagreed with the potential for further regulatory action for a breach of the Excessive Deterioration Level. The purpose of this incentive remains to protect consumers from any substantial deterioration in interruptions performance. We have set the Excessive Deterioration Levels at a point where we would consider substantial deterioration has occurred. At this point, we think an explanatory report is an appropriate next step to understand the cause. We would however use the explanatory report to carefully evaluate the specific circumstances before deciding whether to consider potential enforcement action.

2.74 We have decided to exclude major incidents from the performance measure. New evidence from Draft Determinations responses, along with new regulatory data submissions, shows that including major incidents creates a risk of GDNs, that are otherwise performing well, being penalised for incidents that are particularly difficult to manage. Cadent showed that a specific incident (too recent to be included in the Draft Determinations modelling) would have caused them to breach the proposed Minimum Performance Level. At this stage, we think trying to include major incidents within the design of the ODI-F will lead to a complex mechanism that is not in consumers' interests. This change responds to concerns raised by three GDNs and Cadent's CEG.

2.75 However, managing major incidents must remain an important priority for GDNs. We will continue to rely on the reports submitted by GDNs following such incidents to monitor performance. In addition, other aspects of RIIO-GD2 will support consumers experiencing an interruption of this type including the extension of services provided to vulnerable customers under GSOP 3.

2.76 The minimum Performance Levels and Excessive Deterioration Levels for all networks are set out in the company annexes.

ODI-Fs for Cadent networks

2.77 We have decided to implement separate MOB and non-MOB ODIs for all four Cadent networks, rather than just for North London. We think this is appropriate because it will provide a more accurate, and detailed, measure of their unplanned interruptions performance. This addresses concerns from Cadent, and their CEG, that a combined ODI has the potential for distortion resulting from changes in the relative numbers of MOB and non-MOB interruptions from year to year. We note that Cadent's networks all have high numbers of MOBs relative to the industry and record higher numbers of MOB interruptions. Since average durations of MOB interruptions are substantially longer than non-MOB interruptions, we agree that the overall performance for Cadent's networks could be materially distorted by a change in the proportion of MOB interruptions within the total. Separate ODIs also provide stakeholders with greater clarity over Cadent's performance, which we think is especially important following the 2019 settlement for poor performance in resolving MOB interruptions on its North London network and consequent Improvement Plan.[58]

Performance levels for Cadent networks

Table 4: Performance levels for Cadent networks

	Minimum Performance Level	**Excessive Deterioration Level**
Non-MOBs	Highest annual average duration recorded in the first six years of RIIO-GD1, rounded up to the next hour.	5 hours beyond the Minimum Performance Level
MOBs	Highest annual average duration recorded in the first six years of RIIO-GD1, rounded up to the next hour, subject to a maximum of 601 hours.	200 hours beyond the Minimum Performance Level

Minimum Performance Levels for Cadent networks

2.78 For the North London network MOB ODI, we have decided to implement our Draft Determinations position of a Minimum Performance Level of 601 hours. This is based on the level set out in Cadent's MOB Improvement Plan. Cadent accepted this level in their response and we do not have any reason to change it. Cadent will need to improve its performance beyond this level in RIIO-GD2 if it is to be

[58] https://www.ofgem.gov.uk/system/files/docs/2019/05/cadent_decision_document.pdf

confident of avoiding a penalty and we note that this is its clear intention from its Business Plan.

2.79 For the non-MOB ODI, we have decided to set Minimum Performance Levels using the highest annual average duration for each network recorded in the first six years of RIIO-GD1. This method is simple and directly reflects our position at Draft Determinations that no networks other than North London had breached minimum standards so far in RIIO-GD1.[59] We are not using the Monte Carlo model that was applied at Draft Determinations to calculate performance levels. The model's purpose was to provide a means of including major incidents in the ODI, which we are no longer doing. However, its conclusions remain useful as an additional check that the performance levels are credible.

2.80 For the other three networks' MOB Minimum Performance Levels, we have adopted the same method as for non-MOBs, but with the additional restriction that these should not exceed the figure set for London (601 hours). Cadent suggested this approach, and we think it is appropriate that London should represent the ceiling given that it faces the greatest challenges in dealing with MOB interruptions.

Excessive Deterioration Levels for Cadent networks

2.81 We have decided to set a 5 hour interval between the Minimum Performance Levels and Excessive Deterioration Levels for non-MOBs. At Draft Determinations we proposed intervals between 5 and 7.5 hours, based on the outcomes of the Monte Carlo model. We have reviewed the historical variance in each network's non-MOB performance over RIIO-GD1, and we think that 5 hours is a valid reflection of the level of deterioration that would demand further explanation through an explanatory report.

2.82 We have decided to set a 200hour interval between Minimum Performance Levels and Excessive Deterioration Levels for MOBs. At Draft Determinations we proposed this interval for the North London network, as the mid-point between the Minimum Performance Level and highest annual duration recorded in RIIO-GD1. We think this interval is also appropriate for Cadent's other networks, based on our assessment of the variance in MOB interruption durations during RIIO-GD1.

[59] Draft Determinations GD Annex, paragraph 2.85.

ODI-F for NGN, SGN and WWU

2.83 We have decided that NGN, SGN and WWU will continue to have a single ODI covering both MOBs and non-MOBs. These GDNs report few MOB interruptions and hence the risk of distortion (considered for Cadent above) is much lower. A consumer representative group supported the principle of separate MOB and non-MOB incentives for all GDNs, as have other GDNs in the past. We agree this would provide more clarity around performance. However, as noted in the SSMD, we are mindful that for these GDNs, work is needed on systems and processes before MOB interruptions can be easily separated out in reporting. We have worked with the GDNs to specify new data and reporting rules that we intend to implement in the Regulatory Instructions and Guidance (RIGs) and RRPs for the start of RIIO-GD2. This new data will enable us to consider whether it's appropriate to set separate outputs for all GDNs in RIIO-GD3.

Table 5: Performance levels for NGN, SGN and WWU

Minimum Performance Level	Excessive Deterioration Level
Two hours above the highest annual average duration recorded in the first six years of RIIO-GD1, rounded up to the next hours	7.5 hours beyond the Minimum Performance Level

Minimum Performance Levels for NGN, SGN and WWU

2.84 We have decided to set Minimum Performance Levels for each of these networks at the highest annual average duration recorded in the first six years of RIIO-GD1, plus an additional two hours. This represents a change to the methodology we proposed at Draft Determinations, which SGN raised concerns with. We have followed the same reasoning as for Cadent's ODIs (as set out above), but think it is appropriate to include an additional two hour adjustment to reflect the fact that the ODI covers both MOBs and non-MOBs and hence there may be some degree of variance in performance due to changing numbers of MOB interruptions. We think two hours is appropriate based on our assessment of the level of variance seen in RIIO-GD1 interruption durations for these networks.

2.85 WWU and NGN argued that they had delivered frontier performance in unplanned interruptions duration, and that other networks should be expected to catch up. The former also thought that this has resulted in them being given a more stretching Minimum Performance Level and they should have the opportunity of a reward. We disagree. The objective of this ODI has been long established as ensuring that minimum standards are not breached, and by definition Minimum

Performance Levels are not stretching. We have received no new evidence to support providing a reward. However, we would expect all GDNs to seek performance improvements as a matter of course, and to highlight their progress to their stakeholders.

Excessive Deterioration Levels for NGN, SGN and WWU

2.86 We will set an interval of 7.5 hours between the Minimum Performance Levels and Excessive Deterioration Levels for each of these networks. Based on our assessment of historical performance on this measure and taking into account the inclusion of both MOBs and non-MOBs within this ODI (unlike for Cadent), we think this is an appropriate reflection of what we consider excessive deterioration. It recognises that including MOBs within the ODI has the potential to increase variance in performance.

Collaborative Streetworks (Cadent Lon & EoE, SGN So)

Purpose: A financial ODI to incentivise collaboration between utilities for the delivery of streetworks in Greater London.

Benefits: To reduce the frequency, and duration of roadworks by aligning works for multiple parties within one project. We also expect it to promote knowledge sharing amongst GDNs and other utility sectors.

Final Determinations decision

Output parameter	Final Determination	Draft Determinations[60]
ODI type	Financial	Change – proposed ODI or baseline funding
Incentive type	Reward only	Change – as above
Performance measure	The number of completed collaboration projects meeting the criteria: • 0.2km minimum length, except where project is categorised of strategic importance by Greater London Authority (GLA) • Level two collaboration at a minimum, as defined in GLA collaboration manual • A minimum of two collaborating utilities • Project must represent a permanent solution, not a temporary repair • Work must be completed by end RIIO-GD2	Change – proposed to work with Cadent and SGN to develop an appropriate performance measure

[60] Draft Determinations GD Annex paragraphs 2.103-2.107.

Output parameter	Final Determination	Draft Determinations[60]
Performance target	No target (but expectation that when eligible projects are available they will be progressed)	Change – no mechanism proposed at DD
Incentive value	£0.305m per completed collaboration project, subject to each network's totex sharing rate	
Cap	0.5% of Base Revenue per network	
Collar	N/A	
Reporting method	Annual RRP reporting and knowledge sharing through, at a minimum, the Smarter Networks Portal	Knowledge sharing same as FD
Applied to	Cadent East of England and North London, and SGN Southern networks only	Same as FD
Licence condition	Special Condition 4.6 Collaborative streetworks output delivery incentive (CSW_t)	N/A

Final Determination rationale and Draft Determination responses

ODI and incentive type

2.87 We have decided to set a financial, reward only ODI for Collaborative Streetworks applying to Cadent and SGN's Greater London networks. Respondents (GDNs, CEGs, environmental and consumer representative groups, suppliers and a DNO) broadly preferred a financial ODI over funding through baseline totex. Cadent and SGN noted challenges in setting an appropriate baseline totex allowance (eg an uncertain number of projects). We agree and think that a financial ODI can incentivise SGN and Cadent to proactively progress eligible streetworks projects.

Performance measure and target

2.88 We have decided that the performance measure will be number of completed streetworks projects, subject to qualifying criteria including length (km) of the project, level of collaboration, number of parties involved and permanence of the solution. Cadent and SGN, with input from the Greater London Authority (GLA), proposed qualifying criteria for measuring collaborative projects in their Draft Determinations responses which we agree with. We also agree with the evidence put forward that strategic significance (eg due to impact on the emergency services), not just the size of the streetworks project, should be prioritised.

2.89 We have decided not to set a target for the number of projects completed during RIIO-GD2, because previous projects have taken 1-2 years from planning to completion. The current pilot project with the GLA ends in December 2020, and there is currently no forecast of future projects. However, our expectation is that

when eligible projects are available, they will be progressed due to the potential reward available through the ODI.

Incentive value and cap

2.90 We will set an incentive rate of £305k per completed project using the Social Value method included in SGN's BP, derived from historical data and a case study project. The value reflects the negative social impact of living near utility works which could be reduced if companies plan collaboratively to reduce repeated works. The value is broadly supported by a recent Cadent project, and GLA evidence on project complexity and the number of net days saved through collaboration. We will apply the totex sharing rate to the incentive value since the TIM will partly fund SGN's and Cadent's costs for eligible projects.[61]

2.91 A concern raised by the GLA was possible double counting of benefits with other sectors if, for example, similar incentives were introduced in other regulated sectors (eg water or electricity distribution). We acknowledge there is a small risk. However, this ODI-F is a pilot and sharing learning with all interested stakeholders is an essential feature. If regulatory mechanisms are seen as appropriate in other sectors, they should be informed by learnings from this ODI.

Reporting method

2.92 We have decided to set a knowledge sharing requirement, but not to the same level as the RIIO-1 NIA framework. This was supported by stakeholders where mentioned in their responses.

2.93 The network companies, and the GLA, already monitor and evaluate projects and the GLA has a role to ensure findings are shared across all sectors. We agree with stakeholder feedback that rigidly following the RIIO-1 NIA framework could lead to some unnecessary duplication of work. Will require, as a minimum, that that Cadent and SGN maintain a central information source on the ENA's Smarter Networks Portal. This may include links to information hosted on the GLA website (currently in development).

Application

2.94 A number of CEGs and NGN supported extending the ODI-F to all GDNs. We have not done this as we currently do not have sufficient information to set incentive

[61] See Core Document Chapter 4 for our decision on use of the TIM sharing factor for ODI rewards and penalties.

rates for every type of project across the UK. In addition, other GDNs have not put forward strong evidence to support a wider rollout.

2.95 We think the learning from this ODI could inform a mechanism for all GDNs at RIIO-GD3, and that knowledge sharing requirements will support this.

Other policy areas

Theft of gas (GDN responsible)

Purpose: To financially incentivise GDNs to undertake cost-effective, proactive gas theft investigations and cost recovery activities that exceed minimum licence obligations.

Benefits: Greater recovery of the costs of gas theft and less gas theft which consumers would otherwise have paid for. A safer network resulting from less illegal tampering with gas infrastructure.

Final Determination rationale and Draft Determination responses

2.96 We have decided to implement our Draft Determinations position[62] to use the TIM for the investigation costs associated with, and money recovered through, GDNs' gas theft investigations (ie any costs in this area and money recovered will be shared between GDNs and customers). This will provide a financial incentive for GDNs to proactively investigate theft beyond their existing licence obligations. This is a change from RIIO-GD1 where GDNs are required to remain revenue neutral.

2.97 We are providing a separate pass-through mechanism for costs that GDNs incur from situations where suppliers are responsible for investigating gas theft. Our decision on this mechanism is set out in Chapter 4.

2.98 In RIIO-GD2, GDNs will still have an obligation to investigate potential theft when they become aware of it but will have new discretion to decide when to undertake cost recovery.[63] Investigations are required to ensure physical safety and determine whether cost recovery is likely to be cost-effective. Our decision to use the TIM, and remove the revenue neutrality requirements, means GDNs will have greater incentive to carry out proactive work to identify potential theft and recover more money from those who take gas illegally, where it is cost-effective.[64]

[62] Draft Determinations GD Annex paragraphs 4.5-4.18.
[63] Standard Special Condition D22.
[64] GDNs' new exposure to costs and benefits makes it efficient for them to decide when to recover costs.

2.99 This decision is expected to produce fairer outcomes through a reduced need for customers to pay for gas theft. To the extent that GDNs' proactive investigations deter theft, there may also be a safety benefit from reduced illegal tampering with network equipment that GDNs are required to rectify.

2.100 NGN thought our Draft Determinations could give lower returns to customers compared to RIIO-GD1. An energy supplier supported our intent but thought the approach might be less effective than anticipated. It advocated a reward mechanism explicitly targeting volume of theft prevented or funds recovered. We accept that a GDN could theoretically continue its current rate of investigations and return less money to consumers in RIIO-GD2 than in RIIO-GD1 (where it must remain revenue neutral). However, we note that GDNs retain an obligation to investigate theft when they become aware of it and we think it unrealistic to assume that no additional cases would be cost-effective to investigate. Evidence in two GDNs' Business Plans suggests ambition to cost-effectively increase money recovered through investigations and share this between shareholders and consumers.

Next steps

2.101 We will consult on amending the RIGs to collect detailed data on theft investigations. Currently GDNs report total investigations costs and aggregate money recovered. In RIIO-GD2, we expect GDNs to report costs and money recovered for each investigation, the period of suspected theft, period of the investigation and date when money was recovered.

Restoration of customers appliances - Purge and Relight (P&R) activity

Purpose: To monitor GDNs' performance in handling P&R activity and engagement to restore customer appliances.

Benefits: Monitoring will enable Ofgem to understand if companies restore gas to customers' appliances quickly, and effectively, following an interruption.

Final Determination rationale and Draft Determination responses

2.102 We have decided not to include an ODI-R to monitor appointments for P&R activity in RIIO-GD2, in a change to our Draft Determinations. Instead, we will work with GDNs to implement new internal reporting to monitor P&R activity.

2.103 We think this is appropriate given the mixed feedback from stakeholders on our Draft Determinations proposals that sought to bring together GDNs' various bespoke P&R proposals under a common ODI-R for the provision of appointments for P&R.

2.104 Three consumer representative groups supported our proposals and noted that monitoring different company practices on a common basis could help incentivise better decisions. Two of them also saw merit in a common output where there were similarities between GDNs' proposals, rather than bespoke outputs and targets.

2.105 Three GDNs, and SGN's CEG suggested that mandating the provision of appointments through a common output was inappropriate, given evidence of differing customer preferences (eg to restore supply quickly rather than make an appointment). Some respondents argued the focus should be on effective engagement with the customer throughout the P&R process as opposed to the provision of appointment time slots.

2.106 We note GDNs' P&R proposals that included compensation payments for 12 hours of appliances off gas. While we commend the engagement work, the proposals were driven by customer appetite for compensation as opposed to stretching current performance, and therefore are not appropriate for bespoke ODIs.

2.107 We have taken feedback into account and consider that the ODI-R we proposed for Draft Determinations may not adequately reflect different customers' preferences. At this stage, we think it is unclear how to define good and/or stretching performance. Additional evidence submitted by all GDNs on their company practices, suggests that:

- While all GDNs appear to be targeting similar performance levels in restoring supply to customers' appliances (within two or four hours), they do not appear to collect information consistently.[65]
- Most GDNs already agree convenient times with customers for P&R when they are not present once reconnection to the ECV is completed, but GDNs' current practices of engaging with customers throughout the P&R process are unclear.

[65] Data provided for % of time appliances are restored within two hours of reconnection varied significantly, with estimations between 58-92% of the time across companies. However, data maturity was limited.

2.108 Based on the evidence provided, we think there is value in seeking to establish common reporting processes to facilitate comparability and transparency of performance. Stakeholder feedback highlighted that monitoring should be wider than just the provision of appointments for P&R and include wider metrics that demonstrate good performance.

2.109 We will work with stakeholders to develop appropriate metrics. These will be consulted on, as part of implementing the new regulatory reporting for RIIO-GD2 under the RRP. The data could potentially be used to set an appropriate output, or new GSOP, in RIIO-GD3. Some initial ideas for metrics include (for planned and unplanned interruptions):

- average restoration time for restoring to ECV and appliance (hours)
- % of cases customer appliances are restored within two hours following reconnection to ECV
- qualitative description of processes to notify customer of P&R works
- % of cases customer is not notified of technician's arrival
- qualitative description of processes under which appointments are offered and agreed
- % of cases technician does not arrive within agreed timeslot.

Maintaining a safe and resilient network

2.110 Our RIIO-2 Framework aims for companies to deliver a safe and resilient network that is efficient and responsive to change.

2.111 This section sets out each of the common outputs related to maintaining a safe and resilient network.

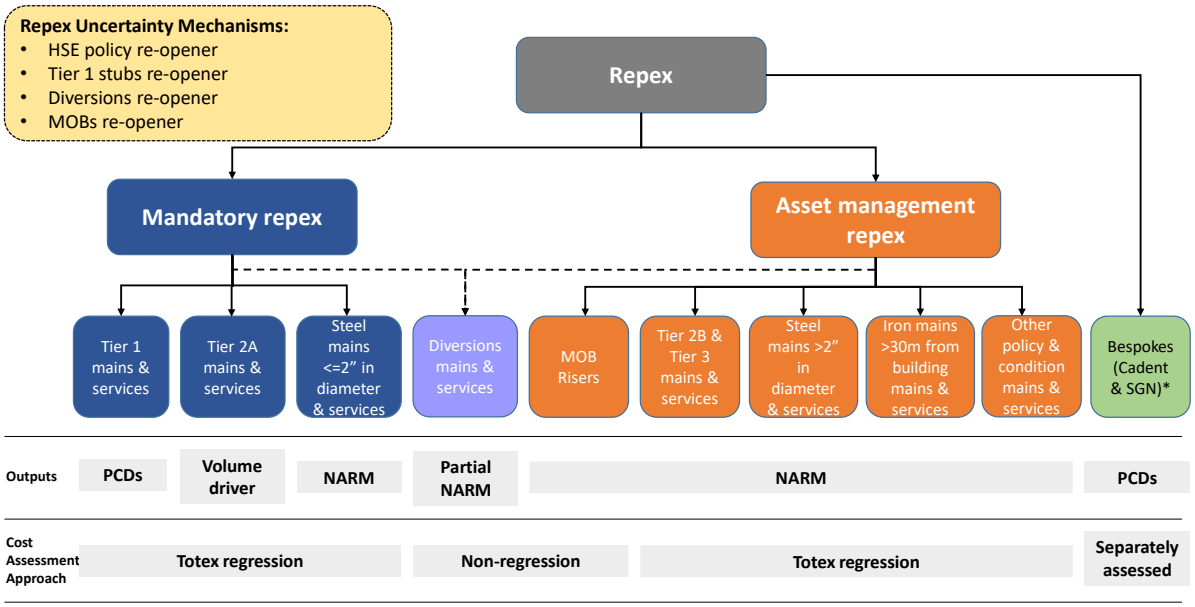
Repex

2.112 The term repex describes the long term programme of work to replace old, and deteriorating, metal mains and services with plastic pipes.[66] We have designed a suite of outputs and uncertainty mechanisms (UMs) to support the delivery of this large and complex programme over RIIO-GD2. Figure 2 summarises our approach to outputs and cost assessment for repex in RIIO-GD2. We set out repex outputs

[66] Repex also includes replacement of risers supplying multi occupancy buildings (MOBs), which may be replaced with either plastic or steel pipes.

(PCDs) in this section, our repex cost assessment in Chapter 3 and uncertainty mechanisms in Chapter 4.

Figure 2: Overview of our approach to repex in RIIO-GD2



* We have accepted three bespoke projects, one from Cadent and two from SGN. These were assessed under the technical assessment category.
Note: capitalised replacement costs have been included in the relevant category (for Tier 1, Tier 2A etc)

2.113 GDNs deliver the majority of repex under the Iron Mains Risk Reduction Programme (IMRRP), a long term programme regulated by the HSE to decommission iron mains within the gas distribution network. Within the IMRRP, mains are divided into different tiers, depending on diameter band and/or risk measures. Tier 1 and Tier 2A mains are designated as being mandatory to decommission, while the GDNs are expected to manage the risk from Tier 2B and Tier 3 mains, including through replacement where this is economically justified and approved by Ofgem.

2.114 The structure of the IMRRP provides the GDNs with a certain degree of flexibility over the iron mains they choose to decommission during RIIO-GD2. While noting that three GDNs have opted to continue to structure their programmes in line with the 20:80 rule,[67] we would strongly encourage all GDNs to consider hydrogen readiness when designing the IMRRP in RIIO-GD2, including focusing work on locations that are more likely to move to hydrogen networks in the future. Our repex outputs allow flexibility to deliver this. Should there be significant changes

[67] The 20:80 rule states that 20% of a GDN's Tier 1 programme must comprise mains from the highest risk 20% of the qualifying population, with 80% coming from any part of the remaining population. Cadent's RIIO-GD2 Business Plan assumes removal of the 20:80 rule, noting a broadly flat risk profile across its Tier 1 assets. This is still subject to final approval by the HSE.

to the IMRRP as a result of new legislation driven by Net Zero then we have a suite of Net Zero-related re-openers that could be triggered to reflect these changes during RIIO-GD2.

Tier 1 PCDs for mains and services

Final Determination rationale and Draft Determination responses

2.115 We have decided to implement two PCDs covering Tier 1 mains and Tier 1 services, with some design changes based on consultation responses from respondents and new evidence submitted by them. We've designed the PCDs to ensure alignment between workloads delivered and cost allowances. This gives GDNs flexibility to manage the programme efficiently, while consumers will only pay for workloads that are delivered.

2.116 Both PCDs have the following general design characteristics:

- **Baseline Target Workload** – the workload volume that GDNs are expected to deliver and on which the Baseline Cost Allowance is set. This incorporates the Baseline Workload Mix.
- **Baseline Workload Mix** – the forecast mix of Workload Activities within the Baseline Target Workload.
- **Workload Activities** - defined by characteristics such as asset size (ie 3" in diameter) or type of activity (ie service relay).
- **Baseline Cost Allowance** - set through our totex modelling approach (explained in more detail in Chapter 3 and the Step-by-Step Guide).
- **Allowance Adjustment Mechanism** – the mechanism used to adjust allowances at close-out to reflect the Outturn Workload and Outturn Workload Mix based on ex ante unit costs.
- **Outturn Workload** – the total workload volume delivered at the end of RIIO-GD2.
- **Outturn Workload Mix** – the final delivered mix of Workload Activities within the Outturn Workload at the end of RIIO-GD2.
- **Ex ante unit costs** – fixed upfront ('ex ante') unit costs for each Workload Activity.
- **Allowance Adjustment Restrictions** – specific conditions that restrict the amount by which allowances can be adjusted by placing restrictions on either allowance or workload variations.

2.117 We received a number of responses to our Draft Determinations consultation and through our Repex Working Group[68] presentations that provided views on our approach to repex in general, focusing on incentive structure, impact on companies and benefits to consumers. A supplier and the RIIO-2 CG agreed with our proposals to use PCDs to hold the GDNs to account for delivering Tier 1 workloads. Cadent's CEG agreed that our proposed use of PCDs would reduce the scope for GDNs to make windfall gains, but noted that relatively late changes to the detail of the Tier 1 PCDs could result in unintended consequences, including additional administrative burden and potential perverse incentives if unit costs are not set correctly.

2.118 We have engaged extensively with stakeholders through the Repex Working Group between Draft and Final Determinations to ensure our decisions on the design of the Tier 1 PCDs do not unduly burden GDNs, while noting administrative changes are always required at the beginning of new price controls. We have also updated our approach to setting PCD unit costs (further outlined in the Step by Step Guide) to reduce unintended consequences by ensuring unit costs accurately reflect efficiently incurred real costs.

2.119 Further details of the Tier 1 mains and Tier 1 services PCDs are set out below.

Tier 1 mains replacement

Purpose: A PCD to fund Tier 1 iron mains decommissioning and replacement activities.

Benefits: Clarity over Baseline Target Workloads to be delivered over RIIO-GD2. The Allowance Adjustment Mechanism will ensure that costs to consumers reflect what is delivered (based on the Outturn Workload Mix), while maintaining flexibility for GDNs to deliver work efficiently.

