Cadent
Your Gas Network

Appendix 11.00
Affordability and Financing: Affordability

Contents

Please Note

The source documents for the analysis and contents of this appendix are primarily from:

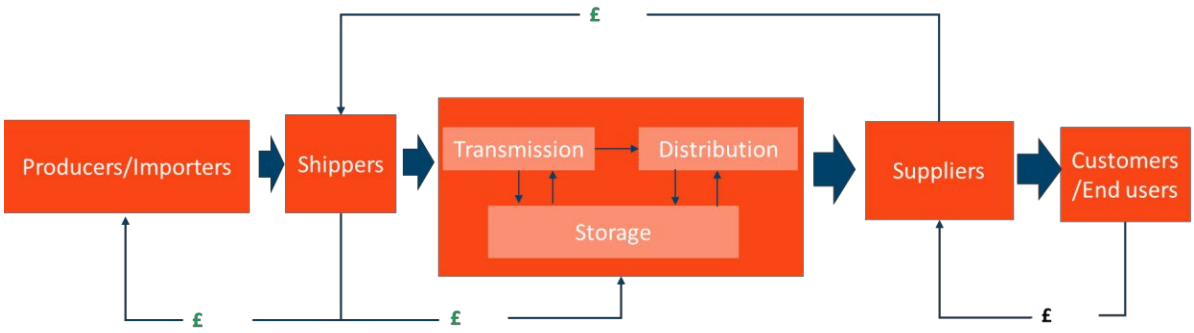
- Appendix 11.07 LIMO model: Cadent adjustments
- Appendix 11.09 Cadent Regulatory Financial model

1. Our methodology for calculating customer bills

Background to how our costs are recovered via customer charges

Gas Distribution Network (GDN) transportation charges are levied on Gas Shippers, who will then recover these costs from Energy Suppliers, who in turn recover these costs through end user energy bills. Quite often, the Shipper and Supplier organisations are one and the same. The chart below summarises the fund flows.

Figure 1: Illustrative Gas Value Chain and Funding Flows



Source: Management information

It is assumed that GDN charges are passed through to the end user, but networks have no control over the manner in which this is done by energy suppliers. Given that energy suppliers offer multi-year contracts to customers, this must involve a degree of projection for future networks costs, and almost certainly involves suppliers applying risk premia when pricing commercial contracts. This underlines the importance of GDNs providing good quality forecast information to the market, as in theory this would reduce the levels of risk premia applied by suppliers.

Our best endeavours are employed in setting charges to ensure that collected revenue for each Distribution Network does not exceed the allowed revenue for the formula year. Variations of amounts collected compared to amounts of revenue allowed over the last 6 years shows very minimal variability.

Table 1: Six-Year Revenue Collection Performance (nominal)

FORMULA YEAR	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
TOTAL ALLOWED REVENUE	1,803.4	1,794.4	1,844.1	1,803.0	1,794.8	1,871.4	1,954.0
TOTAL COLLECTED REVENUE	1,823.3	1,793.5	1,853.6	1,821.8	1,800.5	1,879.5	1,959.2
OVER / (UNDER) RECOVERY	19.9	(0.9)	9.5	18.7	5.7	8.1	5.2
OVER / (UNDER) RECOVERY %	+1.1%	(0.1%)	+0.5%	+1.0%	+0.3%	+0.4%	+0.3%

Source: Cadent Regulatory Financial model

The reality is that our projections for domestic bill impacts, and the expected profile across the price control period, may not translate “real time” to end customer bills, and may also be distorted by the degree of risk premium applied by the supplier. These are clearly important considerations for GDNs when engaging with customers in support of our RIIO-2 plans.

Transportation charges cover the vast majority of network costs but exclude certain activities that are charged directly to end customers (for instance connection charges) and other activities that fall outside core transportation activity.

When we refer to customer bills in our business plan document, we are referring solely to the transportation charge element, as it is the revenue and costs to which these relate that are subject to Ofgem’s price control arrangements.

The methodology and arrangements for charging transportation costs to Gas Shippers are included in the Uniform Network Code (UNC), which is essentially the commercial contract that exists between Gas Transporters (Gas Transmission as well as GDNs).

Each Gas Shipper has a portfolio of supply points – the point at which gas exits the distribution network. In the majority of cases, the supply point is the end user – these will range from domestic users, to micro businesses, to large scale industrial users. In some cases, the supply point is a “connected system exit point” or CSEP, which is effectively a smaller scale distribution network owned and operated by an Independent Gas Transporter (IGT). Cadent currently serves nearly 11 million supply points across around 60 Gas Shipper organisations.