[68] https://www.ofgem.gov.uk/publications-and-updates/riio-gd2-working-groups

Final Determinations decision

Output parameter	Final Determination	Draft Determinations[69]
Type	Mechanistic	Same as FD
Output measure	Baseline and Outturn Workloads and Baseline and Outturn Workload Mix based on km of Tier 1 mains decommissioned. The measure is set using four Workload Activities.[70]	Same as FD, but we have changed the number of workload activities - we proposed 12 Workload Activities
Output target	Network (region) specific Baseline Target Workload and Baseline Workload Mix (see Chapter 3 and company annexes)	Change: we have updated Baseline Target Workloads and Workload Mix
Baseline Cost Allowance	Allowance covers all RIIO-GD2 years (see company annexes for values)	We have updated allowances
Ex ante unit costs	Ex ante unit costs derived from top-down allowances for each Workload Activity (see Chapter 3)	We have made changes to our approach to calculating ex ante unit costs
Adjustment Mechanism	Allowance Adjustment Mechanism to adjust allowances at close-out to reflect Outturn Workload and Outturn Workload Mix based on ex ante unit costs.[71] Any upward adjustment is restricted to 3% of the value Baseline Cost Allowance, with any overspend beyond this going through the TIM. No lower limit on adjustments to the Baseline Cost Allowance, but GDNs must explain any variance in value >2% below the Baseline Cost Allowance.	Change: to the value of cap on upward allowance adjustments and the treatment of over-delivered workloads. Same as FD for treatment of under-delivery.
Delivery date	31 March 2026	Same as FD
Re-opener	No specific re-opener, although could be within the scope of various re-openers (eg HSE re-opener, Heat Policy re-opener).	
Reporting method	Annual Reporting in the RRP	
Companies applied to	All GDNs	
Licence condition	Special Condition 3.10 Tier 1 mains decommissioned Price Control Deliverable (T1MDt)	N/A

[69] Draft Determinations GD Annex paragraphs 2.163-2.192.
[70] Baseline Target Workload for each GDN is set out upfront and for the whole of RIIO-GD2, across four Workload Activities, based on diameter bands (≤3", 4"-5", 6"-7", 8"). For each network, these are set out in the company annexes alongside our decision on ex ante unit costs.
[71] We have set unit costs based on each of four workload activities. These are derived from top-down totex allowances. We do not use Baseline Target Workloads to calculate Baseline Cost Allowances on a bottom-up basis.

Final Determination rationale and Draft Determination responses

Workload Activities

2.120 We have decided that the PCD will be based on mains decommissioned data, as proposed at Draft Determinations. Using the mains decommissioned dataset, rather than mains commissioned:

- aligns with HSE requirements
- improves project design by allowing GDNs to upsize, or downsize, pipe diameter as needed
- ensures that the GDNs collect improved decommissioned data for RIIO-GD3.

2.121 NGN, WWU, and the RIIO-2 CG, broadly agreed with using mains decommissioned data. However, most GDNs and Cadent's CEG were concerned about moves away from using the mains commissioned dataset. This was largely due to concerns about the robustness of the mains decommissioned data (including the consistency of assumptions between GDNs to report on the 12 workload categories we proposed at Draft Determinations) which could lead to incorrect company specific costs and/or distort incentives.

2.122 We acknowledge these concerns but think the benefits of using decommissioned data (set out above) support our decision. However, we think it is appropriate for GDNs to report workloads at a more aggregated level.

2.123 We have decided to use four diameter bands (≤3", 4"-5", 6"-7", 8") as the Workload Activities for this PCD. Reducing the number of workload activities that are defined within the PCD helps mitigate concerns over data quality. This is because a higher level of aggregation reduces the number of assumptions required when reporting costs and workloads. All GDNs were supportive of reducing the number of workload activities from the 12 proposed at Draft Determinations - some suggested eight; others four. A supplier and the RIIO-2 CG supported 12. We consider that using four categories simplifies the PCD, while retaining most of the benefits of aligning allowances with delivered workloads.

2.124 We intend to ask the GDNs to report costs at a more granular level in the RRPs, with a view to further improving the modelling of costs and tracking of the repex programme in RIIO-GD3.

Baseline Target Workloads, Baseline Workload Mix and Baseline Cost Allowance

2.125 Our decisions on Baseline Target Workloads and Baseline Workload Mix are driven by our detailed engineering and cost assessment review process, which is detailed in Chapter 3. Our Baseline Cost Allowance is set through our totex modelling process, which is explained in Chapter 3, with allowances for each network presented in the company annexes.

Ex ante unit costs

2.126 We have decided to implement an approach to setting ex ante unit costs for the PCD that scales bottom-up industry average unit costs (determined from company submitted costs) to match top-down allowances (that flow from our totex model). We think this decision:

- more accurately reflects the average cost for undertaking each Workload Activity
- is consistent with the efficiency challenges set through our totex modelling
- minimises potential perverse incentives to outperform purely through changing workload mix, which may result in sub-optimal outcomes for consumers.

2.127 This is a change from our Draft Determinations position where the proposed unit costs were derived from our bottom up analysis only. This decision takes on board strong feedback from all GDNs that our cost assessment approach for repex (bottom up and top down) should align so that the unit costs used to adjust allowances in period are appropriate and align with our ex ante totex modelling approach.

2.128 WWU and SGN provided information from tendering processes as part of their responses to Draft Determinations and suggested that this information should take precedence over their respective Business Plan Data Table (BPDT) submissions and supporting engineering justification. For Final Determinations, we have considered this information as a relevant factor when determining whether our final unit cost allowances are appropriate in the round. However, we do not agree that this information should take precedence over and/or replace the other relevant information arrived at through our detailed cost assessment process and therefore we have not used this information to set unit costs. We think doing so would be inconsistent with our overall totex approach to modelling efficient costs and we do not have confidence that the information provided is on a directly

comparable basis to that contained in the BPDTs, which go through a formal assurance process. Chapter 3 provides details of our approach to calculating unit costs for the PCDs and the rationale supporting our methodology. See the company annexes for network (region) specific Tier 1 mains PCD unit costs.

Allowance adjustment mechanism

2.129 We have decided to implement the Allowance Adjustment Mechanism proposed at Draft Determinations with amendments to the treatment of over-delivery, including removing the link with the NARM methodology.

Over delivery

2.130 We have decided not to allocate any over delivered workload volumes to the NARM at Final Determinations. Instead, we will adjust Baseline Cost Allowances to reflect both Outturn Workload and Outturn Workload Mix, up to the cap limit (described below). We will treat any over delivery beyond the cap limit (whether driven by total workload or variations in workload mix) as overspend through the TIM. This responds to Draft Determinations feedback from Cadent's CEG, suggesting that the proposed link with NARM could result in unintended consequences, and feedback through the Repex Working Group, we think that putting over delivery through the TIM rather than allocating it to the NARM is more simple and transparent due to there being a single mechanism to adjust allowances.

2.131 We have decided to increase the cap to 3% of the value of the Tier 1 mains replacement programme (Baseline Cost Allowances) at Final Determinations, from the 2% level proposed at Draft Determinations. We note that both SGN and NGN's CEGs strongly argued that GDNs should not be penalised for over-delivery of repex workloads as this is in the consumers' interests. We disagree, and do not think unconstrained over-delivery is appropriate given uncertainty about the future of the gas network. Our decision to increase the value of the cap recognises that GDNs may need to over-deliver slightly to ensure they hit their delivery targets, and to enable GDNs to flex the Workload Mix towards more expensive diameter bands where this is efficient. We also think that a 3% cap allows GDNs sufficient scope to manage in period dynamic growth, based on the range of forecasts they submitted. We think this responds proportionately to concerns from all GDNs, who requested a higher cap (between 3% to 10%) to provide additional flexibility.

2.132 WWU also noted that GDNs will need to incur financing costs of any over delivery until RIIO-GD3. We note that adjustments to this PCD go through the PCFM and so any lag in over delivery payment will have the appropriate time value of money applied (see Finance Annex).

Under delivery

2.133 We have decided that there will be no lower bounds for the Allowance Adjustment Mechanism, as customers should not pay for workloads that the GDNs do not deliver. This is in line with our Draft Determinations position and we did not receive any feedback to convince us to change our position.

2.134 We have decided to implement the obligation set out in Draft Determinations to submit an explanatory report if the value of the Outturn Workload is more than 2% below the value of the Baseline Cost Allowance. The RIIO-GD2 CG felt that a reputational incentive for under-delivery was insufficient. As any under-delivery of Tier 1 mains workloads could result in enforcement action by the HSE, we do not think that a further financial penalty is needed. We do not think there is a good argument, or additional evidence, to support changing the level at which GDNs must explain the impacts of under-delivery.

Tier 1 services PCD

Purpose: A PCD to fund service interventions associated with Tier 1 mains decommissioning activities.

Benefits: Provides clarity over Baseline Target Workload for RIIO-GD2. The Allowance Adjustment Mechanism will ensure that costs to consumers reflect what is delivered (based on Outturn Workload Mix) while maintaining an incentive for GDNs to deliver work efficiently.

Final Determinations decision

Output parameter	Final Determination	Draft Determinations[72]
Type	Mechanistic	Same as FD
Output measure	Baseline and Outturn Workloads and Baseline and Outturn Workload Mix based on number of Tier 1 service interventions. The measure is set using two Workload Activities.[73]	Same as FD, but we have changed the number of workload activities - we proposed four Workload Activities
Output target	Company (region) specific Baseline Target Workload and Baseline Workload Mix (see Chapter 3 and company annexes)	Change: we have updated Baseline Target Workloads and Workload Mix
Baseline Cost Allowances	Allowance covers all RIIO-GD2 years (see Chapter 3 and company annexes)	Change: we have updated Tier 1 workload adjustments
Ex ante unit costs	Ex ante unit costs derived from top-down allowances for each Workload Activity (see Chapter 3)	Change: we have made changes to our approach to calculating ex ante unit costs
Adjustment mechanism	Allowance Adjustment Mechanism to adjust allowances at close-out to reflect Outturn Workload[74] and Outturn Workload Mix[75] based on ex ante unit costs.[76] Any upward adjustment is capped at total workloads no more than 10% above the Baseline Workload Target, with over-delivery beyond this going through the TIM. No lower limit on adjustments to the Baseline Cost Allowance, but GDNs must explain any variance in workloads >10% below Baseline Target Workload.	Change: we have made changes to treatment of over-delivered workloads Same as FD for value of cap and treatment of under-delivery
Delivery date	31 March 2026	Same as FD
Re-opener	No specific re-opener, although could be within the scope of various re-openers (eg HSE re-opener, Heat Policy re-opener)	
Reporting method	Annual Reporting in the RRP	
Companies applied to	All GDNs	
Licence condition	Special Condition 3.11 Tier 1 services repex Price Control Deliverable ($T1SR_t$)	N/A

[72] Draft Determinations GD Annex paragraphs 2.163-2.168 and 2.193-2.206.
[73] Baseline Target Workload for each GDN is set out across two Workload Activities - service relays and service transfers. These are set out for each network in the company annexes alongside our decision on ex ante unit costs.
[74] The total workload volume delivered at the end of RIIO-GD2.
[75] The final delivered mix of Workload Activities within the Outturn Workload at the end of RIIO-GD2.
[76] We have set unit costs based on each of the four workload activities. These are synthetic costs as Baseline Target Allowances are an input into the overall top-down totex modelling process. We do not use Baseline Target Workloads to calculate Baseline Cost Allowances on a bottom-up basis.

Final Determination rationale and Draft Determination responses

General comments

2.135 We have decided to implement this PCD with minor changes to the number of Workload Activities. Cadent's CEG had concerns about introducing a separate services PCD as workloads are driven by mains and it thought that a less restrictive PCD may be more appropriate. In contrast, a supplier supported the alignment of PCDs for mains and services since these activities are usually delivered together. We have designed the Tier 1 services PCD to have greater flexibility than the Tier 1 mains PCD, accounting for the greater uncertainty associated with forecasting service interventions, given they are driven by mains replacement activity. We think the designs of the two PCDs complement one another to allow companies sufficient flexibility to plan and deliver efficient Tier 1 programmes.

Workload activities

2.136 We have decided to move from four Workload Activities, as set out in Draft Determinations proposals, to two for Final Determinations, splitting workloads only by activity type (ie relay and transfer). Cadent suggested that we should use only activity type, noting that costs are not materially different between domestic and non-domestic interventions. Also, further engagement at the Repex Working Groups, highlighted concerns about the consistency of GDNs' data when reporting between domestic and non-domestic workloads. Although five respondents (two GDNs, a supplier and two CEGs) broadly agreed with our proposed workload activities, we think the data quality issues mean moving to a higher level of aggregation and fewer Workload Activities is justified. NGN suggested we should distinguish between metallic and non-metallic services, but we don't think there is sufficient materiality to support making this distinction.

2.137 We think moving to two categories mitigates concerns around data quality and results in a simpler mechanism, while maintaining the benefits of aligning allowances and workloads. Splitting between relay and transfer activities is appropriate as this is the key driver of cost differences between different types of intervention. Given the small number of non-metallic service relays that occur, we do not think there is value is splitting these out and will include these within the relay category.

Ex ante unit costs

2.138 We have decided to adopt an approach to setting ex ante unit costs for the PCD that scales bottom-up industry average unit costs (determined from company submitted costs) to match top-down allowances (that flow from out totex model). The responses we received on our Draft Determinations position and our rationale for updating our position at Final Determinations are the same as for the Tier 1 mains PCD ex ante unit costs.

2.139 Chapter 3 provides details on our approach to calculating unit costs for PCDs and our rationale supporting our methodology. See the company annexes for network (region) specific Tier 1 mains PCD unit costs.

Allowance adjustment mechanism

Over delivery

2.140 We have decided to implement our Draft Determinations proposals to place a limit on upward adjustments at 10% above the Baseline Workload Volume but will not allocate any over delivered workload volumes to the NARM. Any over delivery beyond this 10% limit will be treated as overspend through the TIM.

2.141 Respondents expressed a range of views, with concerns mostly relating to the level of the over delivery cap. Three GDNs thought that the 10% cap was too tight and the fourth wanted a symmetrical ±10% cap (ie also including a lower bound on allowance adjustments). Alternative suggestions for designing the cap included:

- 10-20% cap range
- no cap for over-delivery
- under and over-delivery should be treated symmetrically
- ±10% cap
- consider removing the link with NARM, which adds complexity
- removing cap would remove the need to develop an interface with NARM.

2.142 Cadent agreed with basing restrictions on volumes rather than costs. The RIIO-2 CG felt that adjusting RIIO-GD3 allowances for under delivery was insufficient and that we should consider whether a stronger incentive is needed.

2.143 We think that a 10% cap on over-delivery provides GDNs with sufficient flexibility to manage variations in workloads while broadly holding companies to their Business Plans and protecting consumers from unconstrained additional costs.

2.144 We will not allocate any over delivered workload volumes to the NARM. Instead, we will adjust Baseline Cost Allowances to reflect both Outturn Workload and Outturn Workload Mix, up to the cap limit (which is based on workload). We will treat any over delivery of workloads beyond the cap limit as overspend through the TIM. Based on responses to the Draft Determinations from Cadent's CEG, which suggested the link with NARM could result in unintended consequences, and feedback through the Repex Working Group, we think that putting over delivery through the TIM rather than allocating it to the NARM is more simple and transparent due to having a single regulatory approach for Tier 1 services. We think our approach should also mitigate concerns expressed by most GDNs about the restrictiveness of the cap.

Under delivery

2.145 We have decided to retain the obligation to submit an explanatory report if the value of the Outturn Workload is more than 10% lower than the Baseline Workload. We did not receive any stakeholder feedback to convince us to change our position on the requirement for an explanatory report for significant under-delivery.

2.146 We have decided that there will be no lower bounds for the Allowance Adjustment Mechanism at Final Determinations. We do not think that consumers should pay for workloads that the GDNs do not deliver.

2.147 We do not think that a financial penalty for under-delivery is required for Tier 1 services. The PCD mechanism ensures that GDNs only receive allowances for workloads they deliver. Where non-PE services cannot be effectively remediated, the HSE expect GDNs to relay them when they encounter them, including through mains replacement activities. Therefore, any significant unexplained shortfall in services workload delivery may be subject to enforcement action by the HSE, meaning we do not think additional financial penalties are required.

Gas Holder demolitions

Purpose: GDNs will have no gas holders on their networks by the end March 2029 - with the exception of those that have a listed status.

Benefits: Demolishing[77] gas holders removes the need for customers to pay ongoing maintenance costs for these redundant assets. The PCD will also protect against non-delivery, returning funding to customers if a gas holder is not demolished.

Final Determinations decision

Output parameter	Final Determination	Draft Determinations[78]
Type	Mechanistic	Same as FD
Companies applied to	NGN and WWU	Change: no longer applies to SGN
Output	GDNs will have no gas holders (excluding listed buildings) on their networks by the end of March 2029	Change: we proposed 31 March 2026
Delivery date	31 March 2029	Change: we proposed 31 March 2026
Totex baseline allowances	£0.66m per gas holder	Same as FD
Re-opener	No	
Reporting method	RRPs	
Adjustment mechanism	Formula defined in the licence	
Licence condition	Special Condition 3.25 Gas Holder demolitions Price Control Deliverable ($GHRA_t$)	N/A

Final Determination rationale and Draft Determination responses

WWU and NGN

2.148 We have decided to continue to provide baseline funding, attached to a PCD, to demolish all redundant gas holders by the end of RIIO-GD2. This will not include listed structures that cannot be demolished. This is a change from our Draft Determinations position following further consideration of Draft Determinations responses. If NGN or WWU do not complete their demolition programmes within RIIO-GD2, this must be achieved by 31 March 2029 (in line with the 16 year programme that was decided on in RIIO-GD1.[79] In this event, at the RIIO-GD3 price control review, we will consult on:

- establishing a final output and funding for RIIO-GD3 to complete this work by 2029

[77] To take actions that result in a state in which the tank structure and framework have been dismantled, and the resulting holes in the ground (if any) have been filled in, subject to local authority, planning, safety and environmental constraints.
[78] Draft Determinations GD Annex paragraphs 2.207-2.212.
[79] RIIO-GD1: Final Proposals – Supporting document – Outputs, incentives and innovation paragraph 7.26.

- having an ex post review at RIIO-GD3 close out (or earlier if companies complete the programme sooner) to confirm overall delivery against the 16-year programme.

2.149 There were no specific comments on the design of the PCD for WWU and NGN and we have therefore implemented all the other Draft Determinations PCD design positions, including the unit cost level. Our decision ensures the PCD will mechanistically return funding to customers if a gas holder funded to be demolished during RIIO-GD1 and RIIO-GD2 is not demolished. However, our changes provide some flexibility to GDNs to complete this work by 2029 in line with the overall 16-year programme.

SGN

2.150 We have decided that SGN will no longer have a PCD with associated baseline funding. At Draft Determinations we had intended to apply a PCD in the same way as for NGN and WWU. However, further to Draft Determinations, SGN have provided new evidence that a PCD is not appropriate because they have transferred all but six of their gas holder assets to a non-regulated company. For these transferred assets, SGN retains the obligation to demolish the gas holders by 31 March 2029 and will do so without any consumer funding through the price control. This is a similar approach to Cadent (see below).

2.151 During RIIO-GD2 we will analyse the transfer value of these gas holders, including their associated sites to ensure that transfers were made at a fair market price and in the best interests of consumers.

2.152 The remaining six gas holders (not transferred to the non-regulated company), are listed structures and will be demolished to the extent consistent with their listed status. These six gas holders continue to have maintenance costs which we have included within totex baselines as they are not appropriate for the PCD.

Cadent

2.153 In RIIO-GD1, Cadent transferred all their gas holder assets to a non-regulated company. Cadent will therefore not receive any funding in RIIO-GD2 for the disposal of gas holders. As with SGN, we will review the transfer value of Cadent's gas holders and their associated sites during RIIO-GD2. A PCD is not needed, as set out in our Draft Determinations.

Network Asset Risk Metric

Purpose: The Network Asset Risk Metric (NARM) sets outputs relating to the replacement and refurbishment of network assets and links them to a funding adjustment and penalty mechanism.

Benefits: The NARM ensures that network companies manage their existing network assets appropriately and maintain the risk of asset failure within acceptable bounds.

Final Determinations decision

2.154 Details of the NARM outputs, ODI-F and PCD can be found in the NARM Annex which contains a summary of our decisions and responses from stakeholders. The company annexes set out the company specific outputs, unit costs and allowances.

Capital projects

Purpose A PCD to hold companies to account for the delivery of specifically funded capital investments.

Benefits: To ensure funding for large capital projects aligns with the outputs delivered for customers.

Final Determinations decision

Output parameter	**Final Determination**	**Draft Determinations[80]**
Type	Evaluative. Accommodating partial, late and equivalent delivery where it is in customers' interests	Change: Mechanistic. Recovery of project allowances in full for non-delivery of Engineering Justification Paper (EJP) outputs
Output	Delivery of the project-specific outcomes set out in GDNs' licences	Change: Outputs linked to project EJPs
Delivery date	All projects to be completed by 31 March 2026	Same as FD
Totex baseline allowances	Cadent: £49.14m NGN: £27.81m SGN: £85.29m WWU: £13.19m **All GDNs: £175.43m**	Cadent: £94.65m NGN: £27.72 SGN: £131.46m WWU: £13.19m **All GDNs: £267.02m**
Re-opener	No	Same as FD

[80] Draft Determinations GD Annex paragraphs 2.216-2.225.

Output parameter	Final Determination	Draft Determinations[80]
Reporting method	PCD Delivery Report. Reporting through the RRPs	Change: Independently audited engineering report
Adjustment mechanism	Ex post review to determine delivery status, considering justified partial, late and equivalent delivery	Change: Ex post review to determine delivery status (not allowing for partial, late and equivalent delivery)
Companies applied to	All GD sector companies	Same as FD
Licence condition	Special Condition 3.12 Capital projects Price Control Deliverable (CAP_t)	N/A

Final Determination rationale and Draft Determination responses

2.155 We have decided to implement our Draft Determinations proposals to provide a common PCD with company specific projects. Most respondents supported a PCD to hold companies to account for project delivery.

2.156 There were mixed views on our proposal that the PCD claw back should be based on the specific scope outlined in project EJPs. A consumer representative group, a CEG and an energy supplier thought that funding should be recovered in full where projects are not delivered to agreed specifications. However, all GDNs supported a more flexible approach to delivery, arguing that factors outside of their control could alter project timelines and that there can be legitimate reasons for changes to project scope. Cadent's CEG suggested that the PCD should focus on outcomes and have a higher materiality threshold.

2.157 We agree that it is in customers' interests to afford GDNs more flexibility to deliver the most effective outcomes. We have therefore decided to adopt a more flexible approach to assessing project deliverables to accommodate different outcomes (including late, partial and equivalent delivery) where we consider them well justified and in customers' interests. We will follow our evaluative PCD framework when assessing project outcomes and will look to recover funding for individual projects to the extent that outcomes have not been delivered. Companies are expected to report on the progress of each project annually through Regulatory Reporting Packs (RRP), as well as a final PCD delivery report upon project completion, or at the end of RIIO-2 in the exceptional event that a project is not fully delivered.

2.158 As set out in Chapter 3, we have decided to increase the materiality threshold for technically assessed capex projects to £5m,[81] compared to £1m at Draft Determinations. As a result, 50 smaller projects have moved from this PCD into baseline totex. We believe that this addresses materiality concerns raised by several stakeholders. A list of each networks' projects included and excluded from the PCD, are given in the company annexes.

2.159 We have decided to include the [REDACTED] (SGN) and Lowestoft (Cadent) repex projects in the Capital Projects PCD, since they are similar in nature to the projects already included.

Other policy areas

Physical security

2.160 GDNs own assets and sites that are designated as Critical National Infrastructure (CNI). The Secretary of State has initiated the Physical Security Upgrade Programme (PSUP), a BEIS-led national programme to enhance physical security at CNI sites. The level of security at each site and the type of solution required is determined through the PSUP.

Final Determination rationale and Draft Determination responses

2.161 We have decided to implement our Draft Determinations position to:

- Provide Cadent and SGN with baseline funding for known PSUP activities during RIIO-GD2.
- Include a re-opener to potentially increase funding if the scope of the PSUP work changes during RIIO-GD2 (set out in further detail in the Core Document).

2.162 The GDNs, the RIIO-2 CG and two of the CEGs broadly supported our Draft Determinations position and there is no new evidence to support a change. Refer to Chapter 3 for the PSUP technical assessment and the cost allowances.

[81] By exception, projects less than £5m have been included in the Capital Projects PCD, including where they are linked to larger schemes or are highly unique in nature. Refer to chapter 3 for further detail.

National Transmission System (NTS) exit capacity

Purpose: To encourage GDNs to book exit capacity efficiently.

Benefits: Efficient capacity booking optimises use of existing capacity and minimises the risk of redundant network reinforcement.

Final Determination rationale and Draft Determination responses

2.163 We have decided to implement our Draft Determinations position to remove the RIIO-GD1 financial incentive and replace it with an Enhanced Obligations framework for the exit capacity booking process. We will implement this through a new licence obligation requiring GDNs and NGGT to comply with an associated document that contains details of the framework. We think this is an appropriate means of ensuring that there is no loss of efficiency following the removal of the financial incentive.

2.164 In response to Draft Determinations, respondents broadly agreed with our proposals for an Enhanced Obligations framework. WWU and NGGT commented that the framework largely appears to codify processes that are already in place. All GDNs noted that some obligations on them, particularly user commitment, create barriers to efficiency and wanted these to be addressed. Cadent also suggested that the framework could enable learnings that would help to design a whole system financial incentive for RIIO-GD3.

2.165 Subsequent engagement with the GDNs and NGGT has allowed us to understand in detail the extent to which companies' existing processes already reflect our intentions for the framework. Based on this, we have produced a draft of the associated document setting out the obligations, which we have shared informally for comment. In response to a suggestion made by a shipper, this will include a requirement for NGGT to identify whether the GDN bookings appear to result in an efficient outcome for the NTS. We will formally consult on this governance alongside our statutory consultation on the licence, with the aim of publishing a final version of the document in February.

2.166 We will ensure that the document makes appropriate provision for the fact that the 2021 booking process will already have started by the time it comes into effect, meaning that compliance with some elements of the framework may not be possible that year. This responds to comments from Cadent which noted that any assessment of efficiency under the obligations could not be undertaken until these

had been in effect for a full year, though we would expect GDNs to be efficient in their bookings regardless of which obligations are in effect. We will monitor the outcomes from the framework and use the learnings both to adapt it as necessary and to consider whether a financial incentive would be appropriate for RIIO-GD3.

2.167 We acknowledge GDNs' concerns around user commitment. We agree with the principle of removing unnecessary barriers to efficiency in exit capacity booking, but we are still considering the wider implications of this, as well as the way in which any change would need to be implemented. We will continue to engage with stakeholders on this question as part of the development of the framework.

GDN record keeping (including multiple occupancy building record keeping strategy)

Purpose: To ensure that GDNs' have robust record keeping processes and systems. Alongside a specific requirement to maintain an up to date record keeping strategy for multiple occupancy buildings (MOBs).

Benefits: Effective record keeping is needed to operate an efficient and safe gas network.

Final Determination rationale and Draft Determination *responses*

General record keeping

2.168 We have decided to implement our Draft Determinations proposals and engage with stakeholders (including across RIIO price control sectors) during RIIO-GD2 to establish whether a specific LO is needed. SGN stated that it would not be appropriate to introduce an obligation with consequences for non-delivery midway through a price control. It thought that**,** given the volume of information Ofgem had received over the past two years there should be sufficient understanding to consult on, and properly fund a LO now.

2.169 We think it is appropriate to consider introducing an LO after we have undertaken further stakeholder engagement. We do not think we need to adjust allowances to introduce a LO during the RIIO-GD2 period. Effective record keeping is an essential business as usual (BAU) activity, that should be paramount for any network operator running an efficient and economical network. However, the issues of timing and funding of any new LO will be fully considered as part of our engagement with stakeholders.

MOBs Record Keeping

2.170 We have decided to implement our Draft Determinations proposals. GDNs should maintain an up to date MOBs record keeping strategy and report on progress in the annual RRP. The MOBs record keeping strategy should be a living document and the RRP will provide us with a summary of any material changes over the year. The structure of this strategy will remain unchanged from what was decided in our SSMD.[82]

2.171 Only SGN commented and while supportive, thought that it was inconsistent with our proposals to reject bespoke outputs in this area. We have reviewed our Draft Determinations with respect to the MOBs related bespoke outputs identified in this response[83] and have provided some additional funding based on our assessment of efficient costs (See SGN Annex, Chapter 3 and Appendix 1).

Sub-deduct networks off-risk

2.172 In our SSMD[84] we decided to remove this output for RIIO-GD2 but said we would consider if revenue adjustments, or specific deliverables, may be required during RIIO-GD2.

Final Determination Decision and Rationale

2.173 A sub-deduct network is a gas pipe network arrangement that is beyond the GDN's main gas meter. All GDNs received funding in RIIO-GD1 to ensure that all sub-deduct networks could be shown to be 'off-risk' (ie have an owner responsible for them). We required the GDNs to complete this work in RIIO-GD1. The latest evidence suggests that not all companies have completed their work but will be close to doing so by the end of RIIO-GD1.[85]

2.174 We have decided to implement our Draft Determinations position and do not propose to provide any additional allowances in RIIO-GD2. We received no specific feedback on our proposals in this area. This means:

- We will assess whether GDNs have met their respective RIIO-GD1 targets as part of RIIO-GD1 close-out. In the unlikely event that work is not complete by

[82] See SSMD GD Annex, Appendix 3. The strategy was also set out in our RIIO-GD2 Business Plan Guidance (Appendix 1) and used by GDNs to complete their Business Plans.
[83] Riser isolation valves survey > 6 storey buildings and Riser inspection surveys < 6 storey buildings.
[84] Paragraphs 4.89-4.92.
[85] Draft Determinations GD Annex paragraphs 2.255-2.256.

the end RIIO-GD1, we will consider if setting clear deliverables in the RIIO-GD2 licence is appropriate.

- If the GDNs discover additional sub-deducts during RIIO-GD2, they will be obliged to make them off-risk and we will not provide any additional allowances for this work as RIIO-GD1 funding was provided to identify and cover all sub-deduct networks.

Delivering an environmentally sustainable network

2.175 The gas networks and related business activities can be harmful to the environment and stakeholders expect the companies to take appropriate steps to mitigate their environmental impacts.

2.176 In this section we set out our decision on the outputs related to delivering an environmentally sustainable network that will apply to the GDNs in RIIO-GD2.

Shrinkage and environmental emissions

Purpose: Two outputs to incentivise GDNs to reduce shrinkage of gas from their pipe networks.

Benefits: Reducing shrinkage lowers methane emissions and avoids the cost of purchasing replacement gas.

Final Determinations decision

ODI-R for Shrinkage and environmental emissions

Output parameter	Final Determination	Draft Determinations
ODI type	Reputational	Same as FD
Measurement	Total annual shrinkage volume, measured in GWh	
Performance target	Target shrinkage volume, measured in GWh, set individually for each network	
Reporting method	Annual RRP reporting	
Applied to	All GDNs	
Licence condition	No	N/A

Final Determination rationale and Draft Determination responses

2.177 We have decided to implement our Draft Determinations proposals on the ODI-R for total shrinkage volumes. As set out in our SSMD,[86] this will be disaggregated into leakage and the other elements of shrinkage (theft and own use gas). An environmental group noted the importance of distinguishing between types of shrinkage, given the different environmental impacts of these. We agree, and our AER will set out these figures separately alongside the BCF ODI-R (which now excludes all shrinkage) to show the components of GDNs' total carbon emissions (set out in the next section). We will set targets using updated forecasts from the GDNs, to account for the impact that our Final Determinations on repex volumes will have on shrinkage, and for the final outturn volumes in 2020-21. This will be developed as part of the implementation of the AER.

ODI-F for Shrinkage and environmental emissions

Output parameter	**Final Determination**	**Draft Determinations[87]**
ODI type	Financial	Same as FD
Incentive type	Reward and penalty	
Performance measure	The difference between baseline and outturn leakage levels, measured in GWh	
Performance target	Baseline leakage levels will be set on the basis of average pressure and gas conditioning levels from 2017-18 to 2019-20. An asymmetric deadband will apply to the pressure calculation only.	Change: we consulted on three options for setting baseline levels and did not include a deadband
Incentive value	Difference in GWh multiplied by the cost of the associated greenhouse gas emissions plus the cost of gas. Incentive value subject to each network's totex incentive sharing rate.	Change: we did not apply the totex incentive sharing rate
Cap/Collar	± 0.25% of base revenue	Same as FD
Reporting method	Annual RRP reporting	
Applied to	All GDNs	
Licence condition	Special Condition 4.4 Shrinkage Management output delivery incentive (SM_t)	N/A

[86] SSMD GD Annex paragraph 3.22.
[87] Draft Determinations GD Annex paragraphs 2.111-2.120.

Final Determination rationale and Draft Determination responses

Performance target

2.178 We have decided to set each network's baseline target for RIIO-GD2 using system pressures and gas conditioning values averaged over the last three years (2017/18 to 2019/20). In our SSMD[88] we decided that we would use the end point of the RIIO-GD1 incentive to set the baseline for RIIO-GD2, and asked for views at Draft Determinations on whether to adjust this end point to reflect the impact of Covid-19. We think it is appropriate to set the baseline target using figures that are already known and reflect current performance.

2.179 In general, respondents agreed with our assessment of the Covid-19 related uncertainties. They also thought that it was appropriate for the baselines to reflect enduring performance. Two GDNs were in favour of a three year average, one preferred using 2019/20 values, and the fourth proposed postponing the decision until RIIO-GD1 closeout. On the basis of companies' recorded data, we think using a three year average as the baseline target for RIIO-GD2 is the most appropriate reflection of current performance. We will use these averages in the closeout of the RIIO-GD1 incentive to preserve the link between the ODIs.

2.180 We have decided to introduce an asymmetric deadband set at 0.6mbar above and 0.3mbar below each network's baseline pressure in response to additional evidence provided by GDNs in their Draft Determinations responses. We think this is an appropriate modification to the ODI because system pressures can be affected by:

- non-controllable factors such as the severity of winter weather and network growth,
- certain activities that result in increased pressure but are in customers' interests (such as the use of insertion to deliver cheaper and less disruptive repex projects).

2.181 Taken together, these factors are weighted towards pressure increases, which is why we have decided that the deadband should be asymmetric.

2.182 All of the GDNs argued in favour of including a deadband to account for the impact of winter weather and, through supplementary questions provided evidence on the

[88] SSMD GD Annex paragraph 3.29.

expected impact of a 1-in-20 winter. Three GDNs also argued that baselines should be adjusted to reflect the increase in pressures that they said would result from network growth and insertion. Some stakeholders opposed a deadband, as they thought it would weaken the incentive.

2.183 While we accept that a deadband may reduce incentive strength, we think it's an appropriate mechanism to allow for the impact that the factors described above can have on system pressures. Without a deadband, the incentive could result in windfall gains or losses, which would not be in consumers' interests. We think that allowing for network growth and insertion rates within the deadband is preferable to adjusting baselines, since it avoids the potential for windfall gains if the effects of these are less than expected.

2.184 We have decided that the performance measure should be based on outturn average pressure across RIIO-GD2. We think this is appropriate because it means that the impact of any extreme weather event will be smoothed out over the period and can be taken account through the deadband. Cadent argued in favour of this method, and we agree that it will help to reduce this risk of windfall gains or losses.

2.185 In Chapter 4 of the Core Document, we set out our decision that where ODI rewards and penalties reflect the marginal costs and benefits to consumers of an output these should be shared through the TIM. Since the value of this incentive is directly tied to the costs of greenhouse gas emissions and replacement gas, it will be subject to each network's sharing factor.

Environmental Action Plan and Annual Environmental Report[89]

Purpose: To ensure that GDNs take responsibility for the environmental impacts arising from their networks and are more transparent in what they are doing to mitigate these.

Benefits: This will support delivery of environmental outcomes and encourage greater environmental ambition.

[89] This should be read in accordance with Chapter 4 of the Core Document.

Final Determinations decision

ODI-R for business carbon footprint (BCF) reduction[90]

Output parameter	Final Determination	Draft Determinations[91]
ODI type	Reputational	Same as FD
Measurement	Licensee's BCF comprising scope 1 and 2 emissions excluding gas shrinkage, tonnes of carbon dioxide equivalent emissions (tCO2e)	Change to exclude all gas shrinkage
Performance target	Licensee's BCF reduction target for the end of RIIO-2 (interpolated from each licensee's science-based target validated by the SBTi)	Same as FD
Reporting method	Annual RRP reporting and the Annual Environmental Report (AER)	
Applied to	All GDNs	
Licence condition	No	N/A

Annual Environmental Report Licence Obligation

Output parameter	Final Determination	Draft Determinations
Licence obligation	To publish an AER on progress in achieving EAP commitments, relevant outputs, UMs and an update on the environmental impact of their network	Same as FD
Applied to	All GDNs	
Licence condition	Special Condition 9.1 Annual Environmental Report	N/A

EAP commitments

Output parameter	Final Determination	Draft Determinations
EAP commitments	We are accepting all of the GDNs' EAP commitments (that are not bespoke PCD, ODI or UM)[92] for: 1. Reducing business carbon footprint (BCF) 2. Sustainable resource use, recycling and reducing waste 3. Enhancing biodiversity and natural capital	Same as FD
Measurement	Milestones and metrics in each GDNs' EAPs, to be clarified in AERs	
Performance target	Targets by the GDNs in their EAPs, to be clarified in AERs	
Reporting method	Licensees' AERs	
Applied to	All GDNs	
Licence condition	No	N/A

[90] This will exclude leakage as explained in Chapter 4 of the Core Document. Note there is an ODI-R for BCF shrinkage that will include leakage, as set out in the previous section of this chapter.
[91] Draft Determinations GD Annex paragraphs 2.121-2.161.
[92] Our decisions on bespoke PCDs, ODIs and UMs proposed by companies are in appendices to the company annexes.

Final Determination rationale and Draft Determination responses

2.186 We have decided to fund the majority of GDNs' EAP commitments as we proposed in Draft Determinations. This received broad support from stakeholders, and we continue to think that the GDNs' EAPs will make an important contribution to decarbonising GDNs' operations.

2.187 General comments on the EAP and its enduring monitoring under the AER are addressed in Chapter 4 of the Core Document. RIIO-GD2 specific comments are considered below and any associated bespoke outputs are addressed in the company annexes.

ODI-R for business carbon footprint (BCF) reduction

2.188 We have decided to exclude all gas shrinkage from the BCF ODI-R, which is a change from our Draft Determinations position to only exclude leakage. This is because the separate ODI-R to reduce shrinkage (see the previous section) will report on leakage and the other elements of shrinkage separately. Both will be part of the AER. This will ensure there is no undue duplication of reporting and will facilitate clarity for stakeholders to understand the separate elements that contribute to companies' overall emissions.

Cost benchmarking EAP commitments

2.189 Where GDNs are proposing to deliver a common service, we have decided to include the costs of delivery in our regression model. Although SGN raised concerns that cost benchmarking of EAP proposals could reduce company allowances, a consumer representative group said benchmarking should be standardised as much as possible and we agree this is the right thing to do. This will ensure that costs for comparable activities are treated consistently and companies are equally incentivised to be efficient in their procurement of services. Companies are still expected to meet their EAP commitments, upon which our assessment is based, and where there is a possibility of non-delivery, companies must provide an explanation in their AERs. For further information on the treatment of costs, see Chapter 3 and the company annexes.

Consistency across sectors including the application of financial incentives

2.190 Two consumer representative groups supported the use of an Environmental Scorecard ODI-F in electricity and gas transmission and questioned why it did not

apply to GDNs. We have considered whether this output can apply to RIIO-GD2 and do not think we can calibrate a robust output at this stage. GDNs have limited maturity in their reporting against the metrics which makes it difficult to establish robust baselines and stretching performance targets for an ODI-F. The transmission companies' ODI-F reflects their reporting ability and has a strong focus to improve the environmental value of non-operational land, which is a relatively small and significantly less developed area of monitoring for GDNs.

2.191 We considered whether we could apply financial incentives for GDNs' EAP commitments and concluded it was not appropriate at this stage for RIIO-GD2. However, we consider the AER to be an appropriate mechanism to monitor company progress, which is explained further in Chapter 4 of the Core Document.

Next steps

2.192 The AER should establish a robust and comparable database of information about GDNs' environmental performance. This could be used to set appropriate financial incentives in RIIO-GD3. We are working with stakeholders on common reporting metrics and methodologies as part of our AER Guidance consultation that will be consulted on following Final Determinations.

Commercial Fleet EV PCD

Purpose: This PCD enables GDNs to convert their commercial vehicle fleets to Electric Vehicles (EVs) or other zero emission equivalents.

Benefits: A reduction in carbon emissions caused by vehicle use.

Final Determinations decision

Output parameter	**Final Determination**	**Draft Determinations[93]**
Type	Mechanistic	We requested further data with the intention of setting a common PCD
Output	Target number of zero emission vehicles and charging infrastructure installations	
Delivery date	31 March 2026	
Totex baseline allowances	Baseline allowance for each GDN set on GDN specific volumes and common unit costs	
Re-opener	No	
Reporting method	Annual RRP reporting and the AER	

[93] Draft Determinations GD Annex paragraphs 2.135-2.142.

Output parameter	Final Determination	Draft Determinations[93]
Adjustment mechanism	Formula defined in the licence	
Companies applied to	All GDNs	
Licence condition	Special Condition 3.13 Commercial fleet Price Control Deliverable (OTCt)	N/A

Final Determination rationale and Draft Determination responses

2.193 Respondents were supportive of our proposal to include a commercial fleet EV PCD. We agree and have decided to establish a common PCD for all GDNs, which will enable them to reduce their operational fleet carbon footprint, whilst ensuring customers only pay for what is delivered.

2.194 We asked GDNs to provide forecast costs and volumes for various types of vehicles and supporting infrastructure as part of their Draft Determinations responses[94] with an aim of establishing a common output.

Our assessment of the costs and volumes

2.195 We have assessed GDNs' general commercial vehicle fleet costs as part of our totex assessment and have provided separate baseline totex funding. The funding administered through this PCD relates to the incremental cost of purchasing an electric vehicle in place of an equivalent[95] internal combustion vehicle.

2.196 In their Draft Determinations responses, all GDNs provided forecast costs and volumes for at least one type of electric vehicle. We did not receive forecasts for other types of zero-emissions vehicles. The quality of evidence we received on their forecast EV costs varied, however we think SGN provided the most transparent data. Having benchmarked companies' vehicle and infrastructure unit costs over RIIO-GD2, SGN's are in line with sector averages, and so we have adopted SGN's unit costs as our common set for the PCD. We think a common set of unit costs is appropriate, since all GDNs have similar fleet requirements. These unit costs are comparable with those adopted in Transmission. The PCD unit costs

[94] Our data request comprised six vehicle types (4x4, small, medium, and large vans, support vehicles and HGVs), four engine types (internal combustion, hybrid, EV and hydrogen) and supporting infrastructure (EV charging points and hydrogen filling stations).
[95] Vehicle equivalency is based on payload.

exclude vehicle fitout costs, which are already accounted for as part of totex, and account for government grants and manufacturer discounts.

2.197 Whilst the unit costs are for vehicles and infrastructure based on the electric vehicle data provided by GDNs, this PCD will allow equivalent zero-emission vehicle types, such as hydrogen, to be substituted for an EV where this is efficient.

Table 6: Commercial fleet EV PCD unit costs (total RIIO-GD2, £ 2018/19)

Output Category	Specification	Unit Cost*
4x4	Payload: min. 1,000kg	9,515
Small Van	Gross vehicle weight: max. 2,300kg	7,755
Medium Van	Gross vehicle weight: max. 3,300kg	9,307
Large Van	Gross vehicle weight: max. 3,500kg	13,476
Support Van	Gross vehicle weight: max. 3,500kg	11,227
Supporting Infrastructure	EV charging point	4,757
*Includes Ofgem assessment of ongoing efficiency.		

2.198 We decided to provide funding to support the number of EVs that GDNs requested in their Draft Determinations responses. We think they are appropriate. They are supported by stakeholders, including the CEGs, and will help support Net Zero ambitions. Given volumes are somewhat uncertain over the price control period, the PCD will protect consumers by only funding GDNs for what they deliver.

Table 7: Commercial fleet EV PCD allowances (total RIIO-GD2, £m 2018/19)

Network	Total Allowance over RIIO-GD2*
EoE	5.38
Lon	3.61
NW	3.73
WM	2.61
NGN	2.21
Sc	3.94
So	6.43
WWU	2.58
Total	**30.49**
* Includes Ofgem assessment of ongoing efficiency.	

3. Approach to Cost Assessment

Introduction

3.1 This chapter provides an overview of our approach to assessing gas distribution networks' (GDNs') forecast totex. Following stakeholders' feedback, we have updated aspects of the methodology underlying our view of efficient costs.

3.2 We have set baseline totex allowances for all GDNs only where we are satisfied of the need for the work, and where there is sufficient certainty of the efficient cost of the work.

3.3 Where we do not consider the GDNs' costs and needs cases to be fully justified, and where we do not believe the case for inclusion in the RIIO-GD2 price control is adequate, we have removed these costs from the requested baseline allowances. Later in the chapter we provide the rationale underlying these decisions. Where we consider the needs cases and costs may become justified during the price control as further information becomes available, we have moved these costs to dedicated re-openers as described in the Core Document.

Baseline totex

3.4 Baseline totex referenced in this section comprises forecast controllable costs,[96] including direct and indirect opex, capex and repex and is inclusive of an ongoing efficiency challenge.[97] Non-controllable costs, while included in overall allowed revenue recoverable by GDNs, are not included in baseline totex and are treated separately. Moreover, the figures presented in this chapter do not include real price effects (RPEs) to allow comparison with GDNs' submissions.[98]

3.5 Our decision on baseline totex for each GDN is shown in Table 8. Here we compare GDNs' baseline request from Business Plans Data Templates (BPDTs) submitted in December 2019, Draft Determinations position and our Final Determinations decision. We also report the baseline request as per September 2020, when all GDNs resubmitted their BPDTs.

[96] Baseline totex and forecast controllable costs will be used interchangeably.
[97] Baseline totex also includes the baseline components of uncertainty mechanisms (UIOLI and VD).
[98] Any costs not included in baseline totex, but included in allowed revenue, are captured in the licence model.

Table 8: Network company baseline allowance (RIIO-GD2 total, £m, 2018/19 prices)[99]

Network company	Submitted Dec 19	Resubmitted Sept 20	DD position	FD decision	FD vs. Sep 20 baseline request	% change
EoE	1,621	1,606	1,286	1,523	-83	-5.1%
Lon	1,569	1,447	1,040	1,243	-204	-14.1%
NW	1,171	1,157	972	1,083	-74	-6.4%
WM	957	927	780	858	-69	-7.4%
NGN	1,249	1,250	1,083	1,186	-64	-5.1%
Sc	998	981	840	907	-73	-7.5%
So	2,060	2,026	1,687	1,772	-254	-12.5%
WWU	1,182	1,203	997	1,157	-47	-3.9%
GD sector	**10,806**	**10,597**	**8,685**	**9,730**	**-867**	**-8.2%**

Approach to GD cost assessment

3.6 Our goal in cost assessment is to set the efficient level of costs that will enable network companies to maintain safe and reliable networks and deliver an appropriate level of service. As part of the assessment, we remove costs and / or volumes where they have not been adequately justified by licensees in full or in part, resulting in adjustments for:

- unjustified projects / units of work, which we refer to as "volume adjustments"
- unjustified unit costs associated with the projects / units of work, which we refer to as "efficiency adjustments".

3.7 When we apply volume adjustments, we also reduce GDNs' submitted costs to ensure that unit cost structures are preserved.

3.8 Efficiency adjustments fall into two categories: those we estimate through benchmarking ("benchmarking efficiency"), and those relating to changes in productivity over time ("ongoing efficiency").

[99] Subtotals may not add up to sum of line items due to rounding.

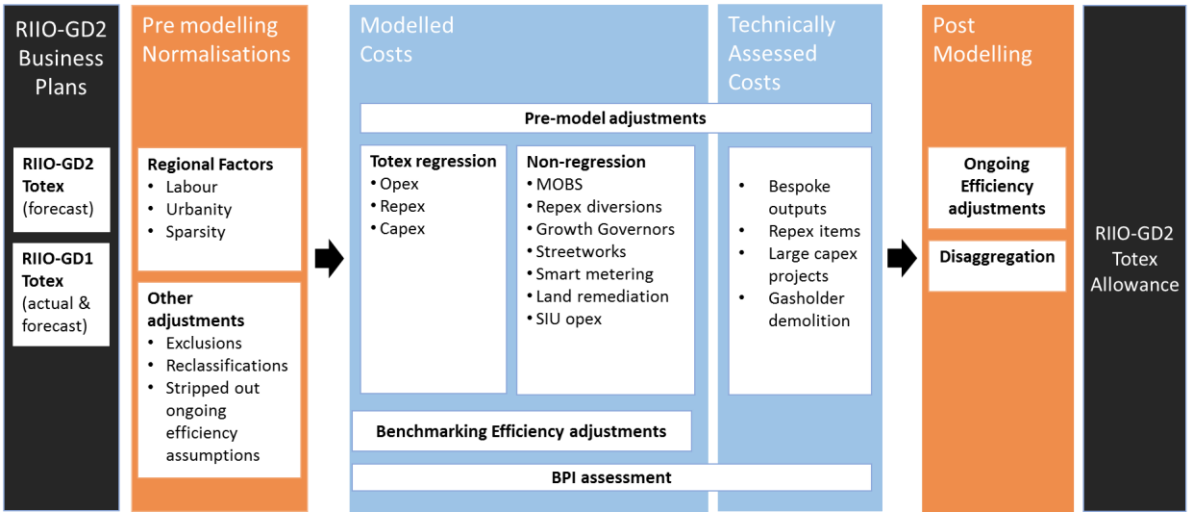
3.9 At Final Determinations we have implemented the Draft Determinations proposals and used regression analysis, non-regression analysis and technical assessment as cost assessment tools.

3.10 We have decided to implement our Draft Determinations proposal to use a single top-down "totex regression" model for RIIO-GD2. We have considered and addressed several modelling issues that have been raised in response to Draft Determinations. This has made our methodological approach more robust than the one proposed at Draft Determinations. More details can be found in the following sections and in the RIIO-GD2 Step-by-Step Guide to Cost Assessment Annex (SBSG Annex).

3.11 At Final Determinations we have also implemented the Draft Determinations position of separate non-regression models for MOBs, repex diversions, growth governors, streetworks, smart metering, land remediation and Statutory Independent Undertakings (SIU) opex. We have employed technical assessment for costs relating to large capex and repex projects, bespoke outputs and specialist areas, such as gasholder demolition and physical security costs. In a departure from the Draft Determinations position and in response to stakeholders' feedback, at Final Determinations we have included IT&T capex projects in the regression model.

3.12 Below is a visual representation of our cost assessment process.

Figure 3: RIIO-GD2 cost assessment process map



Details of our cost assessment approach

3.13 In our Final Determinations we label costs according to the way they have been assessed; either "modelled" or "technically assessed costs".

3.14 Modelled costs comprise around 95% of forecast controllable costs. Regression analysis was our main tool for assessment for modelled costs. The remaining modelled costs that were not assessed by regression analysis, were assessed in separate non-regression models, where cost drivers vary across GDNs or are unique to a subset of GDNs.

3.15 The results from our regression and non-regression models have been subjected to a benchmarking efficiency adjustment based on GDNs' relative performance over the RIIO-GD2 period. For RIIO-GD2 we have decided to apply an efficiency glide path to the 85th percentile. Specifically, we set the benchmark at the 75th percentile of the efficiency scores in the first year of RIIO-GD2, followed by a glide path to the 85th percentile, which will be the benchmark in the last two years of RIIO-GD2. In the next section we set out the rationale for our decision.

3.16 Technically assessed costs (around 5% of forecast controllable costs) were subject to technical / engineering review. We did not apply a benchmarking efficiency adjustment to these costs.

3.17 As stated in the Core Document, we also expect network companies to deliver productivity improvements throughout the price control. As such, we have applied an ongoing efficiency adjustment to our view of both modelled and technically assessed costs.

3.18 Table 9 presents a breakdown of our assessment approach for each network, together with a summary of the overall percentage in each category.

Table 9: Totex assessment approach (RIIO-GD2 total, £m, 2018/19 prices)[100]

Network	**Submitted (Oct 20)**	**Assessment approach**		
		Modelled costs		*Technically assessed costs*
		Regression	*Non-Regression*	
EoE	1,606	1,395	139	71
Lon	1,447	1,107	247	93
NW	1,157	1,018	82	57

[100] Subtotals may not add up to sum of line items due to rounding.

Network	Submitted (Oct 20)	Assessment approach		
		Modelled costs		*Technically assessed costs*
		Regression	*Non-Regression*	
WM	927	825	62	40
NGN	1,250	1,101	53	96
Sc	981	810	66	104
So	2,026	1,725	206	96
WWU	1,203	1,157	20	26
GD Sector	10,597	**9,139**	**875**	**583**
% of submitted totex	100%	**86%**	**8%**	**6%**

3.19 Table 10 summarises our adjustments and reductions for each assessment component. The adjustments are with respect to totex as per September 2020 resubmissions.

Table 10: Breakdown of adjustments (RIIO-GD2 total, £m, 2018/19 prices)[101]

Network		Modelled cost		Technically assessed adjustments	Ongoing efficiency adjustments	Total adjustments
	Pre modelling embedded OE adjustment	*Pre modelling adjustments* *	*Benchmark efficiency adjustments* *			
EoE	32	22	-21	-41	-74	-82
Lon	29	4	-155	-22	-60	-204
NW	23	-3	-9	-33	-52	-74
WM	19	3	-24	-25	-42	-69
NGN	25	-36	36	-37	-52	-64
Sc	27	-18	-8	-31	-44	-74
So	57	-29	-147	-49	-86	-254
WWU	24	-16	3	-1	-56	-46
GD Sector	**237**	**-74**	**-326**	**-238**	**-466**	**-866**

* Overall modelling adjustments are the sum of pre-modelling and benchmarking efficiency adjustments.

3.20 A short overview of the key decisions underpinning these adjustments is provided below.

[101] Subtotals may not add up to sum of line items due to rounding.

Pre-model adjustments

3.21 The purpose of pre-model adjustments is twofold:

- To ensure comparability between GDNs, which is crucial for a robust benchmarking analysis. We did this by applying regional and company-specific factors to submitted costs and by reclassifying costs where appropriate. In a departure from Draft Determinations, we also adjusted submitted costs to remove GDN-specific ongoing efficiency assumptions.

- To remove costs that we do not consider have been justified during our review. Where this was the case, we adjusted the corresponding volumes / cost drivers accordingly to preserve unit cost structures.

3.22 Further details and justifications of our assessment relating to pre-model adjustments are provided later in this chapter and in the company annexes.