Around 96% of GDN charges are based on the provision of peak day capacity – the maximum that each supply point needs on a day in the winter period (capacity charges). 3% of charges are based on the actual flow of gas during the year (commodity charges). The remaining 1% comes from fixed daily charges for loads of certain size.

A key principle of the charging methodology is that it is “cost reflective” – it should reflect the nature of the GDN cost base. Because GDN assets and its cost base are infrastructure based, with very little subject to seasonal variation, this is why the majority of charges are based on the provision of capacity, which provides a very stable and predictable charging platform. It also helps to remember that GDNs own the pipes which the gas passes through, but not the gas itself. Hence our key service provision is the transportation of gas (as opposed to the supply of energy).

Cost reflectivity extends to the way that customers use the system – costs should be allocated fairly based on this usage. Supply points that use more of the end to end network (typically a large number of smaller loads, such as domestic customers) attract higher unit prices, and conversely customers that use less of the network (a smaller number of larger loads that connect at higher pressure tiers) attract lower unit prices.

The proposition can be summarised in the table below, which reflects a snapshot of Cadent’s chargeable base taken for the purposes of calculating our 2019/20 transportation unit prices.

Table 2: Allocation of Transportation Revenue

		East of England	London	North West	West Midlands	Cadent
Supply Points	Domestic	98.5%	98.2%	98.6%	98.5%	98.5%
	Non Domestic	1.5%	1.8%	1.4%	1.5%	1.5%
Total Capacity Requirement	Domestic	61.6%	67.9%	61.7%	64.4%	63.4%
	Non Domestic	38.4%	32.1%	38.3%	35.6%	36.6%
Transportation Revenue Allocation	Domestic	81.0%	81.0%	81.2%	79.8%	80.5%
	Non Domestic	19.0%	19.0%	18.8%	20.2%	19.5%

Source: Management information

Domestic users represent nearly 99% of supply points by volume, but require 63% of total network capacity, and make up around 80% of total transportation revenue. This proposition does not vary greatly between networks.

Generally speaking, both the charging methodology and the chargeable customer base, both in terms of customer numbers, and average consumption and capacity requirements, are very stable. Typically, we observe around 0.2% growth in supply points (customer) numbers on average each year across our networks.

In the earlier years of RIIO-1, Cadent led an initiative in conjunction with other GDNs and Ofgem, to develop a consistent methodology for estimating domestic bill impacts. The outcome was a “bottom up” approach based on actual transportation unit prices and estimated average domestic consumption and peak capacity requirement at network level. It was concluded that this approach was the most representative of local domestic bill impacts at network level, taking account of both regional allowed revenues, and regional volume characteristics. This approach became the accepted method for estimating and reporting domestic bill impacts in the sector, and a feature of both GDN quarterly revenue reports to Gas Shippers, and annual regulatory reporting to Ofgem.

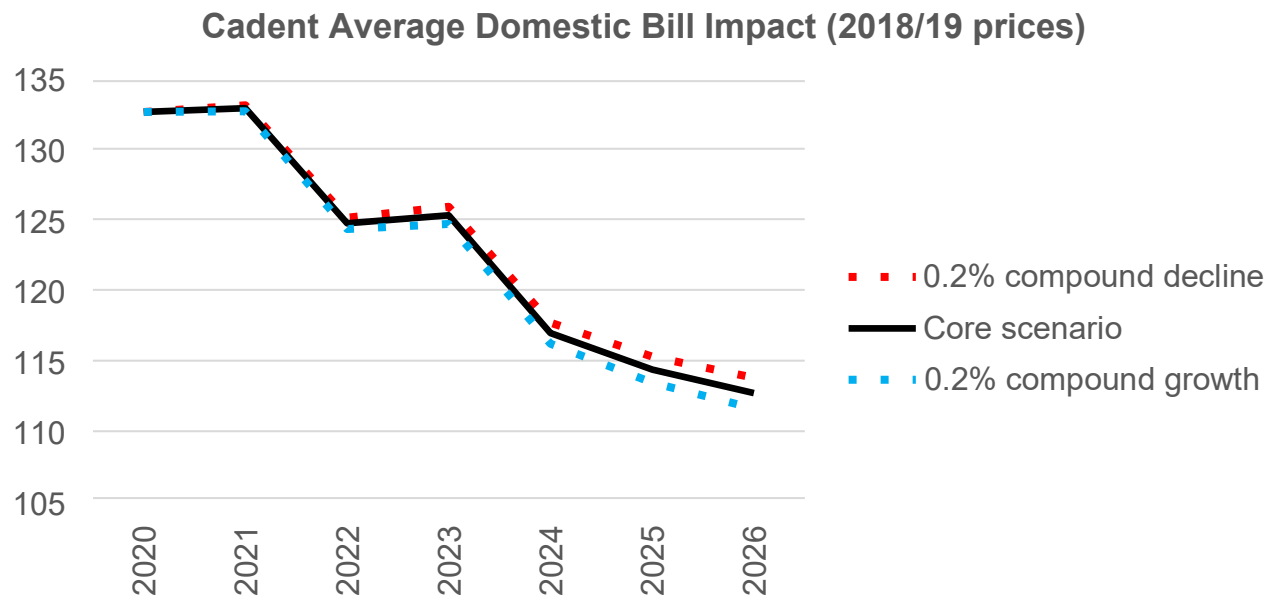
Elsewhere, Ofgem has tended to adopt an approach based on published Typical Domestic Consumption Values (TDCVs). Whilst this may be appropriate for national level statistics, GDNs concluded that this data is often very lagged to current conditions, and not representative of network requirements at a local level, instead favouring the approach that was most relevant for each network’s specific customer base.

For our RIIO-2 plan, our approach to domestic bill estimation emulates the methodology outlined above and is consistent with our industry reporting for historical periods. The Financeability Base Case forward projections of bill impacts assume no growth in customer numbers – this is intentional in order to express the impact of changes to **future** revenues on **current** customers (in today’s prices).

This has the effect of isolating the effect of changes to allowed revenue and avoids the risk of distorting the picture by making potentially subjective assumptions regarding future customer growth.

Where customer numbers continue to grow, this would have a **downward** influence on customer bills (because the same level of allowed revenue is being shared across more supply points), and conversely, if customer numbers decline, this would exert an **upward** influence. To illustrate, the graph below shows our Base Case average domestic bill scenario, and flexes for +/- 0.2% compound annual growth:

Figure 2: Cadent average bill and impact of change in customer numbers



Source: Cadent Regulatory Financial model

Through application of the GDN charging methodology, customer and demand information provided by Xoserve, and our 2019/20 transportation unit price calculations, we are able to make reasonably simplified estimates of the current domestic bill impact as follows:

Table 3: Current year charging- 2019/2020 Domestic Bills

(£133 per customer in 2019/2020 price base – equivalent to £131 per customer in 2018/2019 price base)

	2019/20 Domestic Bill Impact Estimate	Basis	Price Base	East of England	London	North West	West Midlands	Cadent
a	2019/20 Maximum Allowed Revenue (£m)	Latest forecast	Nominal	650.5	466.5	480.3	356.6	1,953.9
b	Less NTS Exit Capacity (£m)	Latest forecast	Nominal	(26.7)	(20.7)	(40.8)	(23.9)	(112.1)
c	2019/20 Allowed Revenue excl Exit Capacity (£m)	a - b	Nominal	623.8	445.8	439.5	332.7	1,841.8
d	Forecast revenue to be collected from domestic users	Per 2019/20 price calcs	Nominal	505.1	361.0	357.0	265.4	1,483.5
e	% Revenue to be collected from domestic users	d / c	Nominal	81.0%	81.0%	81.2%	79.8%	80.5%
f	Estimated number of domestic users (millions)	Per Xoserve data		3.975	2.238	2.661	1.941	10.814
g	Estimated 2019/20 domestic bill impact (£ per customer)	(c x e) / f	Nominal	£127	£161	£134	£137	£137
h	2019/20 RPIFt	Per Licence				1.359		
i	2018/19 RPIAt	Per Licence				1.313		
j	Estimated 2019/20 domestic bill impact (£ per customer)	g / h x i	2018/19	£123	£156	£130	£132	£133

Source: Management information

These positions form the starting point for our forward bill impact projections, which are then flexed for changes in the forecast allowed revenue profile.

NTS Exit Capacity costs are excluded from our domestic bill analysis. This is because these are a pass though of costs levied on GDNs by National Grid. Their inclusion would result in a double count when considering total

bills for the sector. The inflation adjustments correct from forecast inflation rates used for purposes of setting prices in FY19/20 to actual inflation rates (estimated in the example above which shows the FY19/20 position).