Benchmark efficiency adjustments

Description

3.23 We set allowances based on our assessment of the efficient level of costs for a notional network (ie the frontier). To achieve this, we apply a benchmark efficiency or catch-up adjustment, whose level is set based on our level of confidence in the data and the variability in the modelling results.

3.24 In RIIO-GD1 we set the efficiency benchmark at the 75th percentile. We also implemented a glide path, giving GDNs the opportunity to gradually achieve the full scale of expected efficiency savings. In our SSMD, we stated that we did not intend to provide a glide path in RIIO-GD2. This position was reflected and consulted upon at Draft Determinations.

Final Determinations Decision

Table 11: Final Determinations Decision on Efficiency Benchmark

	Final Determinations Decision	Draft Determinations Position
Efficiency benchmark	Glide path from 75th percentile to 85th percentile over 3-year period. The 85th percentile will apply to the last two years of RIIO-GD2.	85th percentile over RIIO-GD2

Final Determinations rationale and Draft Determinations responses

3.25 We continue to believe the 85th percentile represents an appropriate target efficiency benchmark for RIIO-GD2. Based on the level of GDNs' past outperformance under RIIO-GD1, as set out in our Draft Determinations, and the ambitions all GDNs set out in their Business Plans to operate at the efficiency level of the frontier company, we consider this to be both reasonable and achievable. However, after further consideration since Draft Determinations, we have decided to set benchmarking efficiency as a glide path from the 75th percentile in the first year of RIIO-GD2 to the 85th percentile over a three-year period. This will provide a continuum from the level of efficient performance the GDN's committed to achieve by the end of RIIO-GD1 and the 85th percentile will thus only apply to the last two years of the price control.

3.26 All respondents but one strongly disagreed with the Draft Determinations position to set the efficiency benchmark at the 85th percentile without a glidepath. Some of the key reasons for disagreement included the unanticipated departure from regulatory precedent and concerns over the achievability of the proposed efficiency target, when combined with other mechanisms such as the ongoing efficiency challenge and the wedge. Moreover, most respondents pushed back against the use of past performance to justify the Draft Determinations position. For example, two stakeholders highlighted that GDNs' outperformance in RIIO-GD1 was only partially driven by efficiency gains and that other factors such as RPEs assumptions played a relevant role. Respondents also noted that past outperformance cannot necessarily be replicated, due to reduced room for outperformance within the mechanisms proposed for RIIO-2 (eg PCDs and UMs) and more generally because it is unlikely that in RIIO-GD2 the GDNs will experience the same level of cost savings as in RIIO-GD1, which were driven by structural changes.

3.27 We do not accept that past regulatory decisions on the level of efficiency benchmark, provide a restrictive precedent, nor a hard ceiling on the potential future levels of efficiency benchmark that a regulator could reasonably choose to apply. Indeed, in its provisional findings on PR19, the Competition and Markets Authority (CMA) noted that Ofgem was proposing setting the 85th percentile at Draft Determinations but did not express a view that this was inappropriate in itself. Rather, it focused on what the CMA felt was appropriate for the water sector based on its assessment of the specific situation for PR19.

3.28 Although we recognise that some of the RIIO-GD2 mechanisms aim to mitigate outperformance, we do not agree with the respondents that further cost efficiency gains cannot be achieved in the future. The benchmark represents an efficient notional company. Observation of competitive markets highlights that companies continually strive to match leading sector performance, and over time strive to operate increasingly close to the efficient frontier company. GDNs have also consistently materially outperformed their historic price controls by realising enhanced efficiencies of performance, as further evidenced in RIIO-GD1 to date despite what was viewed at the time as an ambitious catch-up efficiency challenge set for RIIO-GD1.

3.29 Respondents also noted the risk of over-relying on modelling results, which can be exposed to technical errors and are derived from a single model. As discussed in more detail in the regression analysis section, we consider our totex model robust and able to reasonably account for bottom-up aspects. We have validated this with some targeted bottom-up modelling. Moreover, two GDNs and one DNO questioned if the improved comparability across GDNs could be used as an argument for a tougher efficiency benchmark, arguing that we proposed the same range of pre-modelling adjustments as in RIIO-GD1.

3.30 We consider the pre-modelling adjustments appropriate, given the increased sample size in RIIO-2 and improved quality of the data collected via BPDTs and supplementary questions, as well as the assessment process since Draft Determinations, and are confident of a substantial improvement in comparability between GDNs. Since Draft Determinations we have received further data and information which has allowed us to strengthen our pre-modelling normalisation of the GDNs and to improve the representation of the GDNs in our totex model. The increase in robustness of modelling is confirmed by the enhanced statistical performance of the regression model (adjusted R-square of 0.927 for Final Determinations modelling versus 0.865 for Draft Determinations modelling), and narrower efficiency scores after error correction, each based on the additional analysis and modelling enhancements that has been undertaken since Draft Determinations.

3.31 From an academic perspective, in setting the level of catch-up efficiency challenge, there is no specific percentile benchmark which is recommended in academic literature, nor is there a view that there is an upper limit on the percentile benchmark, for example at 75th percentile as some respondents to Draft Determinations have suggested. We do recognise that regression analysis is

subject to stochastic variation and that this is a key consideration when setting the efficiency frontier. Thus, we have carefully considered stochastic variation observed in our totex modelling. One of the main arguments for choosing a lower percentile and not the frontier firm is that the statistical estimation of the productivity frontier could be affected by outliers. However, as indicated above, the work we have done in normalising expenditure, incorporating regional factors, and using composite scale variables eliminates the possibility that outliers influence our regression estimates. In addition, a higher R-square indicates that our regression line explains a higher proportion of the variation (up to 92.7%). All of this gives us enough confidence from an academic perspective to set the productivity frontier at the 85th percentile.

3.32 From a regulatory perspective, the choice of the level of benchmark efficiency is not purely an academic exercise but also needs to consider the sector's history of catch-up efficiency challenge. The 85th percentile might represent an unduly tough challenge for sectors which have not faced, achieved, and indeed outperformed, high levels of catch-up efficiency challenges before. However, this is not the case for the GDNs, which have experienced significant efficiency gains over the previous price controls and continued outperformance in RIIO-GD1. In this respect, we consider that setting the efficiency target at the 85th percentile is not a significant increase from the 75th percentile set in RIIO-GD1.

3.33 Moreover, as observed in other sectors such as water, setting a challenging benchmark remains in line with regulatory goals of ensuring monopoly companies have the same incentives to deliver efficiency saving as they would in a competitive market. CMA provisional findings on PR19 propose to reduce only slightly the target set by Ofwat. The 75th percentile proposed by the CMA for PR19 still represents a very large increase from the 50th percentile adopted in PR14, reinforcing the regulatory principle of continuing to raise the catch-up efficiency challenge regulated companies should seek to achieve over time to operate ever closer to the frontier efficient company.

3.34 Finally, in the context of the heightened level of catch-up efficiency challenge, two GDNs commented that, unlike RIIO-GD1, the Draft Determinations position didn't account for the possibility of a glide path. We accept that a glide path would foster a gradual rather than an immediate catch-up challenge for less efficient GDNs following the end of RIIO-GD1, and we recognise we are presenting a tougher catch-up efficiency challenge for RIIO-GD2 than for RIIO-GD1.

3.35 Thus, after careful consideration, acknowledging stakeholders' concerns expressed in Draft Determinations about the increased level of catch-up efficiency challenge, we have decided to implement a glide path to the 85th percentile target. We will set the efficiency benchmark at the 75th percentile in the first year of RIIO-GD2 and implement a three-year glide path to the 85th percentile which will apply for the final two years of RIIO-GD2. This will thus provide a continuum from the efficiency benchmark set for the end of RIIO-GD1 (75th percentile) to an incrementally higher 85th percentile.

Technically assessed cost adjustments

Description

3.36 We have conducted technical assessments of costs where we consider those costs to be unsuitable for benchmarking, such as large capex and repex projects, bespoke outputs and specialist areas, such as gasholder demolition and physical security. Further details and justifications of our assessment relating to technically assessed costs are provided later in the chapter and in the relevant company annexes.

Final Determinations Decision

Table 12: Technically assessed activities removed from regression

	Final Determinations Decision	Draft Determinations Position
Areas for technical assessment	Capex and repex projects >£5m Bespoke Outputs Gasholder Demolition Physical Security Costs	Capex and repex projects >£1m Bespoke Outputs IT and Telecoms (IT&T) capex Gasholder Demolition Physical Security Costs

Final Determinations rationale and Draft Determinations responses

3.37 We have decided to implement the Draft Determinations position and use technical assessment for some capex and repex projects, bespoke outputs, gasholder demolition and physical security costs. However, we have decided to include IT&T capex in the totex figure used for the regression analysis and to change the materiality threshold for capex and repex projects.

3.38 On IT&T, we agree with the respondents that commented that, in order to better account for opex/capex trade-offs and avoid benchmarking results being affected by companies' IT strategy, not only IT and Telecoms opex but also capex should be included in totex. A GDN suggested that the inclusion in the totex regression

could be complemented by a technical review of IT&T within a bottom-up totex approach. We agree with the GDN on this point and used the review of our external consultants Atkins to inform our decision. Based on the amount of information and quality of information received in response to Draft Determinations, the consultants determined that all projects but one could be granted an ex ante allowance.[102] This informed our decision to include all costs in the regression.

3.39 We have decided to increase the materiality threshold for technically assessed capex projects from £1m to £5m, because including costs in our regression model wherever possible allows for a more integrated totex assessment, better accounts for opex/capex trade-offs, and strikes a more even proportion of technically assessed costs across networks. This change addresses comments received from Cadent and a DNO.

Embedded ongoing efficiency adjustment

Description

3.40 GDNs submitted a range of ongoing efficiency (OE) assumptions in their business plans. Our Final Determination of the appropriate level of ongoing efficiencies to apply cross sector for RIIOT2 and RIIGD2 is set out in our Core document. Here we address the process we have adopted to apply ongoing efficiencies to the GDNs for RIIOGD2.

3.41 In order to apply our own ongoing efficiency challenge and avoid double counting, the company assumptions must be removed. At Draft Determinations we proposed to do this by making post-modelling adjustments for the difference between average of the GDNs' submitted OEs and our view.

Final Determinations Decision

Table 13: Treatment of company stated ongoing efficiency

	Final Determinations decision	Draft Determinations position
Embedded OE treatment	Ex ante adjustment to strip out network-specific embedded OE assumptions before benchmarking analysis is performed	Ex-post adjustment based on difference between average of the GDNs' submitted OEs and Ofgem view

[102] Atkins recommended only one project to be subject to re-opener. Given the very low materiality of the project and the fact that the needs case was still justified, we decided to include this project into the totex figure for the regression analysis. See RIIO-GD2 IT and Telecoms Summary Annex for more details.

Final Determinations rationale and Draft Determinations responses

3.42 We have decided to make pre-model adjustments to submitted costs in order to strip out GDNs' embedded OE assumptions. To make the adjustments, we have used information provided by the GDNs.

3.43 We consider the change in approach a modelling improvement on our Draft Determinations position because:

- It brings the adjustment for OE in line with RPEs (ie excluded from benchmarking), making the application of frontier shift consistent.
- It improves the comparability between GDNs, which in turn improves our benchmarking.
- it avoids the risk of underestimating embedded OE for some GDNs and overestimate it for others.

3.44 All GDNs raised an error in our compounding calculations in their Draft Determinations responses. Our decision for the treatment of OE corrects these calculation and data issues.

3.45 This section covers the treatment of embedded OE for benchmarking purposes, but it doesn't deal with our approach to OE setting. A full description of our approach to OE setting can be found in the Core Document.

Normalisations

3.46 This section explains our decisions for regional and company-specific factors. It also explains the data adjustments, normalisations and reclassifications we have made to the submitted data prior to our cost modelling. Further detail is set out in the company annexes and the SBSG Annex.

Regional factors, company-specific factors and other adjustments

Description

3.47 We adjust submitted costs to ensure that we can benchmark GDNs on a comparable basis. This includes costs that are driven by factors outside of a company's control and are unique to the location in which that company operates. These regional factors can lead to higher or lower costs that are not the result of

efficient or inefficient behaviour. As in RIIO-GD1, we make pre-modelling adjustments to account for regional labour, urbanity and sparsity.

3.48 We make regional labour cost adjustments to account for the difference in efficient labour costs between GDNs due to geographical location (London, South-East and Elsewhere). We calculate these adjustments using Office for National Statistics (ONS) Annual Survey of Hours and Earnings (ASHE) wage data to construct different labour indices, and apply them pre-modelling so that the cost data used in the econometric modelling is comparable across GDNs. We add back the adjusted costs post-modelling.

3.49 We make two types of cost adjustments to account for urbanity factors. One adjustment reflects a reduction in labour productivity associated with working in the London area. The other recognises additional reinstatement costs associated with working in highly dense urban areas.

3.50 We make cost adjustments for sparsity factors, accepting that there are differences in costs associated with working in relatively sparse areas for the emergency and repair cost activities. As in RIIO-GD1, the adjustment is capped at the 13% of emergency and repairs costs for the sparsest network (WWU).

3.51 Finally, we also make pre-modelling adjustments for justified company-specific factors and, where appropriate, to further improve comparability across GDNs.

3.52 The approach we applied at Draft Determinations to assess company-specific factors relied on the following set of criteria:

- Is the claim material in nature? The materiality threshold applied was 0.5% of a GDN's gross unnormalised total expenditure. It was noted that Ofwat used this threshold to assess the materiality of cost items in its PR14 price controls, then raised the bar to 1-6% (depending on the price control) of totex in PR19. The issue of materiality is important given that other GDNs may also face company-specific factors but have not made claims for these given their limited materiality.
- Is the claim unique in nature? The claim should be limited to a single GDN or a small number of GDNs. Only claims that reflect a material asymmetry between GDNs are justified.

- Is the claim outside the control of an efficient company? The GDN should demonstrate that, where possible, it has mitigated the additional costs associated with a claim.
- Is the claim excluded from the cost drivers used in the econometric modelling?
- Is the claim excluded from other adjustments, such as regional factors?

Final Determinations Decision

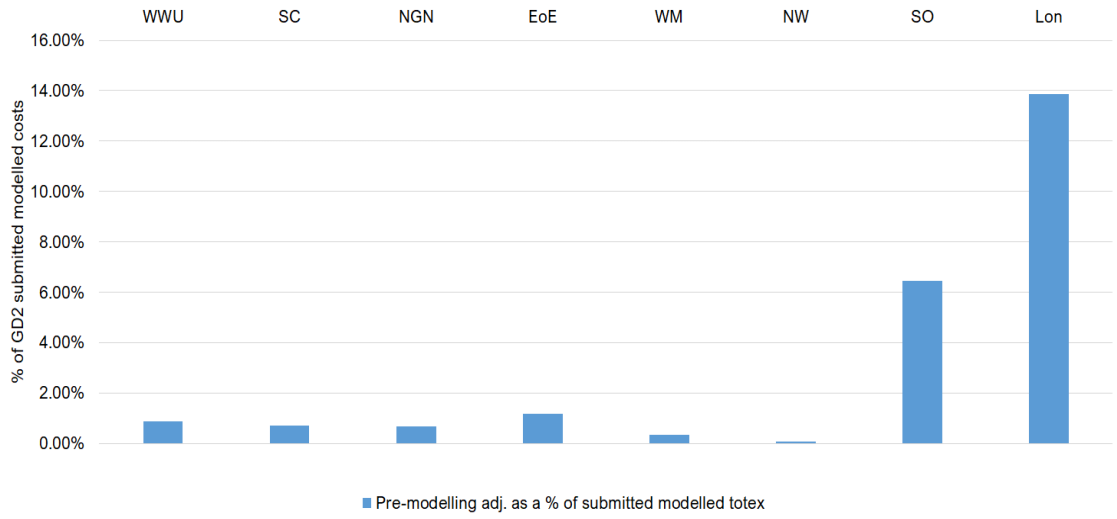
Table 14: Final Determinations decisions on regional factor, company-specific factors and other adjustments

	Final Determinations decision	**Draft Determinations position**
Regional factors	We have updated labour and sparsity indexes and extended the application of the urbanity adjustment.	Regional labour, urbanity and sparsity indexes
Company-specific factors	Rejection of majority of submitted cost claims, but we have now accepted some additional company-specific factors based on the analysis of further evidence	Rejection of majority of submitted cost claims
Other adjustments	Same adjustments as Draft Determinations, but we have now amended the loss of meterwork adjustment and the threshold for capex projects	Exclusions of historical costs, separate assessment of forecast costs, reclassifications

Final Determinations rationale and Draft Determinations responses

3.53 We have decided to implement our Draft Determinations position and make pre-modelling adjustments to account for regional labour wage differentials and differences in operating environment linked to urbanity or sparsity. However, following stakeholders' feedback and additional analysis, we have made changes to our methodology to improve comparability across GDNs. This has resulted in a significant increase in the regional factors adjustments compared to our Draft Determinations position. The figure below shows the regional factors adjustments as a percentage of modelled totex.

Figure 4: Pre-modelling adjustments as a percentage of modelled totex



Regional factors – Labour

3.54 We have decided to implement the Draft Determinations position and apply a three-region pre-modelling adjustment using labour indices based on ASHE hourly mean wages (including overtime) and calculated at the 2-digit standard occupational classification (SOC) level. One GDN supported these aspects of our approach. Another GDN also broadly agreed that we should apply a labour adjustment. One GDN noted that we should consider whether the ONS ASHE data could be used differently to estimate labour indices. However, it has not proposed an alternative methodology.

3.55 In light of further evidence submitted to us, we have changed our approach to estimating regional wage indices. We now use average regional wages across occupational categories, and then divide the average regional wage by the average UK wage to obtain a regional wage index for each geographical region of the UK. This new approach ensures that, in addition to the average proportion of FTEs allocated to each occupational category, regional wage indices also reflect the amount paid for different job types. This was supported by one GDN, which noted that the amount paid for different job types affects the overall wage premium associated with operating in London.

3.56 For the purpose of calculating labour indices, we continue to assume that the GDNs' work is distributed across regions in the same proportion as population. While one GDN noted that workload would be a better proxy than population, we consider that the evidence submitted is not sufficient to estimate a workload-based allocation.

3.57 We have updated the calculation of labour indices to include 2019 indices based on historical data. This was supported by one GDN, which noted that the most recent available data should be used to calculate the indices.

3.58 We have decided to implement our Draft Determinations position and set forecast regional cost indices equal to their five-year historical average. One GDN argued that only the most recent information is relevant to estimating future regional wage differentials and proposed setting forecast labour indices based on the last two years of available historical data. However, we consider that averaging over a longer period will reduce the impact of any spurious year-on-year changes in the ASHE estimates (due, for example, to occupations changes or sampling changes). Therefore, we set indices from 2019/20 to 2025/26 equal to their 2014/15 – 2018/19 average.

3.59 We have extended the labour adjustment to Training and Apprentices costs. This was supported by one GDN's comment that the majority of these costs are for apprentices and craftspersons, who are recruited to work at a local depot.

3.60 We have decided to implement our Draft Determinations position and have not applied the labour adjustment to Stores and Logistics costs. We acknowledge one GDN's response that local stores exist and incur regional costs. However, we do not consider that there is sufficient evidence to extend the labour adjustments to Stores and Logistics, as the GDN has not explained what proportion of labour costs associated with Stores and Logistics is incurred locally.

3.61 There is no change to our Draft Determinations assumption that most activities to which regional adjustments apply are 100% local, whereas only 44% of Work Management activities occur locally. We have received no further evidence on this after our Draft Determinations. For Training and Apprentices, we have assumed a local work proportion of 85%, in line with one GDN's response.

3.62 In light of further evidence submitted to us, we have changed our approach to estimating the proportion of expenditure related to labour and applying it in the calculation of regional adjustments. We continue to use industry average labour ratios, but we now calculate these after adjusting the GDNs' expenditure for regional labour, sparsity, and urbanity factors. We then apply these notional labour ratios to the GDNs' adjusted expenditure to calculate a notional amount of expenditure related to labour. We calculate regional adjustments by applying regional cost indices to these notional adjusted labour costs.

3.63 This new approach was supported by one GDN, which noted that, while the calculation should be based on a notional company as a starting point, it should also be adjusted to reflect the fact that a company operating in London incurs higher costs due to pay and productivity differentials. Our Final Determinations approach ensures that regional adjustments effectively bring GDNs that operate in London and the South East to the same cost levels as if they were operating 'Elsewhere'.

3.64 We have also decided to change our approach to combining labour and productivity adjustments. In our Draft Determinations, we calculated the two adjustments separately on the basis of the GDN's notional labour expenditure, then added them together. In our Final Determination, these two adjustments are compounded, as we calculate the labour adjustment after applying the urbanity productivity factor to the notional labour costs. This was supported by one GDN's response, which includes an example where the two factors are compounded. The new approach reflects the fact that GDNs operating in London are faced with higher wages but also require a larger amount of labour due to lower productivity.

3.65 Further detail on our calculation of regional labour indices is provided in the SBSG Annex.

Regional factors – Urbanity

3.66 We have decided to implement our Draft Determinations position and apply a pre-modelling adjustment to Reinforcement, Connections, and Repex costs to reflect lower labour productivity associated with working in the London area, based on an assumed 1.15 London urbanity factor (more details in the SBSG). Two GDNs supported the magnitude of the adjustment.

3.67 We have extended the productivity adjustment to Emergency costs. We discuss this further in the company annexes in the context of company-specific factors.

3.68 There is no change to our Draft Determinations position of applying an urbanity productivity factor only to activities in the London region. This factor reflects the additional cost of operating in the highly dense London area. One GDN noted that the productivity factor could also apply to the South East region. However, no further evidence was submitted to show that work performed in the South East, outside London, would face similar challenges.

3.69 We have not applied an urbanity productivity adjustment to Repair costs. One GDN noted that Repair activity is adversely impacted by urbanity. However, we do not consider that sufficient evidence has been submitted to support this claim.

3.70 We continue to apply a reinstatement adjustment based on labour indices. One GDN supported applying a reinstatement adjustment and argued that the additional cost of reinstatement in London is 21%. We believe it is still appropriate to set the reinstatement adjustment based on labour indices. We note that in our Final Determinations, the London urbanity reinstatement index has increased to 1.18, which is closer to the figure proposed by the GDN. We discuss this further in the company annexes in the context of company-specific factors.

Regional factors – Sparsity

3.71 We have decided to implement our Draft Determinations position and apply a pre-modelling sparsity adjustment to Emergency and Repair costs, based on population density data at the Local Authority (LA) level. However, we have reviewed the list of LAs excluded from the calculation of the indices.

3.72 One GDN noted that while it previously presented evidence of a lower level of adjustment, it also recognises the evidence in favour of significantly greater adjustments presented by other GDNs prior to our Draft Determinations, and so accepts our decision.

3.73 Another GDN suggested that the calculation of sparsity indices could be improved by using Xoserve data, but it has not provided additional information on how this analysis should be conducted. We consider that population density is a good proxy for sparsity that can be calculated in a relatively straightforward manner and continue to use this as the basis for our sparsity calculation.

3.74 We have reviewed our Draft Determinations assumptions on LAs excluded from the calculation of sparsity indices in light of new information presented by two GDNs on gas network coverage in their service areas. This has led to the inclusion of a number of LAs in Scotland and Wales in the sparsity calculation that were previously excluded.

3.75 We now only exclude the sparsest LAs in Great Britain, as we consider that these are likely to have only very limited gas network coverage, as well as some islands that GDNs have confirmed have no gas network coverage.

3.76 One GDN submitted a cost claim to argue that sparsity leads to higher costs in areas other than Emergency and Repairs, in particular, Maintenance and Repex. The Repex reinstatement special cost factor claim was driven by the GDN's perceived lack of access to quarries and mines as a result of sparsity and the shape of its operating region. We consider acceptance of this claim would be inappropriate given other GDNs also operate in sparse regions and may experience similar issues in relation to access to quarries and mines. In addition, the analysis presented by the GDN almost exclusively refers to its own operating environment without comparing unit costs with other GDNs. This makes it difficult to understand how the cost impact has been estimated based on the evidence provided. We therefore continue to apply a sparsity adjustment to emergency and repairs costs only, in line with the approach used at RIIO-GD1 and proposed at Draft Determination.

3.77 We have decided to implement our Draft Determinations approach of applying a 13% adjustment to WWU's costs (as in RIIO-GD1) and scaling the sparsity indices for other GDNs accordingly. While as a result of updating the list of LAs excluded from the sparsity calculation Sc now receives a slightly higher sparsity adjustment than WWU, we still consider that it is appropriate to set the indices with reference to WWU, as the 13% sparsity adjustment assumption adopted in RIIO-GD1 was specific to WWU.

3.78 The SBSG Annex includes details on the calculation of the sparsity indices and the list of LAs excluded from the calculation.

Company-specific factors

3.79 At our Draft Determinations, we rejected the majority of company-specific factors claims for not meeting the criteria described above. After the analysis of additional evidence, we have decided to accept some company-specific factors that we had proposed to reject at Draft Determinations, namely plant hire and repex reinstatement costs for London and Southern, and reduced depth of cover for EoE.

3.80 We have implemented the Draft Determinations position for the other company-specific factors. More details are provided in the company annexes.

Other adjustments

3.81 We have decided to implement the Draft Determinations position for the approach to exclusions and adjustments to historical and forecast costs, which we consider

ensured comparability across GDNs. Nonetheless, following stakeholders' feedback and additional analysis, we made some changes to the adjustments.

3.82 Most respondents agreed with the majority of the pre-modelling adjustments proposed. A GDN claimed post-modelling adjustments would be more suitable for loss of meterwork costs. We consider pre-modelling adjustments for these costs appropriate, and more in line with the overall benchmarking approach. Another GDN agreed with the approach but noted that costs should be expressed in gross terms. We made the proposed correction. The same GDN noted double counting of iron stubs and other repex activities, which we addressed at Final Determinations.

Regression Analysis

Econometric model considerations

Description

3.83 In this section we provide a high level summary of our econometric modelling choices and results, which cover around 86% of companies' submitted costs. Further details can be found in the SBSG Annex.

Final Determinations Decision

Table 15: Final Determinations decisions on econometric model specifications

Econometric modelling choices	Final Determinations Decision	Draft Determinations Position
Level of aggregation	Top-down	Same as FD
Estimation technique	Ordinary Least Squares (OLS)	Same as FD
Model specification	Cobb-Douglas function with a composite scale variable (CSV) as the main driver and time trends to account for unobserved time effects. CSV weights are based on average industry spend.	Same as FD
Time period of data used	RIIO-GD1+RIIO-GD2 (2013-14 to 2025-26)	Same as FD

Final Determinations rationale and Draft Determinations responses

Level of aggregation

3.84 We have implemented the Draft Determinations position across our econometric modelling for Final Determinations and used a single top-down model in our

benchmarking. The approach allows us to better account for cost complementarities, trade-offs and potential reporting inconsistencies across GDNs than alternative approaches (ie bottom-up models), thus avoiding the risk of GDNs appearing more efficient or inefficient as a consequence of differences in their business models. Our decision to use a top-down model provides regulatory stability and consistency given that the model specification of the top-down model used for RIIO-GD1 was analogous (ie same functional form and cost driver). This is an important objective in capital intensive regulated sectors such as Gas Distribution where network companies and their investors make long term investment decisions.

3.85 Moreover, a number of pre-modelling adjustments have been made to capture other exogenous cost drivers, such as regional differences in input prices and urbanity / sparsity and special cost factors. This leads to a model which has a strong technical and economic logic, is relatively simple to interpret, and has a very good model fit (adjusted R-square of 0.927).

3.86 Two GDNs and one DNO welcomed the top-down approach, although one of the two GDNs pointed out that, by including IT and Telecoms opex but excluding the corresponding capex, the proposed model was not addressing all opex/capex trade-offs. Another GDN disagreed with the proposed level of aggregation, stating that the model was a "partex" rather than a totex model, due to the exclusions for technical assessment. We agree with the GDNs that assessing IT and Telecoms opex and capex together allows the modelling to overcome any trade-offs and thus we included all these costs in the regression model. As described in Chapter 4, we have also increased the threshold for capex and repex projects technically assessed, resulting in a higher proportion of these costs included in the regression analysis.

3.87 Two GDNs and a DNO supported using a variety of approaches. One GDN stated that there was a risk of inappropriate efficiency predictions from the single totex model, and that it was more robust to combine results from different models. They suggested going back to middle-up and bottom-up approaches, and that if results were still not robust after revision of the drivers, a lower benchmark needed to be set.

3.88 As stated at Draft Determinations, we consider that the selected top-down model specification also captures bottom-up considerations by the use of a disaggregated Composite Scale Variable (CSV) as the cost driver, which reflects a weighted

average of scale and workload drivers used in the RIIO-GD1 bottom-up models. In other words, although we have not used bottom-up models, we have not fundamentally changed the corresponding cost drivers, which proved to have both economic, engineering and statistical logic. This has informed our Final Determinations decision.

3.89 For Final Determinations, we also conducted bottom-up regression modelling in response to Draft Determinations responses from two GDNs and to validate the results of our single top-down model. The bottom-up models generally had a poorer model fit, which led to a wider range of efficiency scores between GDNs and a higher overall catch-up efficiency challenge. However, the efficiency rankings remained stable across the top-down and bottom-up modelling results. The bottom-up modelling results therefore validated and affirmed our decision to use a single top-down model.

Estimation technique

3.90 We have implemented the Draft Determinations position and used Ordinary Least Squares (OLS) as the estimation technique. We went through a process of model selection with GDNs and there was general agreement to use OLS estimation, which was also used at RIIO-GD1. Sensitivity analysis undertaken for Final Determinations also indicated that differences between OLS and Random Effects (RE) were relatively small, which affirmed our decision to use OLS estimation given its superior transparency properties (ie OLS is arguably more easy to replicate and understand compared to RE estimation). This decision was also made by the Northern Ireland Utility Regulator for the PC21 price control draft determination. Results comparing OLS and RE, as well as and Stochastic Frontier Analysis (SFA) are shown in the SBSG.

3.91 Most respondents agreed with the proposed approach. For example, a DNO stated that they had come to the conclusion that OLS was the most appropriate estimation technique after testing RE model and SFA models.

Model specification

3.92 We have implemented the Draft Determinations position and used a Cobb-Douglas functional form. We consider that using a model specification analogous to the one employed in RIIO-GD1 fosters regulatory consistency and stability. Most respondents agreed with the proposed approach.

3.93 We have decided to implement the Draft Determinations position and use a CSV as the main cost driver and two time trends to account for unobserved time effects.

3.94 Despite concerns about individual components and weights, a GDN recognised that using a CSV is a pragmatic approach. A DNO stated that a regression of totex against individual cost drivers might be an option, but given the limited sample size, we do not consider this to be a viable alternative. Moreover, preliminary analysis showed that the estimated coefficients could not always be easily interpreted from an economic or technical perspective, for example due to their magnitude and / or counterintuitive sign.

3.95 As for the weights assigned to the components of the CSV variable, we have decided to use average industry spend proportions associated with each component. Our approach is the same as Draft Determinations and was supported by two GDNs.

3.96 We think that setting CSV weights on industry average spend proportions is an intuitive approach as it considers the relative importance of each driver based on knowledge of GDNs' costs.

3.97 One GDN proposed that Ofgem should use more than one set of CSV weightings (eg weighting by industry average spend and network specific spend) and triangulate across model results. The GDN considered that weighting by industry average spend alone can introduce bias against a network if its expenditure varies materially. It also proposed scaling the CSV weights based on the estimated elasticities in the bottom-up regression models to take into account that different cost categories have different ratios between fixed and variable costs.

3.98 From a statistical perspective, the model fit (as indicated by adjusted R-square) is relatively high when industry average spend weights are used compared to when company specific weights are used. Moreover, the approach also has regulatory precedent from RIIO-GD1 and RIIO-ED1.

3.99 We consider it would be inappropriate to set CSV weightings based on GDN specific spend. Weightings by GDN-specific expenditure would lead to substantially lower model fit (adjusted R-square of around 0.6), to significant changes in allowances across the industry, and represent a relatively large departure from the Draft Determinations approach that the other GDNs would not be able to

comment on.[103] This approach may also lead to the CSV capturing inefficiency differences between GDNs (ie endogeneity) given that expenditure weights are somewhat under management control.

3.100 We also decided not to scale the CSV weights based on the estimated elasticities in the bottom-up regression models. This approach would take into account that different cost categories have different ratios between fixed and variable costs. However, this would depend on the outcome of the bottom-up models, which we consider are not sufficiently robust, and would not lead to a substantial improvement in model performance.

3.101 Another GDN proposed principal component analysis as an alternative method given that the use of a CSV means the impact of each individual driver is determined ex ante in a deterministic way, which may be detrimental to some GDNs.

3.102 We considered it would be inappropriate to use principle component analysis to combine individual components instead of the CSV approach. This alternative approach would not be very intuitive and would not be founded in economic / technical logic. It would also be a much more complex approach and it is not clear from the evidence presented whether it would lead to significant improvements in model performance. Adoption of principle component analysis would also represent a significant change from our Draft Determinations that other GDNs and other stakeholders would not be able to comment on.

Time period

3.103 We have implemented the Draft Determinations proposal and used both RIIO-GD1 and RIIO-GD2 data to increase the sample size and thus statistical robustness of our analysis. Moreover, we consider that using a longer time series than that used at RIIO-GD1 is also more consistent with our assessment of the long-term relationship between costs and cost drivers within the GD sector.

3.104 A GDN agreed with the selected time period proposed at Draft Determinations but welcomed analysis on the RIIO-GD1 period to cross-check results. Another GDN proposed using three time periods (historical data, RIIO-GD2, RIIO-GD1+RIIO-GD2), with a higher weight given to the historical period due to the higher reliability of the data and the issues with bottom-up cost drivers. As noted in the

[103] The RESET test also continues to fail when GDN specific weights are used.

SBSG, as a robustness check we estimated the model on different time periods and observed similar results. This informed our decision to maintain our Draft Determinations position and use RIIO-GD1 and RIIO-GD2 data for our econometric modelling.

Econometric model results

3.105 We used OLS with clustered robust standard errors to estimate the following model establishing a relationship between totex (our independent variable) and totex CSV (our selected cost driver):

$$\ln(\text{totex}_{it}) = \beta 0 + \beta 1 \ln(\text{totex CSV}_{it}) + \beta 2 t1 + \beta 3 t2 + \epsilon_{it},$$

where $\beta 1$ is the coefficient associated with the cost driver (totex CSV), $\beta 0$ is a constant term, and the error term represents the component of costs not explained by the cost driver for GDN i in year t. To account for time effects, this specification also includes a linear trend for historical data (t1) and another one for forecasts (t2).

3.106 As shown in Table 16 below, the estimated coefficient of the totex CSV is statistically significant at the 1% level, and the model fit is very good (adjusted R-square of 0.927).

3.107 From a model performance perspective, our top-down totex model takes into account bottom-up considerations within the totex CSV (eg opex, repex and capex cost drivers) and also takes into account a number of pre-modelling adjustments for regional and company specific factors. As a result, our approach takes into account a wide range of factors that leads to differences in efficient costs between GDNs and minimises the risk of legitimate differences in efficient costs between GDNs being mistaken for differences in efficiency. Moreover, we have continued to improve the performance of our top-down totex model after taking into account responses to our DD. This is reflected by the increase in adjusted R-squared (overall model predictive power) from 86% to 93%.

3.108 Statistical robustness was also confirmed by the post-estimation tests and robustness checks we performed (see more details in the revised SBSG). The exception was the failure of the RESET test, as it was at Draft Determinations. We understand that the RESET test is not a critical measure for complex regression models and in context of other statistical measures of model performance is not a

reason in its own right to question the robustness of the modelling outcomes from an academic perspective. Furthermore, while RESET test failure may suggest the adoption of non-linear terms (eg squared terms), the appropriateness of introducing these terms was significantly questioned by the CMA at the 2015 Bristol Water determination as it can significantly reduce the transparency and ease of interpretation of model results from an engineering and economic perspective. Our sensitivity analysis also indicates that the inclusion of non-linear terms does not lead to the RESET test passing.

3.109 In the round, we therefore believe our modelling approach and outcomes for Final Determinations are both reasonable and robust.

Table 16: Final Determinations regression model results

Ln-totex	**Coefficients**
Ln_totex_csv	0.787*** (0.042)
t1	-0.004 (0.005)
t2	0.006 (0.005)
Constant	-0.076 (0.309)
Adjusted R2	0.927
Observations	104
Note: Standard errors are shown below the coefficients in parentheses * statistical significance at the 10% level ** statistical significance at the 5% level *** statistical significance at the 1% level	

Opex in our regression model

Cost drivers

Description

3.110 In this section we describe the drivers of the opex activities included in our top-down regression model, namely work management, other direct activities, business support, training and apprentices, emergency, repairs and maintenance.

Final Determinations Decision

Table 17: Final Determinations decisions on opex in the regression model

Cost activity	Final Determinations decision		Draft Determinations position	
	Cost driver	Totex CSV weighting	Cost driver	Totex CSV weighting
Work management, Other direct activities, Business support, Training and apprentices	MEAV including risers and embedded gas entry points. Replacement unit costs updated.	36.6%	MEAV excluding risers and embedded gas entry points	34.4%
Emergency	Customer numbers (80%), External condition reports that were updated to reflect repex workload disallowances (20%)	4.7%	Customer numbers (80%), external condition reports (20%)	4.9%
Repairs	External condition reports that were updated to reflect repex workload disallowances	5.5%	External condition reports	5.7%
Maintenance	Maintenance MEAV excluding services and including embedded gas entry points	7.8%	Maintenance MEAV including services	8.5%

Final Determinations rationale and Draft Determinations responses

3.111 As shown in Table 17, we have decided to use the same drivers as the Draft Determinations proposal for opex activities. However, following stakeholders' feedback and additional analysis, we made adjustments to make the cost drivers more robust. These adjustments are discussed in detail in the following subsections.

Work management, other direct activities, business support, training and apprentices cost driver - MEAV

3.112 One GDN said that MEAV is a poor driver of work management costs but this limitation is mitigated when a full totex model is used. Another GDN stated that system control, asset management and business support are largely driven by the relative size of the network and the number of employees, and therefore suggested a CSV with MEAV and the number of employees. Nonetheless, there was a general agreement among GDNs that MEAV captures well the impact of network scale on operational costs. A DNO also welcomed the use of MEAV but also noted there was a risk that it may be affected by GDNs' decisions in the long-run.

3.113 The GDNs noted issues around MEAV input data that they stated should be rectified to ensure that MEAV data is consistent between GDNs. In particular, there was a disagreement among GDNs on whether risers (MOBs) and Embedded Gas Entry Points (EGEPs) should be included in MEAV.

3.114 We continue to use MEAV as the cost driver of work management, other direct activities, business support, training and apprentices for Final Determinations. MEAV captures relative differences in scale between GDNs while better capturing differences in network complexity between GDNs compared to alternative scale drivers (eg customer numbers). We recognise that MEAV is somewhat under the control of the GDNs, but we consider the risk associated with this endogeneity is relatively low.

3.115 We do not think it is appropriate to include the number of employees as a cost driver as it is significantly endogenous and may lead to perverse incentives (eg actively prioritising human capital solutions over technological solutions).

3.116 We have used the additional information provided by the GDNs to address MEAV data inconsistencies. Moreover, for Final Determinations we include risers and EGEPs in MEAV to reflect the fact that these assets affect the scale and complexity of a network. The SBSG provides further details on the changes made to MEAV.

Emergency cost driver - Emergency CSV (80% customer numbers; 20% external condition reports)

3.117 One GDN did not agree with the use of the emergency CSV as the emergency cost driver. They proposed using the maximum of Publicly Reported Escapes (PREs) over five years instead as they considered it has better engineering logic. All other GDNs supported the use of the emergency CSV.

3.118 For Final Determinations we tested a top-down model with the emergency CSV replaced with the maximum of PREs over five years. The results were not substantially different between two sets of model results. We therefore decided not to move away from our Draft Determinations position.

Repairs cost driver – external condition reports

3.119 The GDNs supported the use of external condition reports as the repairs cost driver. One network company noted that they considered it was a better driver than using the number of repairs reported as it is more outside the GDNs' control and less liable to reporting inconsistencies.

3.120 We have amended the external condition report data for Final Determinations to correct for reporting inconsistencies between GDNs.

3.121 We have decided to make upwards adjustments to repairs costs and the repairs cost driver (ie number of mains and services condition reports) to account for disallowed repex distribution mains workloads at Final Determinations. We based adjustments to repair costs on the cost information provided in GDN's CBAs. We calculated the increase in number of mains and services condition reports based on the ratio of condition reports to non-metallic mains population and non-metallic service population, respectively. All GDNs stated that any disallowance of repex workloads should be compensated with additional opex costs to account for additional repairs. We agree with the GDNs that opex costs should be provided where repex workloads have been disallowed to ensure GDNs are adequately funded to maintain their networks and meet their statutory obligations and have included these in Final Determinations.

Maintenance cost driver – Maintenance MEAV

3.122 One GDN stated that the approach taken to maintenance MEAV does not take into account important differences between GDNs that drive differences in efficient maintenance costs (eg the amount of differing non-routine workloads or different capitalisation policies between GDNs). It suggested the inclusion of a maintenance workload driver alongside MEAV to account for differences in non-routine workloads.

3.123 Similarly, another GDN proposed that maintenance MEAV is replaced with a CSV derived from asset counts/lengths and the cost of maintenance seen for these assets over the historical reporting period as this would be more closely linked to the actual costs of maintenance. Alternatively, a GDN said that Ofgem should include a measure of monetised risk within the totex CSV to account for differences in asset condition between GDNs.

3.124 One GDN agreed with using a MEAV measure as the driver of maintenance costs, but noted that we should remove maintenance MEAV from the totex CSV and increase the weighting of MEAV as the former does not account for below ground maintenance.

3.125 There is no change to our Draft Determinations position and we continue to use Maintenance MEAV as the maintenance cost driver within the totex CSV. In terms of assets used for the cost driver calculation, we have accepted one GDN’s

proposal to include EGEPs, as these assets, being above ground, also require maintenance. Contrary to the same GDN's suggestion, we have decided not to include risers, because the costs of maintaining these assets have been assessed separately with a non-regression model. Thus, including risers in the maintenance MEAV driver would have resulted in double counting.

3.126 Our previous bottom-up modelling has shown maintenance MEAV to be a relevant (and statistically significant) cost driver for maintenance costs. Removing it as an explanatory variable would reduce the consistency of the cost driver selection process (cost drivers selected based on bottom-up modelling). Moreover, while some underground assets (not captured in the maintenance MEAV) will also require some maintenance, we consider that maintenance MEAV captures the impact of those assets that would be expected to require more frequent maintenance. Extending the scope of maintenance MEAV to also include underground assets would reduce the robustness of the model, as it would lead to the inclusion of assets that do not require frequent maintenance.

3.127 We acknowledge that other factors - including the condition and age of the network, non-routine maintenance workloads, etc - may also explain some of the variation in GDN costs. However, these variables are likely to suffer from endogeneity issues and therefore we would have concerns about placing too much reliance on them in our modelling.

3.128 Regarding the use of a monetised risk variable, we consider that such an approach would not be appropriate at this stage for a number of reasons including:

- The current NARM methodology remains relatively new and has not been used in practice for an extended period, which could raise some questions about whether the output data is sufficiently robust enough for the purposes of cost benchmarking.
- It would represent a fundamental change to our modelling approach used at RIIO-GD1 and consulted on at various stages prior to our Final Determinations.
- Monetised risk, as an asset health measure, is likely to be affected by the endogeneity problem highlighted above.

3.129 We also do not consider a GDN's proposal of a CSV derived from asset counts/lengths and the cost of maintenance would be appropriate as it would be very endogenous (ie maintenance costs being regressed on maintenance costs).

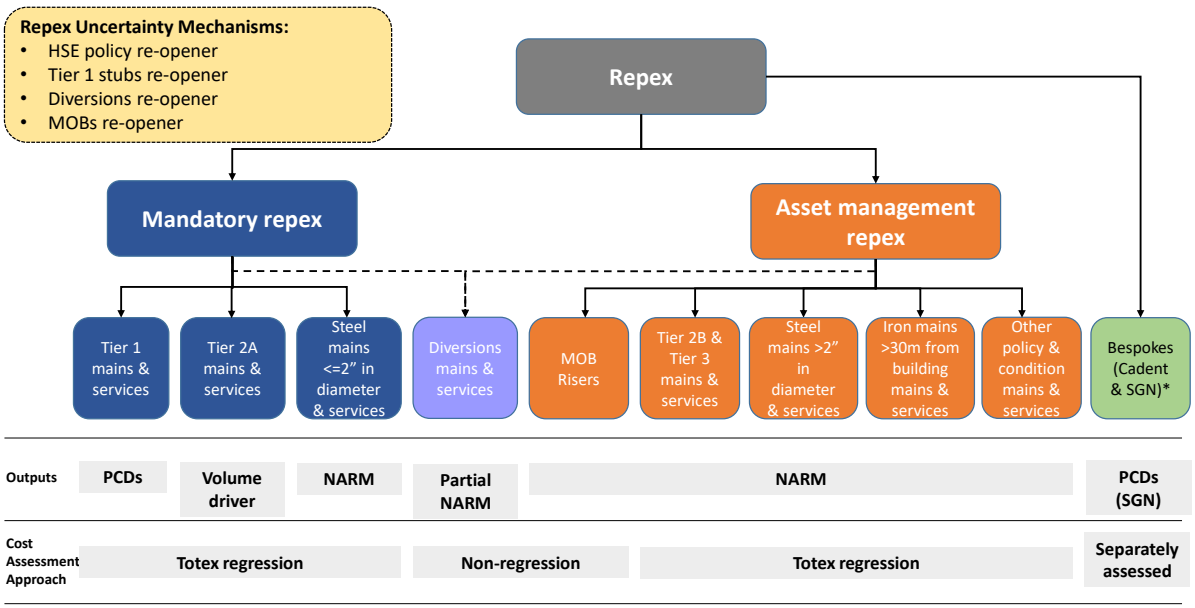
3.130 Moreover, we do not think it would be feasible to arrive at a representative synthetic cost driver for maintenance activities as it would depend on the assets each GDN has, the mix of maintenance work undertaken, and external operating conditions. This is reflected by the fact that no feasible option was proposed by the GDNs other than the GDN option discussed above. Maintenance MEAV offers a relatively simple solution which recognises that maintenance requirements depend on the mix of above ground assets, which drive the scale of frequent maintenance requirements. In line with our choice of a scale driver for maintenance, we note that Ofwat's PR19 Final Determination and the CMA's PR19 Appeal Provisional Findings base cost models do not include a maintenance workload cost driver.

Repex in our regression model

Description

3.131 Repex covers the ongoing programme of replacement of old metallic gas mains with new plastic ones, as well as interventions on associated services. In RIIO-GD2, we have assessed the efficiency of the majority of activities within the GDNs' repex programmes through regression analysis, reflecting the common, repeatable nature of much of the work.

Figure 5: Overview of our approach to repex in RIIO-GD2



* We have accepted three bespoke projects, one from Cadent and two from SGN. These were assessed under the technical assessment category.
Note: capitalised replacement costs have been included in the relevant category (for Tier 1, Tier 2A etc)

Cost Drivers

Final Determinations Decision

Table 18: Final Determinations decision on repex activities included in the regression and cost driver formulation

Cost activity	**Final Determinations decision**		**Draft Determinations position**	
	Cost driver	*Totex CSV weighting*	*Cost driver*	*Totex CSV weighting*
• Tier 1 mains • Tier 2A iron mains • Tier 2B iron mains • Tier 3 iron mains • Steel mains <=2" • Steel mains >2" • Iron mains >30m from a building • Other Policy and Condition mains[104] • Services associated with all aforementioned mains replacement activities • Services not associated with mains replacement	Synthetic cost	38.4%	Same cost activities and cost driver as for FD, but greater disaggregation synthetic cost categories (see Step-by-Step guide)	39.2%

Final Determinations rationale and Draft Determinations responses

3.132 We have decided to implement our Draft Determinations proposals for which repex cost activities we through regression but have made changes to the formulation of the repex cost driver.

3.133 We think there is sufficient commonality in these activities across GDNs that supports the continued use of the top-down benchmarking approach for assessment of these repex cost categories. The interactions between companies' repex programmes and other parts of their businesses means that it is important to include the majority of repex within the totex regression to ensure outputs are not unduly biased by differences in reporting between networks.

3.134 We have decided to implement our Draft Determinations position and use a synthetic cost driver for repex at Final Determinations, as we think a workload driver is the most appropriate measure of repex costs. The synthetic cost driver is a workload driver based on the sum of the products of synthetic unit cost and

[104] Other Policy & Condition mains: The replacement of distribution mains and services not captured under the HSE policy workload. This includes non-standard materials and mains selected to be replaced on a condition basis in accordance with policy.

volume for each disaggregated activity. We received a number of responses regarding our proposal to use a synthetic cost driver for repex in totex regression and the categories of repex costs included within the synthetic cost driver. WWU agreed that our overall synthetic cost approach is fair, while NGN supported our method for calculating synthetic unit costs. NGN also supported our proposal to include services not associated with mains replacement, recognising the interplay with opex costs. Cadent argued that our treatment of outliers may create a bias against some networks, as exogenous factors in those areas drive higher costs. We think that excluding outliers is justified, to produce a more accurate reflection of the underlying cost of undertaking each activity, while exogenous factors affecting specific areas are accounted for within our regional factor adjustments.

3.135 We have decided to reduce the number of synthetic unit cost categories, compared to our Draft Determinations position, through greater aggregation of cost and workload data (ie fewer distinctions between material and workloads). We think that further aggregation ensures a more robust dataset on which to calculate synthetic unit cost for the industry, mitigating some of the concerns around data quality and over-reliance on extrapolated data, in line with the responses from two GDNs.

3.136 Under this revised approach at Final Determinations, over 90% of submitted repex costs included within the regression are assessed against synthetic unit costs derived from submitted data, with only a small minority derived from extrapolation. SGN suggested that we should account for CISBOT costs separately in the synthetic cost driver, however there is limited data to support doing so in a robust way. Please refer to the SBSG for further detail on the final selection of cost categories used in the repex synthetic cost driver.

3.137 We have decided to use the full RIIO-GD1 and RIIO-GD2 dataset to calculate synthetic unit costs. We think capturing forecast data ensures that cost pressures are captured, a view supported by SGN. The longer dataset also results in synthetic unit costs that more clearly follow engineering logic. Another GDN argued we should revert to using synthetic unit costs from RIIO-GD1, however they did not demonstrate that this would result in a more robust outcome.

3.138 We do not agree with SGN's proposal to apply regional adjustments to the synthetic cost driver itself, rather than as part of the totex modelling process, as this would undermine the basis of benchmarking GDNs using a consistent and

common cost driver, which is key to the robustness of our totex model. Our approach to regional factors is discussed above.

Workload adjustments

Final Determinations Decision

Table 19: Final Determination decision - Summary of mandatory repex workload adjustments for RIIO-GD2

Network	Tier 1 mains	Steel <=2" mains	Associated services	Draft Determinations position
EoE	Removed dynamic growth workloads	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD
Lon	Removed dynamic growth workloads	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD (but with updated Tier 1 services forecast)
NW	Removed dynamic growth workloads	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD
WM	Removed dynamic growth workloads	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD
NGN	Allowed in full*	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD
Sc	Removed dynamic growth workloads**	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD
So	Removed dynamic growth workloads**	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD
WWU	Removed dynamic growth workloads	Allowed in full	Pro rata adjustments for removed dynamic growth in Tier 1	Same as FD

* NGN did not include any dynamic growth assumptions in its Tier 1 forecasts.

** SGN have removed accelerated growth assumptions in their Draft Determinations response

Table 20: Final Determinations decision - Summary of asset management repex workload adjustments in RIIO-GD2

	Tier 2B	Tier 3	Steel mains >2"	Iron mains >30m	Other Policy & Condition[105]	Draft Determinations position
	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full: Iron >30m, OP&C Partially disallowed: Tier 3 Disallowed in full: Tier 2B, Steel >2"
	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full: Tier 2B, Iron >30m, OP&C Partially disallowed: Tier 3 Disallowed in full: Steel >2"
	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full: Iron >30m, OP&C Disallowed in full: Tier 2B, Tier 3, Steel >2"
	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full: Tier 2B, Iron >30m, OP&C Partially disallowed: Tier 3 Disallowed in full: Steel >2"
	Allowed in full	Partially disallowed	Partially disallowed	Partially disallowed	Partially disallowed	Allowed in full: Tier 2B Disallowed in full: Tier 3, Steel >2", Iron >30m, OP&C
	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full: Iron >30m, OP&C Disallowed in full: Tier 2B, Tier 3, Steel >2"
	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full	Allowed in full: Tier 3, Iron >30m Disallowed in full: Tier 2B, Steel >2", OP&C
	Allowed in full	Allowed in full	Allowed in full	Allowed in full	N/A	Allowed in full: Tier 3, Steel >2" Disallowed in full: Tier 2B, Iron >30m

* Cadent and SGN have submitted revised workloads as part of their Draft Determinations response.

[105] Other Policy & Condition mains: The replacement of distribution mains and services not captured under the HSE policy workload. This includes non standard materials and mains selected to be replaced on a condition basis in accordance with policy.

Table 21: Final Determinations decision - Services not associated with mains replacement workload adjustments in RIIO-GD2

Network	Final Determinations decision	Draft Determinations position
EoE	Partially disallowed non-metallic services	Same as FD
Lon	Partially disallowed non-metallic services	Same as FD
NW	Partially disallowed non-metallic services	Same as FD
WM	Partially disallowed non-metallic services	Same as FD
NGN	Allowed in full	Same as FD
Sc	Allowed in full	Same as FD
So	Allowed in full	Same as FD
WWU	Partially disallowed to reflect historical and industry average growth rates	Same as FD

Final Determinations rationale and Draft Determinations responses

3.139 At Final Determinations we have decided to implement our Draft Determinations position to disallow all workloads associated with dynamic growth in Tier 1. The revised structure of our Tier 1 PCD mechanism allows limited over-delivery of Tier 1 mains and we think this provides sufficient scope to capture dynamic growth in Tier 1 as it occurs. Should dynamic growth within RIIO-GD2 exceed the upper limit of the cap in the PCD, then this will be included when setting RIIO-GD3 workloads and cost allowances, as all qualifying Tier 1 mains will need to be decommissioned by 2032 under the IMRRP.