2. Bill impact on current customers in RIIO-2

Despite the challenges of increasing cost pressures and provision of enhanced levels of service to our customers, our base Plan would achieve a real bill reduction of 14% (£18 per annum per household, in 2018/19 prices) over the RIIO-2 period (based on Ofgem's current Financeability Case assumptions under notional structure). The principal driver of higher charges in London is a greater RAV per customer.

Table 4: Domestic Bills - Financeability Base Case (2018/19 prices)

	RIIO-1			RIIO-2				
Notional structure, 4.8%	2019	2020	2021	2022	2023	2024	2025	2026
East of England	£125	£123	£122	£115	£113	£106	£103	£102
London	£148	£156	£156	£149	£156	£143	£141	£140
North West	£126	£130	£131	£122	£122	£113	£110	£107
West Midlands	£130	£132	£133	£122	£122	£117	£115	£114
Cadent Average	**£131**	**£133**	**£133**	**£125**	**£125**	**£117**	**£114**	**£113**

Source: Cadent Regulatory Financial model

2.1 Customer engagement on affordability

We have tested customer opinion around the impact on their bill from decisions we have made within the Plan. For example, we tested over 20 of our output commitments with over 5,000 customers, stakeholders and industry experts where options existed that would have impacted the bill during our business options engagement phase during July and August 2019. We then tested the overall business plan for acceptability of its content and its affordability with a further 5,000 customers (from various segments) and stakeholders in our acceptability testing. Over 75% of them confirmed that they believed our plan was affordable with only 2% stating that it wasn't.

The table below summarises the output of our work on affordability. As can be seen, the level of engagement is large generating valid sample sizes across our networks and all customer groups. The % of customers stating that our charges are affordable is consistently between 70 and 80%. There does not appear to be noticeable differences across customer segments based on the outcomes of the engagement testing. More details can be found in Chapter 5 and associated appendices to our Plan which sets out in more detail our approach to engaging customer on affordability and acceptability.

Table 5: Output from customer engagement

Customer group	Sample size	Affordable %
Domestic customer survey	4,446	75%
Business surveys	504	77%
Uninformed Domestic Focus Groups	80	67%
Future customers	20	80%
Fuel poor focus groups	35	80%
Customer forums	109	71%
Business interviews	45	77%
Customers in Vulnerable Situations	20	80%

2.2 Distributional impact between different categories of customer

Chapter 11 of our Plan includes commentary on distributional impacts. We provide the slightly enhanced commentary below for completeness.

The charging methodology does not allow intervention via the customer bill to support vulnerable user groups, but provide detail above on how we have provided predictable forecast and how we are supporting providing a stable regulatory framework to enable accurate forecasts for Shippers. This Appendix provides our first view for Shippers of the range of outcomes that may present in RIIO-2 to start that engagement.

We acknowledge that the metric of domestic bill p.a. does not get to the heart of affordability and our strategy to support vulnerable customers. The table below shows the indicative range of bills based on different usage in FY25/26 based on the financeability base case:

Table 6: Indicative bill impact based on usage (2018/2019 prices)

Usage category	Low	Mid	High
KwH - consumption	8,000	12,000	17,000
£ p.a. (indicative)	75	113	160

Source: Ofgem Typical Domestic Consumption Values and management information (Assume mid usage equivalent to average customer bill for presentational purposes)

We note and agree with Ofgem in their recent charging announcement that “We carefully considered the impacts of reforms on vulnerable consumers, but found them to be present in all consumption categories. We think targeted approaches for supporting vulnerable consumers are more appropriate than changes to the network charging arrangements.”

Domestic charges are based on the same unit cost regardless of consumption ie a variable cost (see figure 3 below). It is not possible for Cadent to directly influence the cost of our services for fuel poor or vulnerable customers. However, we are offering stretching customer tested commitments to these user groups as documented in Chapter 7 of this Plan that will support moving them out of fuel poverty through various measures including energy efficiency. Table 6 above illustrates the impact of living in an energy inefficient home and therefore the value to customers of support in this area. Appendix 07.03.11 details how we are tackling affordability and fuel poverty with specific commitments and direct intervention to over 25,000 fuel poor customers.