3.140 We have decided not to allow an acceleration of the repex programme, reflecting uncertainty over future energy pathways. Some stakeholders supported an acceleration of works, arguing it would support economic recovery, following covid-19 and exiting the European Union. There remains significant uncertainty about the future use of the gas networks and therefore we do not think it is appropriate to commit consumers to an accelerated programme of repex during RIIO-GD2. We will capture any impacts on the programmes resulting from covid-19 as part of RIIO-GD2 close-out.

3.141 We have adopted the CBA cut-off of 2037 as set out in Draft Determinations proposals for asset management mains investments. GDNs, CEGs and two other stakeholders have raised concerns that applying a cut-off date of 2037 was not consistent with future energy forecasts, may lead to less optimal outcomes and that it would set an unworkable precedent for RIIO-GD3. NGN suggested the 2037 cut-off fails to recognise broader obligations to manage a safe and reliable network. We think applying a cut-off is important to protect customers against the risk of assets becoming stranded, given the future uncertainty around the use of

the gas network in light of the moving to Net Zero. Our current view is that 2037 strikes the right balance between managing this uncertainty and ensuring cost efficient investments continue to occur and is consistent with the cut off year applied in RIIO-GD1.

3.142 We have decided to disallow a small proportion of asset management repex workloads at Final Determinations. Table 20 summarises our decisions on workload adjustments for asset management mains replacement activities in RIIO-GD2 and the changes from our Draft Determinations positions. All of the GDNs submitted additional evidence in support of the workloads we disallowed at Draft Determinations. In response to our proposed decision to apply a CBA payback cut-off of 2037, Cadent revised its repex programme and resubmitted updated forecasts for all repex asset categories across all networks. SGN also resubmitted revised workloads for asset categories that we disallowed at Draft Determinations. The resubmitted workloads all met the 2037 payback cut-off criteria. WWU and NGN did not resubmit workload or cost forecasts, although did provide additional information in support of disallowed workloads. We have taken this evidence into account, through a detailed engineering and cost assessment review process, in our Final Determinations decision. Further detail is provided in the company annexes, including modelled workloads and justifications.

3.143 All GDNs have provided responses stating that they did not agree with the repex workload adjustments we proposed at Draft Determinations. Other respondents also raised concerns that complete disallowance of some repex categories was not justifiable and reasonable due to customer, safety and environmental impacts and therefore supported partial workload allowance with provision of further evidence. All GDNs, some CEGs and seven other stakeholders highlighted concerns around compliance with statutory duties, not being able to meet the net zero target and the impact of increased emissions from our proposed Draft Determinations workload disallowances. Our Final Determination decisions on workloads, and adjustments to opex costs (see Chapter 3) ensure that all GDNs are funded to meet their statutory and safety obligations. The CBAs submitted by the GDNs in support of repex workloads accounted for the costs of emissions, among other factors, meaning that environmental factors have been clearly incorporated in our decision making.

Capex in our regression model

Description

3.144 Capex relates to costs associated with new network investment, which on average, make up 19% of the GDNs' forecast totex. In RIIO-GD2, capex comprises six activities: LTS (Local Transmission System), storage and entry, reinforcement, connections, governors, transport and plant, and other capex.

3.145 As set out below, capex is expressed in the regression model's totex CSV by a combination of scale and synthetic cost drivers - the latter being a workload driver based on the sum of the products of synthetic unit cost and volume for each disaggregated activity. As discussed in section on Technical Assessment, we assessed several capex projects and activities using separate non-regression and technical assessment techniques where these costs were not appropriate for regression analysis.

Cost drivers

Final Determinations Decision

Table 22: Final Determinations decision on capex in the regression model

Final Determinations decision			**Draft Determinations position**
Cost activity	*Cost Driver*	*Totex CSV Weighting*	
LTS, storage and entry, Governors, Transport and plant, Other capex	MEAV cost driver	36.6%	Same as Final Determination. CSV weighting was 34.4%.
Connections	Synthetic cost driver based on full RIIO-1 and RIIO-2 period, smoothed using 7-year rolling average. Synthetic unit costs distinguish between mains above and below 180mm but not between domestic and non-domestic. FPNES connections included in driver.	5.5%	Same split as Final Determination, except for domestic and non-domestic. Synthetic unit costs were calculated based on historical data. CSV weighting was 5.7%.

Final Determinations decision			Draft Determinations position
Reinforcement	Synthetic cost driver based on full RIIO-1 and RIIO-2 period, smoothed using 7-year rolling average. Synthetic unit costs distinguish between mains above and below 180mm but do not distinguish between general and specific reinforcement.	1.5%	Same split as Final Determination. Synthetic unit costs were calculated based on historical data. CSV weighting was 1.5%.

Final Determinations rationale and Draft Determinations Responses

3.146 We have decided to use synthetic cost drivers for connections and reinforcement, as set out at Draft Determinations, which two GDNs supported.

3.147 One DNO expressed concern around using company workload volumes to set allowances, on the basis that workload is within companies' control. They also noted that this approach would fail to take account of potential historical and forecast volume inefficiencies. Having undertaken an engineering and economic review of workload volumes, we are satisfied that the workloads volumes included in the regression are efficient, based on the needs cases that have been presented and therefore using a synthetic cost driver is appropriate.

3.148 Two GDNs disagreed with our use of synthetic cost drivers updated for RIIO-2, expressing concerns around the adequacy of data normalisations and the level of aggregation applied. One suggested that unless regional variations are fully accounted for, the reuse of RIIO-1 synthetic unit costs would be more appropriate. We do not agree with the proposal to apply regional adjustments to the synthetic cost driver itself, rather than as part of the totex modelling process, as this would undermine the basis of benchmarking GDNs using a consistent and common cost driver, which is key to the robustness of our totex model. Our approach at Final Determinations to regional factors is set out in the section on Normalisation above.

Workload adjustments

Final Determinations Decision

Table 23: Final Determinations decision - Summary of capex workload adjustments for RIIO-GD2

Network	Final Determination Decision		Draft Determinations Position
	Connections	*Reinforcement*	
EoE	Allowed in full	Allowed in full	Same as Final Determinations
Lon			
NW			
WM			
NGN			
Sc	Allowed in full	Allowed in full	Same as Final Determinations
So	Allowed in full	Allowed in full	Disallowed three SGN projects due to insufficient needs case (Brackley, Marden and Wivelsfield Medium Pressure).
WWU	Allowed in full	Allowed in full	Same as Final Determinations

Final Determinations rationale and Draft Determinations Responses

3.149 We have decided to allow three reinforcement projects - Brackley, Marden and Wivelsfield - following an engineering review of supplementary evidence provided by SGN. We have therefore reinstated both the associated workloads and submitted costs in the regression. We have decided to allow other networks' connections and reinforcement workloads in full.

Non-regression Analysis

Multiple Occupancy Buildings (MOBs)

Description

3.150 MOBs is a term used to describe various types of buildings where there are multiple properties, usually residential, being fed from a single riser feed[106] (ie blocks of flats, high-rise buildings). The varying and unique nature of many MOBs means the costs of maintaining and replacing/refurbishing the risers varies significantly between location and GDN. We have, therefore, not included these

[106] Individual MOB buildings may have more than one riser, with multiple properties being supplied from laterals which run from the riser pipe.

costs within the regression and have separately assessed both the repex and opex components of MOBs costs in the sections that follow.

Final Determinations Decision

Table 24: Final Determinations decision for MOBs repex adjustments for RIIO-GD2

Network	Final Determinations decision	Draft Determinations position
EoE	Allowed in full	Allowed in full
Lon	Allowed in full	Allowed in full
NW	Allowed in full	Allowed in full
WM	Allowed in full	Allowed in full
NGN	Partially disallowed (see company annex)	Partially disallowed
Sc	Partially disallowed (see company annex)	Partially disallowed
So	Partially disallowed (see company annex)	Partially disallowed
WWU	Allowed in full (see company annex)	Partially disallowed

Table 25: Final Determinations decisions for MOBs opex (maintenance) adjustments for RIIO-GD2

Company	Final Determinations decision	Draft Determinations position
Cadent	Partially disallowed (see company annex)	Partially disallowed
NGN	Allowed in full	Allowed in full
SGN	Allowed in full	Allowed in full
WWU	Allowed in full	Allowed in full

Final Determinations rationale and Draft Determinations responses

3.151 We decided to implement the partial disallowances of MOBs repex costs that we proposed at Draft Determinations for SGN and NGN, but we have allowed in full WWU's proposed MOBs repex costs which were partially disallowed at Draft Determinations. We have decided to revise down Cadent's allowance for MOBs opex costs at Final Determinations. We received responses from individual GDNs on issues specific to them, which we have considered in our Final Determinations. We also received a response from SGN CEG specific to SGN. These issues are addressed together with our rationale for our Final Determinations decision in the relevant company annexes.

Diversions

Description

3.152 Diversions occur when GDNs are required to move and re-route mains and associated services. This is usually driven by third parties, with much, if not all of the costs, recoverable. However, in some instances the GDNs will be required to fund all or part of the costs of diversions projects. We have, therefore, provided GDNs baseline allowances to cover expected diversion works during RIIO-GD2, as detailed in the following sections.

Final Determinations Decision

Table 26: Final Determinations decision - Diversions adjustment for RIIO-GD2

Network	Final Determinations position	Draft Determinations position
EoE	Allowed in full	Allowed in full
Lon	Allowed in full	Allowed in full
NW	Allowed in full	Allowed in full
WM	Allowed in full	Allowed in full
NGN	Partially disallowed (see company annex)	Partially disallowed
Sc	Partially disallowed (see company annex)	Partially disallowed
So	Partially disallowed (see company annex)	Partially disallowed
WWU	Allowed in full	Allowed in full

Final Determinations rationale and Draft Determinations responses

3.153 We have decided to partially disallow diversions workloads for NGN and SGN, as we did not consider the proposed increases in costs and workloads to be justified. We received responses from individual GDNs on issues specific to them, which we have considered as part of our overall Final Determinations. These GDN-specific issues are addressed in the company annexes. The adjustments were based on an assessment of GDN specific responses and further evidence as well as a review of resubmitted costs, volumes and unit costs against historical RIIO-GD1 run rates. See GDN specific annexes for further detail.

Growth governors

Description

3.154 The growth governors category relates to the installation of new district and service governors associated with network reinforcement.

Final Determinations Decision

Table 27: Final Determinations decision - Growth governors assessment for RIIO-GD2

Assessment	Final Determinations decision	Draft Determinations position
Assessment technique	Unit cost benchmark	Same as FDs
Time-period used in assessment	All RIIO-GD1 and RIIO-GD2	RIIO-GD1, historical years only
Level of aggregation	Disaggregated by input pressure (we have separated Intermediate Pressure (IP) and Medium Pressure (MP) governors)	Total growth governors (IP and MP combined)
Data exclusions	No data exclusions	We proposed several exclusions for outliers

Final Determinations rationale and Draft Determination responses

3.155 We have decided, in line with our Draft Determinations proposals, to assess governor costs using non-regression analysis. We received three responses on this. Two GDNs agreed with the position proposed at Draft Determinations. One GDN disagreed with the separate assessment of growth governors because costs for alternative solutions are left in the regression, which they argued could lead to bias against companies that chose alternative solutions. We do not think growth governors are appropriate for inclusion in the regression model due to the limited and irregular nature of the data between networks, and we do not think this approach introduces a bias since all GDNs have historically invested in new governor installations to meet capacity demand.

3.156 As shown in Table 27, we have decided to change the benchmarking time-period to 2013/14 to 2025/26 for Final Determinations. We have extended the time-period to smooth short-term volatility in unit costs, and to ensure future costs and workloads are fully accounted for in our benchmarking. We have decided to distinguish between IP inlet and MP inlet governor assets in our benchmark to account for differences in unit costs. We have not technically assessed any individual governor projects, as we think our benchmarking model adequately accounts for these. SGN highlighted several specific growth governor projects in RIIO-GD2 that have higher than average unit costs that will not be sufficiently funded using historical unit costs alone. We think our change to include forecasts in the benchmark addresses SGN's concern because it results in more distinct unit costs between IP inlet and MP inlet governors compared to our proposed single unit cost at Draft Determinations. SGN also noted that its historical unit costs

varied by governor flowrate capacity, but we do not think this is evidenced by the data we have available.

Streetworks

Description

3.157 Streetworks relates to activities that enable and support works in the public domain, such as the costs of permits and inspections relating to working in the highway.

Final Determinations Decision

Table 28: Final Determinations decision - Streetworks assessment for RIIO-GD2

Assessment	Final Determinations decision	Draft Determinations position
Assessment technique	Average of network's own streetworks costs	Same as FDs
Time-period used in assessment	We used an extended the time-period from 2016-17 to 2019-20	2016-17 to 2018-19
Scope	We included costs for permits, lane rental, suspensions and switch-outs, inspections, administration, productivity, and lane rental avoidance costs. We disallowed all cost for fines and penalties.	Same as FDs, but we disallowed lane rental avoidance costs
Assumptions	Our assessment assumed no new permit schemes in RIIO-GD2, but we proposed to retain a common streetworks re-opener to accommodate material additional costs driven by new schemes introduced during RIIO-GD2.	Same as FDs

Final Determinations rationale and Draft Determinations responses

3.158 We have decided to use each networks' average historical and future costs in the assessment of streetworks, as we think this approach accounts for the highly diverse nature of streetworks costs between regions. One DNO was supportive of both the assessment approach and the justification we proposed at Draft Determinations. One GDN disagreed with the use of an average cost without the use of a workload driver, and one DNO was concerned that the use of networks' own historical costs to set allowances may not incentivise efficiency. We do not think there is an appropriate common workload driver, since streetworks costs can vary significantly, relative to workload, between networks based on regional, environmental and operational differences.

3.159 As shown in Table 28, we have decided to change the time-period used in the streetworks assessment to 2016/17 to 2025/26. We have extended the time-period to account for the introduction of new permit schemes and legislation in the final year of RIIO-1,[107] and to ensure future costs associated with existing schemes are fully captured in our assessment. This change in approach takes into consideration the responses from two GDNs and one DNO that the exclusion of the final year of RIIO-GD1 from the assessment at Draft Determinations could result in a gap in funding between base streetworks allowances and the scope of the common RIIO-2 re-opener.

3.160 We have decided to implement our Draft Determinations position to disallow costs for fines and penalties, which one DNO agreed with. Three GDNs and one DNO disagreed with our proposal to disallow the cost of fines and penalties, arguing that it is impractical or impossible to avoid all penalties, for example overstay charges relating to unplanned repair work. It was also argued that it is economically inefficient to avoid all penalties, and that the efficient level of penalties should be funded for RIIO-GD2. We think that there must be a strong incentive on companies to comply with pre-agreed permit conditions, which are set by highway authorities to ensure sites are managed safely and effectively. We expect GDNs and their contractors to actively manage streetworks compliance on all sites, including working proactively with local authorities when issues arise.

3.161 As shown in Table 28, we have decided to change the scope of the assessment to include lane rental avoidance costs, which we disallowed at Draft Determinations, because we are now satisfied that avoidance costs provide a net cost benefit. Our change in approach reflects the comments and evidence we received from one GDN and one DNO on lane rental avoidance costs. Both respondents argued that work can be delivered at a more efficient cost by changing working practices (eg by altering work patterns) to reduce the number of days of lane rental required, which can be up to £2,500 per day in the Transport for London lane rental areas. The GDN provided further information in their response that estimates the cost spent altering practices to avoid lane rental, and the amount saved as a result so far in RIIO-GD1. They explain that by including costs for lane rental avoidance practices in their RIIO-GD2 Business Plan, their lane rental forecasts are significantly lower than they would have otherwise been. We support GDNs' efforts to minimise lane rental costs by adopting more accommodative working practices.

[107] Additional streetworks costs in RIIO-2 resulting from the introduction of new permit schemes and legislation is addressed through the common streetworks re-opener discussed further in Section 5.

Smart metering

Description

3.162 The GDNs are not responsible for installing smart meters but may incur in costs for addressing issues and faults upstream of the meter either during or after a smart meter installation. Following the review of Business Plan information, at Draft Determinations we proposed an intervention rate of 2.5%.

Final Determinations Decision

Table 29: Final Determinations decision - Smart metering assessment for RIIO-GD2

Assessment	Final Determinations decision	Draft Determinations position
Intervention rate	2.5%	Same as FD

Final Determinations rationale and Draft Determinations responses

3.163 We have decided to implement the Draft Determinations position for smart metering and use a 2.5% intervention rate, which we consider to be in line with recent industry experience. Two GDNs noted errors in the assumed intervention rates, which we corrected for.

Land remediation

Description

3.164 Land remediation costs are part of opex and relate to statutory remediation of gasholder and non-gasholder sites, routine site monitoring and maintenance. As the GDNs' Business Plan submissions were in line with historical costs and/or supported by external evidence, at Draft Determinations we accepted GDNs' forecasts in full.

Final Determinations Decision

Table 30: Final Determinations decision - Land Remediation assessment for RIIO-GD2

Assessment	Final Determination decision	Draft Determinations position
Land remediation	Costs accepted in full	Same as FD

Final Determinations rationale and Draft Determination responses

3.165 We have decided to implement the Draft Determinations position and accept costs submitted by the GDNs in full. The position was welcomed by two GDNs.

SIU opex

3.166 SGN owns and operates five independent gas networks in remote parts of Scotland, which are referred to as SIUs. At Draft Determinations, we accepted SGN's forecasts for SIU opex.

3.167 SGN's Stranraer network was previously classed as an SIU but is now indirectly connected to the main SGN network via the Premier Transmission pipeline. For RIIO-GD2, its capacity booking costs for the pipeline will be treated as a pass-through and not included within SIU opex.

3.168 WWU owns and operates two SIUs. Its costs for these are very low and have been included within the main WWU opex costs rather than SIU opex.

Final Determinations Decision

Table 31: Final Determinations decision - SIU opex assessment for RIIO-GD2

Assessment	Final Determinations decision	Draft Determinations position
SIU opex	Costs accepted in full	Same as FD

Final Determinations rationale and Draft Determination responses

3.169 We have decided to implement our Draft Determinations position. SGN was supportive of the approach.

Technical Assessment

3.170 The discrete nature of some investments limits our ability to model costs and benchmark through direct comparison. This may be because an investment is uncommon across networks, lacks historical comparators or has other highly unique characteristics.

3.171 In these cases, we have applied a combination of qualitative and quantitative technical assessment techniques, including an initial expert review of each investment's needs case, workload volumes and headline costs. As set out below, at both Draft and Final Determinations, several large and discrete investments underwent an expert review of costs, including through bottom-up (deep dive) assessment. Details of our expert reviews are available in the QEM Engineering Review report.

3.172 The Final Determinations allowances for all technically assessed costs are not subject to a benchmarking efficiency adjustment but are subject to ongoing efficiency adjustments. Ongoing efficiency adjustments have not been included in this section for easier comparison to submitted costs but are included in the baseline allowances.

Bespoke outputs

Description

3.173 Detail on our decisions for all bespoke outputs is provided in the company annexes. Our decisions on the GDNs' forecast bespoke outputs are summarised in the table below.

Final Determinations Decision

Table 32: Final Determinations decision - Assessment of technically assessed bespoke outputs (£m, 2018/19 prices, % change Submitted vs FD Allowed)

Network	Submitted (£m)*	Final Determinations decision		Draft Determinations position
		Allowed (£m)	*Difference (%)*	
EoE	31.6	5.9	-81%	Company submitted £31.5m, we proposed £0.7m (-98%).
Lon	75.2	61.1	-19%	Company submitted £106.1m, we proposed £9.3m (-91%).
NW	27.2	4.1	-85%	Company submitted £27.0m, we proposed £0.5m (-98%).
WM	21.0	3.7	-83%	Company submitted £20.9m, we proposed £1.0m (-95%).
NGN	20.5	19.9	-3%	Company submitted £20.1m, we proposed £19.6m (-2%).**
Sc	34.3	9.4	-73%	Company submitted £55.1m, we proposed £6.3m (-89%).
So	55.3	13.2	-76%	Company submitted £95.0m, we proposed £10.2m (-89%).
WWU	3.6	1.2	-67%	Company submitted £0.3m, we proposed £0.0m (-100%).
Total	268.7	118.5	-56%	Sector submitted 356.1m, we proposed £47.6m (-87%)

* Submitted costs take account of Draft Determinations BPDT resubmission.
** Includes the TransPennine LTS project, which has been technically assessed and included in the common Capital Projects PCD, set out in Chapter 2.

Final Determinations rationale and Draft Determinations responses

3.174 We have decided to disallow 56% of total submitted costs for bespoke outputs following technical assessment.

3.175 We have decided to include the costs associated with three bespoke outputs (Cadent's EAP, SGN's responsible demolition and climate change adaptation opex) in the regression analysis because we consider the related activities to be business as usual.

3.176 For the rationale underlying our decisions on the other bespoke outputs, refer to Chapter 2 and relevant company annexes.

Repex projects

Description

3.177 We have identified three projects within the companies' repex programmes that we have assessed separately from other repex decisions, due to their unique characteristics and bespoke cost structures. We also separately considered submissions on Tier 1 stubs from two companies at Final Determinations. This section provides an overview of our decisions on these projects and cost categories and how our position has changed from Draft Determinations.

Final Determinations Decision

Table 33: Final Determinations decision - summary of technically assessed repex projects for RIIO-GD2

Project	Company	Network	FD decision	DD position
Intermediate Pressure Service reconfigurations	SGN	Sc	Bespoke PCD, costs and workloads allowed in full	Bespoke PCD, proposal to partially disallow some costs and workloads
[REDACTED]	SGN	So	Included within Capital Projects PCD	Bespoke PCD, proposal to allow costs in full
Lowestoft	Cadent	EoE	Included within Capital Projects PCD	Proposed re-opener rejected at Draft Determinations
Tier 1 stubs	NGN	NGN	Partially allowed baseline costs, adopted Tier 1 stubs re-opener	Proposed to disallow costs in full. Proposed Tier 1 stubs re-opener.
Tier 1 stubs	SGN	Sc	Partially allowed baseline costs, adopted Tier 1 stubs re-opener	Proposed to disallow costs in full. Proposed Tier 1 stubs re-opener.

Project	Company	Network	FD decision	DD position
Tier 1 stubs	SGN	So	Partially allowed baseline costs, adopted Tier 1 stubs re-opener	Proposed to disallow costs in full. Proposed Tier 1 stubs re-opener.
London Medium Pressure	Cadent	Lon	Bespoke PCD costs and workloads allowed in full	Proposed to disallow costs in full. Proposed bespoke re-opener.

Final Determinations rationale and Draft Determinations responses

3.178 At Final Determinations we have decided to allow the funding for SGN's Intermediate Pressure reconfigurations project in full. We have decided to allow costs in full for SGN's [REDACTED] project and Cadent's Lowestoft project at Final Determinations. At Draft Determinations we had proposed to fully fund King's Ferry but had rejected Lowestoft (which was previously submitted as a re-opener) due to the needs case not being met. We have decided to include both of these projects within the Capital Projects PCD. We have also decided to partially allow baseline funding for Tier 1 stubs for NGN and SGN at Final Determinations (see Chapter 3 of the company annexes), having proposed to disallow funding in full at Draft Determinations. We have also decided to adopt a re-opener for Tier 1 stubs (see Chapter 4). For further details on consultation responses and our decision rationale, please refer to the relevant company annex.

Capex projects

Description

3.179 As part of business plan submissions, companies submitted Engineering Justification Papers (EJPs) in support of their larger capex projects and schemes. We received 124 asset health and major project capex EJPs in December 2019 across all GDNs, and another one in response to Draft Determinations.

3.180 At Draft Determinations our engineering consultants, QEM/ARV, carried out an initial expert review of all EJPs, focussing on needs case, workload volumes and headline costs. At Final Determination, QEM/ARV repeated their engineering review for all projects for which we received new information from companies. We have considered their recommendations in determining which projects are allowed, which projects are assessed bottom-up, and our final view of efficient bottom-up costs.

3.181 Investments that failed our engineering needs case assessment have been disallowed and the associated costs removed from final allowances. Investments that passed our engineering needs case assessment have then been assessed further through either bottom-up technical assessment or regression modelling. This section outlines our approach and decisions on the needs case and bottom-up technical assessment of capex projects, and how this has changed from Draft Determinations. See Chapter 3 for the capex in our regression model.

Final Determinations Decision

Table 34: Final Determinations decision - Summary of technically assessed capex projects for RIIO-GD2

Assessment	Final Determinations decision	Draft Determinations position
Needs case assessment		
Scope	Investment needs case, workload volumes and headline costs	Same as Final Determinations
Result	Disallowed one project due to insufficient justification of need for investment	Change: disallowed six projects due to insufficient justification of need for investment
Bottom-up assessment		
Materiality threshold for technical assessment*	£5m at the network level** and focus on investments that are uncommon across the networks, lack historical comparators, or are highly unique	Change: threshold was £1m, but the focus was the same as Final Determinations, on uncommon investments
Scope	Assessment of direct project costs only. Indirect costs (overheads) are excluded from the assessment, and left in the totex regression	Change: both direct and indirect costs were included in the technical assessment scope
Result	Disallowed £9.17m of direct project costs	Change: disallowed £42.31m of direct and indirect project costs
Link to Outputs	Projects included in the Capital Projects PCD (see Chapter 2)	Same as Final Determinations

* Our decision to increase the materiality threshold for separating out projects for technical assessment is set out in Chapter 3 on technically assessed cost adjustments.
** Several project EJPs applied to multiple networks within the same company. In these instances, where our bottom-up materiality criterion was met by at least one network, our bottom-up assessment was applied to all networks included in that EJP.

Final Determinations rationale and Draft Determinations responses

3.182 We have decided to exclude indirect project costs from technical assessment at Final Determinations, and instead have kept the indirect costs associated with the capex projects in the totex regression, ensuring a more consistent treatment of opex costs across networks. We made this change in response to feedback from SGN that their overheads are independent of direct project costs and are not suitable for technical assessment. SGN suggested that the indirect costs should be

subject to the same level of efficiency challenge as through the regression analysis. We agree and have amended our approach accordingly.

3.183 Cadent raised concern around the timeliness and transparency of detail relating to our technical assessment at Draft Determinations, noting that it was unclear whether all relevant information had been reviewed. Our technical assessment has, at both Draft and Final Determinations, included a review of all submitted technical information, and subject to their nature and materiality, several individual investments have been further scrutinised through bottom-up (deep dive) assessment. As at Draft Determinations, we have sought to publish all non-confidential details of our technical assessment and will engage with GDNs directly where company confidentiality may pose a concern.

Gas holder demolitions

Description

3.184 This category relates to the costs associated with the demolition of redundant gas holder assets.

Final Determinations decision

Table 35: Final Determinations decisions - Gas holder demolition assessment for RIIO-GD2

Assessment	Final Determinations decision	Draft Determinations position
Gas holder demolition	Unit cost of £0.66m (2018-19 prices) per gas holder applied to forecast RIIO-GD2 workload.	Same as FD

Final Determinations rationale and Draft Determinations responses

3.185 We have decided to implement our Draft Determinations position to separate out gas holder demolition costs for technical assessment and have maintained our unit cost assessment approach. We received support for our Draft Determinations position from two GDNs.

3.186 This baseline funding for gas holder demolition is attached to a PCD which protects against non-delivery. Refer to Chapter 2 for our decision on the gas holder demolition PCD.

Disaggregation of allowances

Description

3.187 The totex model calculates a totex allowance from a range of drivers. It is necessary to disaggregate specific allowances for certain activities within the price control, primarily where there is a specific mechanism associated with an activity (ie PCD or volume driver). To determine these allowances, we have disaggregated totex allowances for each network. This section outlines our approach to disaggregating allowances in RIIO-GD2.

Final Determinations Decision

Table 36: Final Determinations decision - Summary of our disaggregated allowance categories (RIIO-GD2)

Allowances	Disaggregated categories
Controllable opex	Gas holder demolition
	Work management other
	SIU
	Work execution other
	Business support
	Training & apprentices
Non-controllable opex	Shrinkage
	Ofgem licence
	Network rates
	Established pension deficit recovery plan payment
	Bad debt
	NTS exit capacity
	Network innovation (ex IRM)
	Innovation rollout expenditure (IRM)
	Xoserve
	Other
Capex	Domestic connections
	Capital Projects
	Gas holder demolition
	PSUP
	Electric vehicles
	FPNES
	Other capex – load
	Other capex – NARM
	Other capex – Non-NARM

Allowances	Disaggregated categories
Repex	Tier 1 mains
	Tier 1 services
	Tier 2A
	Other repex – NARM
	Other repex – Non-NARM

Final Determinations rationale and Draft Determinations responses

3.188 We have decided to use a combination of bottom-up and top-down approaches to derive allowances for specific activities related to PCDs and volume drivers at Final Determinations.

3.189 For Final Determinations, where a cost activity was allocated an efficient unit cost explicitly in the design of a policy mechanism (ie gasholder demolition), we have used a combination of this unit cost and allowed workloads to determine the final allowance. Where an activity was included in the totex regression model and therefore has efficient costs set through the benchmark modelling process, we have used a top-down approach.

3.190 We have decided to disaggregate allowances using weights calculated from submitted costs adjusted for exclusions and reclassifications for Final Determinations. This is an update from our proposed approach at Draft Determinations, which was based on submitted costs. Furthermore, we have calculated these weightings using net costs, rather than gross costs, as we previously applied at Draft Determinations. We think this approach results in a more accurate disaggregation of allowances to workload activities, resulting in better alignment between costs and workloads.

3.191 NGN and WWU supported our proposed Draft Determinations approach. Cadent and SGN responded to Draft Determinations, suggesting that we should estimate allowances for regressed costs and non-regressed costs separately. They also argued our approach potentially means some activities could receive more or less allowance than they should if different efficiency challenges are applied by the regression and non-regression approaches. SGN suggested that we could calculate separate scaling factors for areas where costs are separately assessed or for each cost area individually. We do not think that the alternative approaches suggested by SGN and Cadent would have resulted in materially different allowance allocations, once the other adjustments we have made to cost assessment between Draft and Final Determinations are taken into account, while adding

significant complexity to the modelling. The approach we have adopted at Final Determinations applies the efficiency challenge equally across different areas of costs.

3.192 We have decided to only disaggregate allowances for activities that have a specific mechanism (ie PCD or volume driver) associated with them for Final Determinations. We have separated the remaining portion of the allowance into NARM and non-NARM components. We think this maintains consistency with our approach of setting each company a totex allowance and does not unduly constrain company management when seeking to allocate expenditure in the most efficient way to deliver RIIO-GD2 outputs.

Calculating Unit Costs

Description

3.193 We have defined unit costs based on efficient allowances to incorporate within PCD or volume driver mechanisms for certain activities within the price control. This section sets out how we determine unit costs for specific activities in RIIO-GD2.

Final Determinations Decision

Figure 6: RIIO-GD2 methodology for calculating unit costs for cost activities with top-down derived allowances

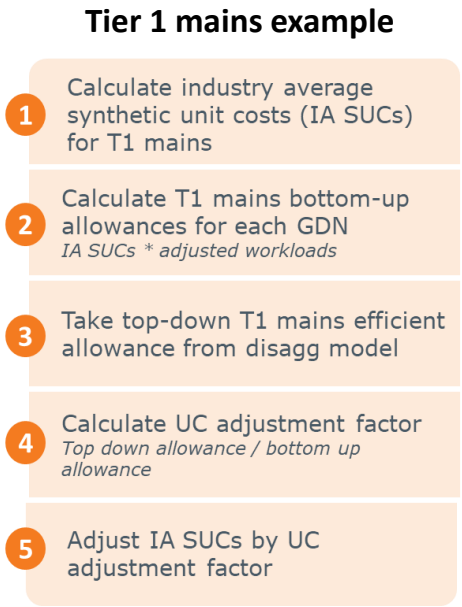


Table 37: Final Determinations decision - Summary of our unit cost methodology for RIIO-GD2

Allowances	Disaggregated categories	Unit cost methodology	Mechanism type
Controllable opex	Gas holder demolition	Bottom-up	PCD
Capex	Domestic connections	Top-down	Volume driver
	Capital Projects	Bottom-up (where applicable)	PCD
	Gas holder demolition	Bottom-up	PCD
	FPNES	Top-down	Volume driver
Repex	Tier 1 mains	Top-down	PCD
	Tier 1 services	Top-down	PCD
	Tier 2A	Top-down	Volume driver

Final Determinations rationale and Draft Determinations responses

3.194 We have decided to use a common approach to determining efficient unit costs from allowances derived from the top-down totex model. Our approach is based on scaling industry average unit costs, derived from submitted bottom-up costs and workloads, to top-down costs allowances for a specific activity. Figure 5 above presents a worked example of the methodology, using Tier 1 mains as an example.

3.195 At Draft Determinations we consulted on different potential approaches to setting unit costs through the Repex Working Group. In general, GDNs preferred approaches which involved scaling bottom-up costs or submitted unit costs to top-down efficient allowances, arguing that this avoided the potential for perverse incentives or being unduly penalised compared to the option we set out at Draft Determinations. We have adjusted our Final Determinations approach to respond to these issues and think our decision:

- ensures consistency between how allowances are set and adjusted
- results in logical sequential unit costs that give an accurate reflection of the average cost of undertaking an activity
- mitigates any potential issues with submitted outlier costs resulting in perverse incentives to either undertake additional workloads or not deliver some workloads.

3.196 We have decided to calculate industry average unit costs for each activity using the same methodology we applied to calculate synthetic unit costs in the repex and capex cost drivers (outlined in Chapter 3 and the SBSG Annex).

3.197 We will apply the same methodology to calculate unit costs for PCDs and volume drivers where the allowance is derived top-down. Where a mechanism has an efficient unit cost derived from the bottom-up (ie gasholder demolition), we determine this to be the efficient unit cost, including to set allowances. Unit costs for specific mechanisms and activities are outlined in the relevant sections in the company Annexes.

3.198 For the domestic connections volume driver, unit costs are net of customer contributions, and we have used company-submitted cost data to calculate this net position for each network. Unit costs for mains are aggregated for above and below 180mm diameter, and services are aggregated for new and existing housing. Governor and MOB costs, as well as design and quotation, are included in these unit costs. In scaling bottom-up connections unit costs to top-down efficient allowances, we have separated out the top-down component of non-domestic connections, since this is not included in the volume driver.

4. Adjusting baseline allowances for uncertainty

Introduction

4.1 This Chapter sets out our decisions for each Uncertainty Mechanism (UM) that will apply to the GDNs during the RIIO-GD2 price control period.

4.2 The UMs that will apply to companies in the GD sector are outlined in Table 38 below.

4.3 As set out in the Core Document, there are four types of UMs - volume drivers, re-openers, pass-throughs and indexation mechanisms. We have decided on a common set of design parameters for re-openers – see the Core Document for details.

Table 38: UMs included in our Final Determinations for RIIO-GD2

Uncertainty Mechanism	UM type	Companies applied to	Final Determination section
Cross-sector			
Bad Debt	Pass-through	All	Finance Annex
Business Rates	Pass-through	All	Not covered (no change from decision made at SSMD)
Ofgem Licence Fee	Pass-through	All	
Pensions (pension scheme established deficits)	Re-opener	All	
Coordinated Adjustment Mechanism	Re-opener	All	Core Document
Cyber resilience OT	UIOLI and re-opener	All	
Cyber resilience IT	Re-opener	All	
Non-operational IT and Telecoms Capex	Re-opener	All	
Physical Security (PSUP)	Re-opener	All	
Tax Review	Re-opener	All	Finance Annex
Net Zero	Re-opener	GT, GD, ET	Core Document
Net Zero Pre-construction and Small Projects	Re-opener	GD, GT	
Net Zero and re-opener development	UIOLI	GT, GD, ET	
Cost of debt indexation	Indexation	All	
Real Price Effects	Indexation	All	
Cost of equity indexation	Indexation	All	Finance Annex
Inflation Indexation of RAV and Allowed Return	Indexation	All	

Uncertainty Mechanism	UM type	Companies applied to	Final Determination section
GD specific			
Pension deficit charge adjustment	Pass-through	All GDNs	Chapter 4
Third-party damage and water ingress	Pass-through	All GDNs	
Miscellaneous pass-through	Pass-through	All GDNs	
Gas Transporters share of Xoserve costs	Pass-through	All GDNs	
Theft of gas (supplier responsible)	Pass-through	All GDNs	
Shrinkage	Pass-through	All GDNs	
NTS exit capacity	Pass-through	All GDNs	
Repex – Tier 2A iron mains	Volume driver	All GDNs	
Repex – HSE policy changes	Re-opener	All GDNs	
Repex - Tier 1 iron stubs	Re-opener	All GDNs	
Repex - Pipeline Diversions (non-Rechargeable) and Loss of Development Claims	Re-opener	All GDNs	
Multi occupancy buildings (MOBs) safety	Re-opener	All GDNs	
Heat policy	Re-opener	All GDNs	
Domestic connections	Volume driver	All GDNs	
New large load connection(s)	Re-opener	All GDNs	
Smart meter rollout costs	Re-opener	All GDNs	
Specified streetworks	Re-opener	All GDNs	
Fuel Poor Network Extension Scheme (FPNES)	Re-opener	All GDNs	Chapter 2
Bespoke Ums			
Stranraer LDZ	Pass-through	SGN only	Chapter 3, SGN Annex Chapter 4

RIIO-GD2 specific Uncertainty Mechanisms

GD specific pass-through costs

Purpose: Where GDNs have costs that are substantially outside of their control we use pass-through mechanisms so that any change in the GDNs' costs (increase or decrease) is reflected in allowances recovered from customers.

Benefits: Protects companies from cost increases, or decreases, that are outside of their control, reducing risk exposure that could otherwise result in higher financing costs to customers.

The costs for each pass-through item are set out in Chapter 3 of the company annexes (non-controllable opex).

Pension deficit charge adjustment

UM parameter	Final Determination	Draft Determinations
UM type	Pass-through	Not covered (no change from decision made at SSMD)[108]
Pass-through arrangements	Costs incurred by NGGT and subsequently charged to GDNs relating to the deferred and pensioner liabilities associated with NGGT's former gas distribution employees	
Applied to	NGN, SGN and WWU only	
Licence condition	Special Condition 6.1 Pass-through items (PTt)	N/A

Miscellaneous pass-through

UM parameter	Final Determination	Draft Determinations
UM type	Pass-through	Not covered (no change from decision made at SSMD)[109]
Pass-through arrangements	Minor uncontrollable costs incurred by GDNs that are not funded elsewhere in the price control	
Additional requirements	The Authority must authorise use on a case-by-case basis	
Applied to	All GDNs	
Licence condition	Special Condition 6.1 Pass-through items (PTt)	N/A

Gas Transporters share of Xoserve costs

UM parameter	Final Determination	Draft Determinations
UM type	Pass-through	Not covered (no change from decision made at SSMD)[110]
Pass-through arrangements	Costs for Central Data Service Provider services used by Gas Transporters, except for NGGT's costs relating to the Gemini System	
Applied to	All GDNs and NGGT	
Licence condition	Special Condition 6.1 Pass-through items (PTt)	N/A

Third-party damage and water ingress

UM parameter	Final Determination	Draft Determinations[111]
UM type	Pass-through	Same as FD
Pass-through arrangements	95% of costs incurred under GSOP1 (Supply restoration) and Section J of the Network Code as a result of third-party damage or water ingress	

[108] SSMD GD Annex paragraphs 6.30-6.34.
[109] SSMD GD Annex paragraphs 6.41-6.44.
[110] SSMD GD Annex paragraphs 6.49-6.57.
[111] Draft Determinations GD Annex paragraphs 4.8-4.9.

UM parameter	Final Determination	Draft Determinations[111]
Additional requirements	GDNs must seek to recover costs from third parties and insurance prior to using the mechanism. The sum of the costs must be above 1.5% of base revenue	
Applied to	All GDNs	
Licence condition	Special Condition 6.1 Pass-through items (PTt)	N/A

Final Determination rationale and Draft Determination responses - Third-party damage and water ingress

4.4 We have decided to implement our Draft Determinations position to implement a pass-through mechanism but to modify the level of obligation. Two GDNs requested that the licence provide flexibility around when they must seek to recover costs. One was concerned about disproportionate outcomes (eg causing contractors to become insolvent) and the other thought GDNs should be allowed to consider materiality when making cost recovery decisions.

4.5 In our informal licence drafting consultation, we proposed that GDNs must use "best endeavours" to recover costs from third parties and via insurance policies before using this pass-through mechanism. On reflection, we accept that a "reasonable endeavours" obligation is proportionate. Consumers are protected from over-paying by the materiality threshold of 1.5% of base revenue.

Shrinkage

UM parameter	Final Determination	Draft Determinations[112]
UM type	Pass-through	Same as FD
Pass-through arrangements	Costs related to purchase of replacement gas to cover volumes lost to shrinkage in the distribution network	
Applied to	All GDNs	
Licence condition	Special Condition 6.1 Pass-through items (PTt)	N/A

[112] Draft Determinations GD Annex paragraphs 4.5-4.18.

Final Determination rationale and Draft Determination responses - Shrinkage

4.6 We have decided to implement our Draft Determinations position to introduce a new pass-through for non-controllable opex associated with shrinkage. We did not receive any feedback on our position.

NTS exit capacity

UM parameter	Final Determination	Draft Determinations[113]
UM type	Pass-through	Same as FD
Pass-through arrangements	Costs related to booking NTS exit capacity for each year to meet 1-in-20 obligations	
Applied to	All GDNs	
Licence condition	Special Condition 6.1 Pass-through items (PTt)	N/A

Final Determination rationale and Draft Determination responses - NTS exit capacity

4.7 We have decided to implement our Draft Determinations position to introduce a new pass-through mechanism for non-controllable opex associated with NTS exit capacity. This is a necessary accompaniment to our decision to replace the RIIO-GD1 incentive (and associated cost adjustment mechanism) with an Enhanced Obligations framework for the exit capacity booking process (see Chapter 2).

4.8 We received two responses from GDNs supporting our proposals. Cadent also highlighted that the recent change to the exit capacity charging methodology (Uniform Network Code Modification 678) could significantly increase its costs. Since Draft Determinations, we have updated the exit capacity forecasts using the latest data from GDNs and have included revised costs in GDNs' baselines.

Theft of gas (supplier responsible)

UM parameter	Final Determination	Draft Determinations[114]
UM type	Pass-through	No pass-through mechanism
Pass-through arrangements	Costs related to unsuccessful gas theft investigations by gas suppliers and work to make pipes safe at the request of suppliers following tampering or illegal reconnection	
Applied to	All GDNs	
Licence condition	Special Condition 6.1 Pass-through items (PTt)	N/A

[113] Draft Determinations GD Annex paragraphs 4.5-4.18.
[114] Draft Determinations GD Annex paragraphs 4.10-4.15.

Final Determination rationale and Draft Determination responses - Theft of gas (supplier responsible)

4.9 Under RIIO-GD1 arrangements, which we have decided to extend in RIIO-GD2, suppliers are responsible for investigating theft downstream of an emergency control valve (ECV). GDNs can incur costs indirectly when a supplier:

- Investigating theft has failed to recover the cost of the gas. The GDN will not charge the supplier or, if it has already paid, will give a refund. The GDN will also reduce the supplier's charges to compensate it for reasonable investigation and recovery costs.[115]
- Requests that a GDN rectifies meter tampering or illegal connection to make pipework safe.[116]

4.10 In a change to our Draft Determinations position, we have decided to introduce a specific pass-through mechanism for any indirect costs where suppliers are responsible for investigating gas theft and incur costs that they can recover from GDNs, or request GDNs to undertake work. We think this is appropriate because the costs and work volumes are outside of GDNs' control and exposing GDNs to them would not improve their incentives to operate cost-effectively.

4.11 One GDN suggested that these costs should be included in an incentive for GDNs to investigate theft, but we disagree because these costs relate to situations where suppliers are responsible.

Related policy decision: Theft of gas (GDN responsible)

4.12 GDNs are responsible[117] for investigating suspected theft upstream of an ECV or when there is no supplier registered for a supply point. The costs that GDNs directly incur for their investigations are not covered by this pass-through mechanism. Our decision on these costs is set out in Chapter 2.

Repex - Tier 2A iron mains

Purpose: A volume driver to fund mains replacement for mandatory Tier 2A iron mains and associated services. Enables adjustment of Baseline Cost Allowances to reflect differences between Outturn Workloads and Baseline Workloads during RIIO-GD2.

[115] Transporter SLC 7, paragraphs 5 and 6.
[116] Transporter SLC 7, paragraph 13.
[117] Under SLC7, paragraph 11.

Benefits: To protect consumers and GDNs from any costs arising from inaccurately forecasted volumes. It will also ensure GDNs are appropriately funded for additional mandatory Tier 2A work that may emerge during RIIO-GD2.

Final Determinations decision

UM parameter	Final Determination	Draft Determinations[118]
UM type	Volume Driver	Same as FD
Volume Driver parameters	Applies to Tier 2A iron mains and associated services only. Ex ante unit costs based on mains decommissioned.	
Additional requirements	Volume driver will adjust Baseline Cost Allowances for variances between Outturn Workloads and Baseline Workloads for each Workload Activity. Allowances will be adjusted for each network based on ex ante unit costs. Network-specific unit costs are calculated for different diameter bands. Our unit cost methodology is explained in Chapter 3.	
Applied to	All GDNs	
Licence condition	Special Condition 3.16 Tier 2A mains and services replacement volume driver (RE_t)	N/A

Final Determination rationale and Draft Determination responses

4.13 We have decided to implement this volume driver with no changes to our Draft Determinations position on the overall mechanism design, although we have made amendments to our methodology for calculating ex ante unit costs. There were limited responses on our proposals, but those that commented were supportive. WWU agreed with our proposed approach as it is broadly consistent with RIIO-GD1. Another GDN commented that the proposed values are in line with its Business Plan submission.

4.14 We have decided to update the methodology used to set unit costs across PCDs and volume drivers from our position at Draft Determinations. Our methodology for setting distribution network-specific ex ante unit costs for mains decommissioned for each Workload Activity is set out in Chapter 3, along with our rationale for updating our approach from Draft Determinations. Unit cost values, in £m/km including services costs, are presented in the company annexes.

[118] Draft Determinations GD Annex paragraphs 4.19-4.27.

HSE - policy changes

Purpose: A common re-opener to account for changes in HSE-related policy areas that result in material changes to GDNs' costs during RIIO-GD2.

Benefits: Provides appropriate protection for consumers, and GDNs, by adjusting funding (upwards or downwards) to account for changes to safety requirements that result from changes in HSE policy or to GDNs' Approved Programmes during the course of RIIO-GD2.

Final Determinations decision

UM parameter	Final Determination	Draft Determinations[119]
UM type	Re-opener	Same as FD
Scope/ trigger	**Trigger 1** Changes to GDNs' Repex costs, as a result of changes to: (i) a GDN's Approved Programme (agreed by the HSE) (ii) HSE Policy or legislation underpinning the Repex programme, that materially impact GDNs' cost to deliver Repex related Licenced Activity, including the following: • Pipeline Safety Regulations (1996) Regulation 13A • The Gas Safety Management Regulations (1996) • Pressure System Safety Regulation (2000) • Health and Safety at Work Act (1974) **Trigger 2** Material changes to GDNs' emergency and repair costs relating to new legislation or changes to HSE policy regarding excessive working hours and shift worker fatigue.	Change: DDs did not include Trigger 2 related to fatigue management for shift workers
Re-opener window	GDNs will have three opportunities to trigger the HSE Policy re-opener: • 25 - 31 January 2022 • 25 - 31 January 2023 • 25 - 31 January 2024	Same as FD
Re-opener materiality threshold	Updated in line with default set out in Chapter 7 of Core (0.5% of annual average base revenue in either direction)[120]	
Authority triggered re-opener?	Yes	
Applied to	All GDNs	

[119] Draft Determinations GD Annex paragraphs 4.28-4.31.
[120] See Core Document Chapter 7 for our decision and rationale.

UM parameter	Final Determination	Draft Determinations[119]
Licence condition	Special Condition 3.17 HSE Repex policy Re-opener (REP_t)	N/A

Final Determination rationale and Draft Determination responses

4.15 We have decided to extend the re-opener scope to include new HSE legislation or future changes to HSE policy regarding excessive working hours and shift worker fatigue that materially impact the cost of delivering emergency and repair services.

4.16 We have made these changes in response to comments from SGN to Draft Determinations. SGN noted recent changes around the issue of worker fatigue and potential for tighter regulations in the future. We agree that there is a possibility that such changes could happen and if they do, this would affect all GDNs. We consider it appropriate to include this additional scope as the potential materiality of any such changes is highly uncertain.

4.17 We have also decided to amend the re-opener scope to include future changes to HSE Policy or legislation surrounding Repex related Licenced Activity which includes but is not limited to the IMRRP. While there was no feedback on this, we think the change is appropriate to ensure that GDNs are able to fund essential emergency and repair work should there be changes to HSE safety policy.

4.18 We have decided to allow the re-opener to be Authority triggered. Due to the materiality of the repex programme, we think it is important that customers benefit from any changes that could result in costs reducing materially.

Repex - Tier 1 iron stubs re-opener

4.19 Tier 1 iron stubs are short lengths[121] of Tier 1 iron mains attached to larger diameter parent mains.[122] Under the IMRRP, stubs need to be decommissioned by 2032. However, there is ongoing discussion between the HSE and the GDNs which may result in reclassification of some of these assets during RIIO-GD2.

[121] Usually up to 3m in length, although definitions of a stub vary between GDNs.
[122] Prior to RIIO-GD1, the Iron Mains Replacement Programme required GDNs to decommission all iron mains, regardless of diameter. Stubs were created when GDNs decommissioned (replaced) the Tier 1 main, but left a short section connected to the larger diameter parent main, with the intention of decommissioning it when replacing the parent main. Under the updated decommissioning programme, the current IMRRP, replacement of larger diameter mains should be supported by CBA, meaning many stubs will need to be addressed individually if replacement of the parent main is not economically justified.

Consequently, there is current uncertainty about workloads for Tier 1 stubs in RIIO-GD2.

Purpose: A re-opener to provide GDNs with the opportunity to recover costs for decommissioning Tier 1 stubs.

Benefits: We will only commit customer funding for work that is required to be completed in RIIO-GD2. This protects consumers from uncertain costs.

Final Determinations decision

UM parameter	Final Determination	Draft Determinations[123]
UM type	Re-opener	Same as FD
Scope	Costs relating to the decommissioning of Tier 1 iron stubs during RIIO-GD2. Costs must be efficiently incurred and not already funded through the Tier 1 PCD or baseline allowance. We have allowed costs in the first two years of RIIO-GD2 where GDNs included them in their BPs.	Same as FD but we did not provide any baseline funding at DDs
Re-opener window	GDNs will have one opportunity to trigger the re-opener: • 25 - 31 January 2023	Change: proposed one window in 2022
Re-opener materiality threshold	None	Same as FD
Authority triggered re-opener?	No	Change: proposed Authority triggered
Applied to	All GDNs	Same as FD
Licence condition	Special Condition 3.18 Tier 1 Stubs Repex policy Re-opener ($STUB_t$)	N/A

Final Determination rationale and Draft Determination responses

4.20 We have decided to implement this re-opener mechanism at Final Determinations with changes to several aspects of the design from the Draft Determinations proposals. The re-opener ensures GDNs can remain compliant with PSR13A, based on their individual Approved Programmes. We the re-opener is appropriate, given the uncertainty around the costs of decommissioning Tier 1 stubs and the different approaches GDNs are taking to manage them.

[123] Draft Determinations GD Annex paragraphs 4.32-4.36.

4.21 SGN and WWU supported a common re-opener. SGN was concerned that stubs remain mandatory work under the IMRRP[124] over RIIO-GD2 (and it therefore thought there would be costs). NGN shared this concern and thought our proposals would result in loss of protection under safety regulations if there was an incident.

4.22 Further to these Draft Determinations responses, we have decided to allow costs in the first two years of RIIO-GD2 for the two GDNs (NGN and SGN) that submitted Tier 1 stubs costs in their baseline (see company annexes). Cadent and WWU did not request funding for Tier 1 stubs in their Business Plans. The re-opener ensures GDNs can remain compliant with PSR13A, based on their individual Approved Programmes. We will require GDNs to report stubs costs and workloads in their RRPs and use this data to track progress.

4.23 Our re-opener is applicable to all GDNs and will enable funding of additional costs relating to decommissioning Tier 1 stubs in RIIO-GD2. This includes retrospective and/or forecast costs, that are efficiently incurred, and not already funded through the baseline. We will require GDNs to report stubs costs and workloads in their RRPs and use this data to track progress.

4.24 At Final Determinations we have decided to include an application window in year two. We think a re-opener slightly later in the price control, compared to our Draft Determinations position, should ensure any changes that may come from the HSE review can be accounted for.

4.25 In line with our Draft Determinations, at Final Determinations we have decided not to set a materiality threshold for re-opener applications as the work is mandatory under the IMRRP. We have also decided not to make this re-opener Authority triggered, in line with the change in in line with our decisions on the default re-opener parameters as set out in Chapter 7 of the Core Document.

Repex – Pipeline Diversions and Loss of Land Development Claims

Purpose: A re-opener to recover additional costs associated with pipeline diversion costs not recoverable from third parties, the cost of settling loss of land development claims and/or costs relating to diverting or securing pipelines as the result of extreme weather events.

[124] Unless an agreed approach is in place with the HSE.

Benefits: To protect consumers and GDNs from uncertain volumes and scope of work in this area.

Final Determinations decision

UM parameter	Final Determinations	Draft Determinations[125]
UM type	Re-opener	Same as FD
Scope/ trigger	Costs incurred and/or forecast for: • non-rechargeable costs related to pipeline diversions at any pressure tier • the costs of rectifying damage to pipelines from soil erosion as a result of extreme weather events • settling claims[126] brought by landowners whose ability to develop their property is curtailed by the presence of gas pipelines	Change: scope only covered <7 bar mains and services diversions work relating to non-rechargeable diversion works
Re-opener window	GDNs will have a single opportunity to trigger: • 25 - 31 January 2024 Or costs may be considered as part of RIIO-GD2 close out.	Change: we proposed 25 - 31 January 2022
Materiality threshold	Updated in line with default set out in Chapter 7 of Core (0.5% of annual average base revenue)[127]	Change: no longer symmetrical
Authority triggered re-opener?	No	Change: proposed Authority triggered
Applied to	All GDNs	Same as FD
Licence condition	Special Condition 3.20 Diversions and Loss of Development Claims policy Re-opener (DIV_t)	NA

Final Determination rationale and Draft Determination response summary

4.26 We have decided at Final Determinations to broaden the scope.

4.27 **For pipeline diversions driven by third parties:** we have decided to include costs related to the diversion of above 7 bar mains and any non-rechargeable elements of diversions activities. In their responses, GDNs thought it was unreasonable that they should face a higher risk exposure simply because a diversion was on a higher pressure pipeline. Several GDNs also highlighted that in instances where the costs of the diversion are rechargeable to third parties there are often non-rechargeable elements. We agree that all non-rechargeable costs

[125] Draft Determinations GD Annex paragraphs 4.37-4.41.
[126] Claims brought under the terms of the Deed of Easement or Deed of Servitude including loss of land development in relation to housing and quarrying, sterilised minerals, landfill and power generation.
[127] See Core Document Chapter 7 for our decision and rationale.

related to pipeline diversions should be included as there is no justification for a variation in risk exposure.

4.28 As part of any application for non-rechargeable diversion costs, GDNs will need to demonstrate that the costs are efficient and that they cannot be fully recovered from the requesting third-party.

4.29 **The costs of rectifying damage to pipelines from soil erosion as a result of extreme weather events**: We have decided to include this within the re-opener. SGN provided evidence to suggest that there is significant uncertainty with respect to these costs. We agree with this because such events are, by their nature uncertain, both in terms of timing and potential cost. GDNs also have a statutory obligation to ensure the safety of their networks.

4.30 As part of any application for the costs of rectifying damage to pipelines from soil erosion, GDNs will need to demonstrate that the costs are efficient, cannot be recovered from a third party or insurance claim and were incurred as a consequence of an extreme weather event.

4.31 **Costs of settling claims brought by landowners whose ability to develop their property is curtailed by the presence of gas pipelines:** We have decided to include this within the re-opener. SGN noted it as a concern, and WWU provided strong evidence of known claims that could incur significant costs during RIIO-GD2. We accept that there is a potential material cost and volume uncertainty that makes it appropriate for a re-opener. In response to a loss of land development claim, GDNs may have the option to divert existing pipelines to avoid paying out on the claim. Therefore, both options (diversion and settling the claim) may be funded through the re-opener. This is to ensure GDNs have appropriate incentives to choose the most cost effective option.

4.32 As part of any application for loss of land claims, GDNs will need to demonstrate that they carried out reasonable challenges on the basis for, and quantum of, any claim to ensure that the costs claimed are efficient.

4.33 For this overall re-opener design, we have decided:

- As in Draft Determinations to adopt the default materiality threshold (see Chapter 7 of the Core Document).

- In a change from Draft Determinations, not to include an explicit Authority trigger. We think this is appropriate, because the purpose of the re-opener is to enable an increase in allowances in response to increased unrecoverable pipeline diversion costs or loss of land development claim settlements. As such, we do not need to be able to trigger it.
- In a change from Draft Determinations, provide a single application window for GDNs, but to move it to the latter half of RIIO-GD2 as some funding for these activities has already been included in baseline allowances.

MOB - safety related activities

Purpose: A common re-opener to respond to any new safety standards for MOBs that the Ministry of Housing, Communities & Local Government (MHCLG), HSE or other relevant regulators or devolved governments may require in response to the Hackitt Review. Due to current uncertainty on volume and scope, the re-opener can also provide additional funding for safety related maintenance, repairs and riser surveys in medium rise MOBs.

Benefits: Will ensure the timely implementation of additional safety measures that improve safety for all those living in MOBs.

Final Determinations decision

UM parameter	Final Determinations	Draft Determinations[128]
UM type	Re-opener	Same as FD
Scope/ trigger	New or modified regulations or other instruments that relate to safety in MOBs and result in an altered workload for GDNs with respect to MOBs. Any program of safety related maintenance and surveys in medium rise MOBs between 3 and 5 floors that has been developed in agreement with the HSE.	Change: DD scope didn't include safety related maintenance and repairs in medium rise MOBs between three and five floors
Re-opener window	GDNs will have two opportunities to trigger: • 25 - 31 January 2023 • 25 - 31 January 2024	Change: In DDs we proposed 25 - 31 January 2022 and 25 - 31 January 2023.
Materiality threshold	Updated in line with default set out in Chapter 7 of Core (0.5% of annual average base revenue)[129]	Change: no longer symmetrical

[128] Draft Determinations GD Annex paragraphs 4.42-4.48.
[129] See Core Document Chapter 7 for our decision and rationale.

UM parameter	Final Determinations	Draft Determinations[128]
Authority triggered re-opener?	No	Change: proposed Authority triggered
Applied to	All GDNs	Same as FD
Licence condition	Special Condition 3.21 Multiple Occupancy Buildings safety Re-opener ($MOBS_t$)	N/A

Final Determination rationale and Draft Determination responses

4.34 We have decided to broaden the scope of the re-opener to include any program of safety related maintenance, repairs and surveys in medium rise MOBs between three and five floors that has been developed in agreement with the HSE. We think that this is appropriate as it will facilitate the funding of programs of work where there was insufficient certainty over workload or unit costs to provide all the baseline funding requested at Final Determinations. (see Cadent Annex Chapter 3 and SGN Annex Chapter 3).

4.35 In terms of the scope consulted on at Draft Determinations, all GDNs, a consumer representative group and three CEGs supported our proposals. A GDN suggested that the definition of a MOB should be extended to include other 'complex distribution systems'. This would bring in schools, hospitals, care homes etc. We have decided to retain our Draft Determinations position that the definition should be consistent with that developed through the Interruptions Working Group and due to be consulted on for inclusion in the RIGs.[130] There is currently no agreed definition of a 'complex distribution system'.

4.36 For this re-opener we have decided:

- As in Draft Determinations to adopt the default materiality threshold (see Chapter 7 of the Core Document).
- In a change from Draft Determinations, not to include an explicit Authority trigger. We think this is appropriate, because the purpose of the re-opener is to enable an increase in allowances in response to additional safety related activities in MOBs. As such, we do not need to be able to trigger it.

[130] The full definition is: "Buildings containing a minimum of three individual premises, each with a separate supply point and supplied via an internal or external riser, and where at least one of those premises is more than two floors above ground level. The premises may be domestic, non-domestic, or a combination of the two. Buildings where all premises on the third floor or above are supplied through individual pipes, with the meter and ECV located at a lower level, are not included. MOBs are categorised as medium-rise (3 – 5 floors), high-rise (6 – 9 floors) or high risk (10+ floors).

- In a change from Draft Determinations, the second application window will be in the latter half of RIIO-GD2 rather than the first half, with the other at the mid-point. This is because the broader scope now includes activities for which some funding has already been included in baseline allowances.

Heat policy (including Energy Efficiency)

Purpose: A common symmetrical re-opener, to either increase or decrease allowances as appropriate, in response to changes to specific regulations and connection charging methodologies that support the transition to low carbon heat.

Benefits: To ensure that RIIO-GD2 allowances and outputs reflect changes to specific regulations and connection charging methodologies to support the timely decarbonisation of heat.

Final Determinations decision

UM parameter	Final Determination	Draft Determinations[131]
UM Type	Re-opener	Same as FD
Scope/ trigger	There are four potential triggers linked to changes in: • quality and composition of gas, per the Gas Safety (Management) Regulations 1996 or Gas (Calculation of Thermal Energy) Regulations 1996 • connection charging arrangements for distributed entry connections • connection charging arrangements for domestic premises • obligations on GDNs to promote the energy efficiency of gas customers implemented by order of the Secretary of State under section 33BC of the Gas Act 1986	Change: at DDs we proposed a fifth trigger linked to changes in the future role of gas networks in the heat sector as determined by governments' policies
Re-opener window	GDNs will have two opportunities to trigger the mechanism: • 25 - 31 January 2022 • 25 - 31 January 2023	Same as FD
Materiality threshold	Updated in line with default set out in Chapter 7 of Core (0.5% of annual average base revenue in either direction)[132]	
Authority triggered re-opener?	Yes	
Applied to	All GDNs	

[131] Draft Determinations GD Annex paragraphs 4.49-4.61.
[132] See Core Document Chapter 7 for our decision and rationale.

UM parameter	Final Determination	Draft Determinations[131]
Licence condition	Special Condition 3.19 Heat policy and energy efficiency Re-opener ($HPRA_t$)	N/A

Final Determination rationale and Draft Determination responses

4.37 We have decided to implement this common symmetrical re-opener mechanism, but with the removal of the governments' policies on the future role of gas networks trigger we proposed in our Draft Determinations.

4.38 All GDNs broadly supported the re-opener, but expressed concerns about its interaction with the cross-sector Net Zero re-opener, including that neither was sufficient to fund investment in certain types of project (eg compression and smart systems to support the connection of biomethane gas supplies). Other respondents also supported our position, favouring a common re-opener over bespoke mechanisms.

4.39 To help separate the scope of the heat policy and Net Zero re-opener mechanisms, we have focused the heat policy re-opener triggers on changes to specified regulations and connection charging methodologies. We think the trigger for governments' policies on the future role of gas networks that we proposed in our Draft Determinations is better suited to the Net Zero re-opener. This is because the Net Zero re-opener is explicitly about supporting large scale strategic changes in governments' policies and it aligns with our approach to RIIO-T2. Our decisions on the Net Zero re-opener are set out in Chapter 8 of the Core Document alongside our response to wider feedback from stakeholders on the suite of Net Zero mechanisms, including on agility and other perceived gaps in the framework.

4.40 For this re-opener we have decided:

- As in Draft Determinations to adopt the default materiality threshold (as updated, see Chapter 7 of the Core Document).
- As in Draft Determinations there should be an explicit Authority trigger. The re-opener is symmetrical as it is possible that one or more of the triggers could reduce the obligations on GDNs and thus their efficient level of costs.
- As in Draft Determinations, there should be two application windows for GDNs in the first half of RIIO-GD2. We have we have retained our Draft

Determinations position as no substantive evidence was provided to convince us that a change was needed.

Domestic connections

Purpose: A volume driver to fund domestic service connections. It enables adjustment of cost allowances to reflect differences between outturn workloads and baseline forecasts during RIIO-GD2.

Benefits: To protect customers and GDNs from inaccurate volume assumptions made when setting the RIIO-GD2 price control.

Final Determination

UM parameter	Final Determination	Draft Determinations[133]
UM type	Volume Driver	Same as FD
Volume Driver parameters	For connecting new and existing domestic housing to the <7bar network. Allows for upwards and downwards adjustments. Unit costs relate to the non-recoverable portion of connections costs.[134]	
Additional requirements	Costs and volumes to be reported on annually through the RRP process	
Applied to	All GDNs	
Licence condition	Special Condition 3.15 Domestic Connections volume driver (CA_t)	N/A

Final Determination rationale and Draft Determination responses

4.41 We have decided to implement our Draft Determinations position to provide a volume driver to fund service connections to both new and existing domestic properties, which will operate alongside an opening baseline totex connections allowance. Stakeholders that responded broadly supported a volume driver. NGN opposed our Draft Determinations proposal as it considered that connections uncertainty can be addressed through the Heat Policy re-opener. We disagree. A volume driver enables GDNs to manage volume uncertainty effectively without the need for further review under a re-opener.

[133] Draft Determinations GD Annex paragraphs 4.62-4.65.
[134] With respect to new domestic connections, this is the cost borne by the network net of customer contributions. This is equivalent to the Domestic Load Connections Allowance (DLCA).

4.42 In our Draft Determinations we proposed using industry average unit costs, with adjustments for regional factors. Of the three GDNs that commented, all thought unit costs should be based on their own submitted costs and workloads to account for different methodologies for calculating net connections costs. We agree that due to varying GDN methodologies for calculating the net cost of domestic connections, unit costs should be calculated using networks' own costs and volumes. We set out our approach to calculating unit costs in Chapter 3, and company-specific unit costs in company annexes.

4.43 A DNO was uncertain whether the customer contribution was covered in the volume driver. The portion of a domestic connection cost that is rechargeable to the end customer is not covered by this volume driver.

4.44 The RIIO-2 CG suggested that the volume driver should also consider customer disconnections. We understand the point, but during RIIO-GD2 we do not think disconnections will be a material issue. Where there are GDN costs associated with disconnections this should be managed as part of baseline spending.

New large load Connection(s)

Purpose: An ongoing re-opener from RIIO-GD1, providing GDNs with the opportunity to recover efficient costs directly incurred as a result of specific network reinforcement required by new large load connection(s).

Benefits: Timely connection of new large loads (eg peaking plant power generation) that may be required as renewable sources of electricity become increasingly important.

Final Determination

UM parameter	Final Determination	Draft Determinations[135]
UM type	Re-opener	Same as FD
Scope/ trigger	For new large load connection(s) to trigger this mechanism they must: • not already be included in baseline allowances • not be recovered through the connection charge • have passed the Economic Test[136] • require specific reinforcement upstream of the Connection Charging Point not chargeable to the new load[137] • could not have been avoided by network management • must each exceed a peak offtake capacity of 1,500scm/h	Change. At DD proposals did not include: • must exceed a peak offtake capacity of 1,500scm/h
Re-opener window	GDNs will have a single opportunity to trigger: • 25 - 31 January 2024	Change. At DDs we proposed 25- 31 January 2022
Materiality threshold	Updated in line with default set out in Chapter 7 of Core (0.5% of annual average base revenue)[138]	Change: no longer symmetrical
Authority triggered re-opener?	No	Change: proposed Authority triggered
Applied to	All GDNs	Same as FD
Licence condition	Special Condition 3.22 New Large Load Connections Re-opener ($NLLR_t$)	N/A

Final Determination rationale and Draft Determination responses

4.45 We have decided at Final Determinations to implement a re-opener mechanism to address the cost uncertainty associated with new large load connection(s).We have added further detail to the definition of a large load connection in response to stakeholder feedback.

4.46 All of the GDNs supported our Draft Determinations proposal to retain this RIIO-GD1 mechanism. Two GDNs suggested that the trigger should include a minimum size or value requirement to ensure that the re-opener is limited to genuinely large loads. We agree. We have responded by, adding to the scope of the

[135] Draft Determinations GD Annex paragraphs 4.66-4.72.
[136] The Economic Test is a financial assessment tool to identify new connections where the level of investment would be considered 'uneconomic' and so avoids existing customers subsidising the new firm connection.
[137] Specific reinforcement costs downstream of the Connection Charging Point are always fully chargeable, whereas those upstream are subject to the Economic Test and may not be chargeable to the new load.
[138] See Core Document Chapter 7 for our decision and rationale.

mechanism, that the new large load connection(s) must each exceed an offtake capacity (peak demand) of 1,500 scm per hour, which captures power generation sites from 5MW and above. We think that offtake capacity rather than the cost of specific reinforcement is a more appropriate metric when defining a large load connection.

4.47 For this re-opener we have decided:

- As in Draft Determinations, to adopt the default materiality threshold (as updated, see Chapter 7 of the Core Document).
- In a change from Draft Determinations, not to include an explicit Authority trigger. We think this is appropriate, because the purpose of the re-opener is to enable an increase in allowances in response to GDNs' customers connecting. As such, we do not need to be able to trigger it.
- As in Draft Determinations provide a single application window for GDNs, but to move it to the latter half of RIIO-GD2 as some funding for this activity has already been included in baseline allowances.

Smart meter rollout

Purpose An ongoing re-opener from RIIO-GD1, providing GDNs with the opportunity to recover efficient costs directly incurred as a result of the smart meter rollout programme.

Benefits: To protect customers and GDNs by avoiding the inclusion of uncertain spend in baseline allowances and providing an opportunity for GDNs to request funding for additional efficient costs if they arise.

Final Determinations decision

UM parameter	Final Determination	Draft Determinations[139]
UM type	Re-opener	Same as FD
Scope/Trigger	A GDN submission during the re-opener window of incurred and/or forecast costs relating directly to the installation of new smart meters	
Re-opener window	GDNs will have a single opportunity to trigger: • 25 - 31 January 2024	One opportunity: 25 - 31 January 2022

[139] Draft Determinations GD Annex paragraphs 4.73-4.77.

UM parameter	Final Determination	Draft Determinations[139]
Re-opener materiality threshold	Updated in line with default set out in Chapter 7 of Core (0.5% of annual average base revenue)[140]	Change: no longer symmetrical
Authority triggered re-opener?	No	Change: proposed Authority triggered
Applied to	All GDNs	Same as FD
Licence condition	Special Condition 3.23 Smart Metering Roll-out Costs Re-opener (SMR_t)	N/A

Final Determination rationale and Draft Determination response summary

4.48 We have decided to implement our Draft Determinations position to provide a common smart meter rollout re-opener mechanism in RIIO-GD2, with changes to the materiality threshold, re-opener window and Authority trigger. In addition to this re-opener, we have provided some baseline totex funding for smart meter rollout costs in RIIO-GD2.

4.49 There were mixed stakeholder responses to our Draft Determinations proposals. While one GDN disagreed with the need for a re-opener, and a DNO suggested using a volume driver instead, other respondents agreed with the continuation of the common re-opener. We think a re-opener is appropriate because the timing of the smart meter rollout process is uncertain and outside GDNs' control.

4.50 Cadent proposed that the scope should include RIIO-GD1 costs that were not reclaimed in the RIIO-GD1 smart meter rollout re-opener. We do not think the re-opener should include RIIO-GD1 costs because GDNs will have the opportunity to claim funding for this, if needed and appropriate, through the RIIO-GD1 close out process.

4.51 For this re-opener we have decided:

- As in Draft Determinations, to adopt the default materiality threshold (see Chapter 7 of the Core Document).
- In a change from Draft Determinations, not to include an explicit Authority trigger. We think this is appropriate, because the purpose of the re-opener is to enable an increase in allowances in response to GDN smart meter rollout obligations. As such, we do not need to be able to trigger it.

[140] See Core Document Chapter 7 for our decision and rationale.

- In a change from Draft Determinations, provide a single application window for GDNs, but to move it to the latter half of RIIO-GD2 due to the uncertain timing of its roll-out and as some funding for this activity has already been included in baseline allowances.

Specified streetworks

Purpose: An ongoing re-opener from RIIO-GD1 to recover the efficient costs of complying with new permit and lane rental schemes or new requirements introduced by public bodies after the RIIO-GD2 price control is set.

Benefits: The mechanism protects customers and GDNs by avoiding the inclusion of uncertain streetworks spend in baseline allowances and providing an opportunity for GDNs to request funding for potential additional efficient costs within period, if they arise.

Final Determinations decision

UM parameter	Final Determination	Draft Determinations[141]
UM type	Re-opener	Same as FD
Scope/Trigger	A GDN submission during the re-opener window of incurred and/or forecast costs relating to: • new permit and/or lane rental schemes introduced by highway authorities after the RIIO-GD2 price control is set • new requirements introduced relating to streetworks placed on GDNs by public bodies	Change - DD scope did not include new requirements introduced by public bodies other than highway authorities
Re-opener window	GDNs will have a single opportunity to trigger: 25 - 31 January 2024	One opportunity: 25 - 31 January 2022
Re-opener materiality threshold	Updated in line with default set out in Chapter 7 of Core (0.5% of annual average base revenue)[142]	Change: no longer symmetrical
Authority triggered re-opener?	No	Change: proposed Authority triggered
Applied to	All GDNs	Same as FD
Licence condition	Special Condition 3.24 Specified Streetworks Costs Re-opener (STW_t)	N/A

[141] Draft Determinations GD Annex paragraph 4.78-4.83.
[142] See Core Document Chapter 7 for our decision and rationale.

Final Determination rationale and Draft Determination response summary

4.52 We have decided to implement this common re-opener for specified streetworks in RIIO-GD2 with an extended scope to include new requirements relating to streetworks that are placed on GDNs by public bodies (eg the Environment Agency (EA)) and not just highway authorities as we proposed at Draft Determinations.

4.53 This extended scope has considered and addressed the argument and additional evidence submitted in response to Draft Determinations from three GDNs and a DNO that they could also incur increased costs for disposing of excavated material from streetworks if the EA withdraws Regulatory Position Statement 211.

4.54 Three respondents suggested that the re-opener should include costs for permit or lane rental schemes that are implemented in the last year of RIIO-GD1, as they are not included in the baseline streetworks assessment. We accept these concerns and have addressed them by extending the time-period used in the baseline streetworks assessment rather than changing the scope of the re-opener (see Chapter 3 for baseline streetworks costs).

4.55 For this re-opener we have decided:

- As in Draft Determinations, to adopt the default materiality threshold (see Chapter 7 of the Core Document).
- In a change from Draft Determinations, not to include an explicit Authority trigger. We think this is appropriate, because the purpose of the re-opener is to enable an increase in allowances in response to new requirements placed on GDNs by highway authorities. As such, we do not need to be able to trigger it.
- In a change from Draft Determinations, provide a single application window for GDNs, but to move it to the latter half of RIIO-GD2 as this will allow a fuller understanding of costs, in particular relating to lane rental and changes to excavation disposal legislation. Some funding for this activity has already been included in baseline allowances.

Other policy areas

Joint Office Costs

Issue

4.56 The Joint Office administers the Uniform Network Code (UNC) modification process on behalf of gas transporters (GDNs and NGGT). It is currently funded from baseline allowances.

Final Determination rationale and Draft Determination response summary

4.57 We have decided that the Joint Office should continue to be funded through baseline allowances.

4.58 In their Draft Determinations responses, all gas transporters requested that the Joint Office be funded through a pass-through mechanism, as will be the case for Xoserve in RIIO-GD2. However, they did not propose any means of controlling Joint Office costs, or managing them, under a pass-through mechanism. Although a proportion of Joint Office Costs may be impacted by external factors, these impacts are negligible in the context of baseline allowances.[143] Based on the evidence provided, we do not think this proposal offers value to consumers as it would remove the incentive to operate the Joint Office efficiently provided by the TIM.

4.59 While gas transporter costs for Xoserve will be treated as pass-through, we do not see this as reason, in itself, for similar treatment for Joint Office costs given the different funding and governance arrangements for Xoserve.

4.60 We welcome that GDNs are thinking about future arrangements for the Joint Office. Ahead of the fundamental reform proposed by BEIS-Ofgem Energy Codes Review[144] there are opportunities to improve existing arrangements. We encourage gas transporters to consult with the industry on a future Joint Office framework. However, at present, this thinking is not sufficiently developed to justify any decision on future treatment of costs. Any additional costs during RIIO-GD2, as a result of the Energy Codes Review or any other relevant governments' policy changes, can be considered at RIIO-GD3.

[143] Joint Office operating cost is £1.3m per annum.
[144] https://www.gov.uk/government/consultations/reforming-the-energy-industry-codes.

Appendices

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Appendix 1 - GSOPs to be implemented in 2021[145]

Table 1: Interruptions GSOPs

GSOP description	Standard	2021 Payment level and cap
GSOP1: Gas supply restoration following an unplanned interruption	24 hours	£60 domestic £100 non-domestic Further payment every 24 hours fail No cap.
GSOP2: Reinstatement of consumer's premises	5 working days, or 3 working days for PSR customers	£100 domestic £200 non-domestic Further payment each 3 or 5 working day period fail No cap
GSOP3: Provision of facilities for priority domestic customers, including, alternative heating and cooking facilities, access to hot water and a hot meal.	a) For alternative heating and cooking facilities: 4 hours, or; 8 hours where more than 250 customers are affected where customer not notified prior b) Where the interruption affects 250 or more customers and lasts longer than 48 hours, provide after the initial 48 hours, access to a hot meal: to all PSR customers every 24 hours; and access to hot water: to customers with a medical need every 24 hours.	£50 Further payment every 24 hours fail £500 cap
GSOP13: Notification in advance of planned supply interruptions	7 working days	£40 domestic £100 non-domestic No cap (one payment)

[145] These tables are subject to implementation of these GSOPs pending a formal consultation on the Statutory Instrument.

Table 2: Consumer communication GSOPs

GSOP description	Standard	2021 Payment level and cap
GSOP12: Timely payment of GSOP customer payments	10 working days	£40 No cap (one payment).
GSOP14: Timely response to complaints	5 working days; 10 working days if site visit required	£40 Further payment each subsequent 5 working day period fail £200 cap

Table 3: Connection GSOPs

GSOP description	Standard	2021 Payment level and cap
GSOP4: Provision of standard quotations (≤275kWh, disconnections < 2 bar gauge)	4 working days	£20 Further payment each subsequent working day fail Cap of quotation sum or £500, whichever is lowest
GSOP5: Provision of non-standard quotations (≤275kWh, disconnections < 2 bar gauge)	11 working days	£20 Further payment each subsequent working day fail Cap of quotation sum or £500, whichever is lowest
GSOP6: Provision of non-standard quotations (>275kWh, disconnections ≥ 2 bar gauge, diversions)	21 working days	£40 Further payment each subsequent working day fail Cap of quotation sum or £1000, whichever is lowest
GSOP7: Accuracy of quotations	Accurate quotation issued	The payments levels and caps will reflect changes in GSOP4, GSOP5 or GSOP6
GSOP8: Responses to land enquiries	5 working days	£80 Further payment each subsequent working day fail Cap of £480 (≤275kWh, < 2 bar gauge for disconnections) or £960 (>275kWh, ≥ 2 bar gauge for disconnections)

GSOP description	Standard	2021 Payment level and cap
GSOP9: Provision of commencement and substantial completion dates (≤275kWh)	17 working days	£40 Further payment each subsequent working day fail Cap of quotation sum or £480, whichever is lowest
GSOP10: Provision of commencement and substantial completion dates (>275kWh)	20 working days	£80 Further payment each subsequent working day fail Cap of quotation sum or £960 cap, whichever is lowest
GSOP11(i): Substantial completion by agreed date (contract value ≤£1k)	To meet substantial completion by agreed date	£40 Further payment each subsequent working day fail Cap of contract sum or £400, whichever is lowest
GSOP11(ii): Substantial completion by agreed date (contract value ≤£4k)	To meet substantial completion by agreed date	£200 or 5% of contract sum, whichever is lowest Further payment each subsequent working day fail Cap of 50% of contract sum
GSOP11(iii): Substantial completion by agreed date (contract value ≤£20k)	To meet substantial completion by agreed date	£200 Further payment each subsequent working day fail Cap of 50% of contract sum
GSOP11(iv): Substantial completion by agreed date (contract value ≤£50k)	To meet substantial completion by agreed date	£200 Further payment each subsequent working day fail Cap of £10,000
GSOP11(v): Substantial completion by agreed date (contract value ≤£100k)	To meet substantial completion by agreed date	£300 Further payment each subsequent working day fail Cap of £18,000