We promote our position by actively participating in industry groups to ensure charges are cost reflective and make recommendations to charging methodology changes in support of this objective. Changes to charging methodology are not restricted to the timing of a price controls which set the total “pot” of charges to be allocated to our customers. How this “pot” is divided up is not covered in detail in scope of this Plan but we provide commentary in our appendix on the existing methodology.

Customers in different networks receive different charges related to the cost of the infrastructure (RAV) per customer in these networks. This variability is linked largely to historic expenditure levels (RAV) relative to the number of customers in the geography. We are not able to cross subsidise customers between our networks (i.e a national charge) but focus on ensuring costs are accurately recorded to each distribution network to mirror the cost to serve.

Ofgem provided additional commentary in their previous reporting of regional differences in network charges which supports cost reflectivity and targeted help for vulnerable customers, and demonstrates that regional variances are passed on to customer by shippers.

2.3 Affordability for non-domestic users

When engaging with customers on affordability we have engaged with our full spectrum of customer groups (domestic and business) and users.

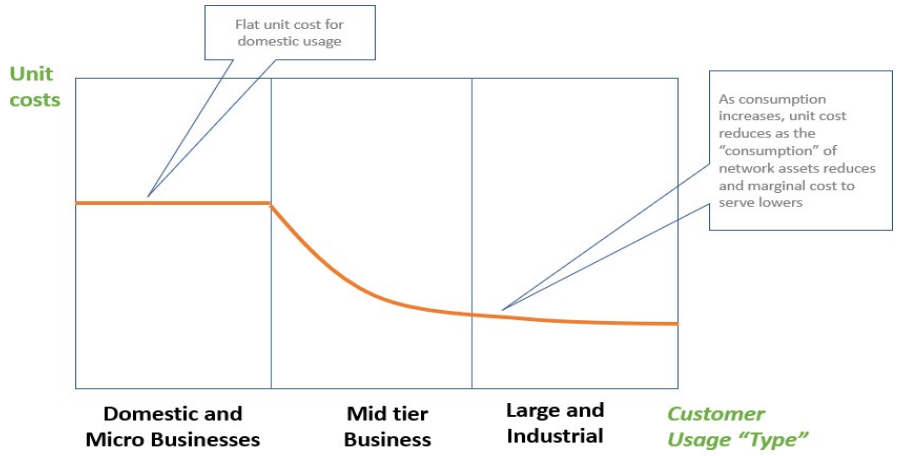
We are aware that as the future role of gas changes, the use of the network will change from the existing state as noted above (99% connections domestic utilising only 63% of the capacity)

When considering affordability, we have focused on the average domestic bill impact in Chapter 11 of our plan as this metric allows an accessible data point to understand the impact of changes proposed in a steady state world as noted above (constant prices, constant volume of users etc).

We acknowledge and understand that the future is uncertain and the distributional impact of our charges to ensure they reflect costs incurred will change over time and as the use of the network evolves. We have received feedback regarding Cadent’s element on the bill and its distributional impact on different businesses including higher users. As noted above, the price control governs the ‘pot’ of Allowed revenue and the UNC and our licence govern how this is distributed to users. Domestic users fall into a low usage band along with micro businesses and these customers all pay the same unit cost. As consumption rates increase, the cost per unit consumed is not linear across different bands. This reflects that although a large % of consumption is taken by non-domestic users (as noted above), there is not a direct correlation to the level of network infrastructure required / cost to support the gas distribution.

The chart below illustrates how unit costs vary across consumption groups:

Figure 3: Unit cost distribution across consumption groups



Source: Management information – not to scale but for illustration

If the scenario where there are different volumes of domestic connections and a change if the total consumption is driven by non-domestic users, there will be a requirement to continue to ensure cost reflectivity. We acknowledge this future is uncertain, and we are engaging with the industry to ensure that the distributional impacts on different user groups are considered when influencing policy in this area. For example, we are developing market models for the potential rollout of carbon capture and storage and hydrogen networks in conjunction with BEIS's Carbon Capture Advisory Group.

3. Range of forecast outcomes: Allowed Revenue and Domestic bill

There is significant uncertainty at present around how most of the building blocks of the customer bill will be determined by Ofgem and as such on the forecast allowed revenue. This section of the appendix is designed for Shippers to understand how our Business Plan converts into nominal Allowed Revenue and how sensitive the Plan is to movements in uncertain costs and allowances.

The range of bills and revenue is based on a scenario of a high and low bill case with key parameters illustrated in the following table.

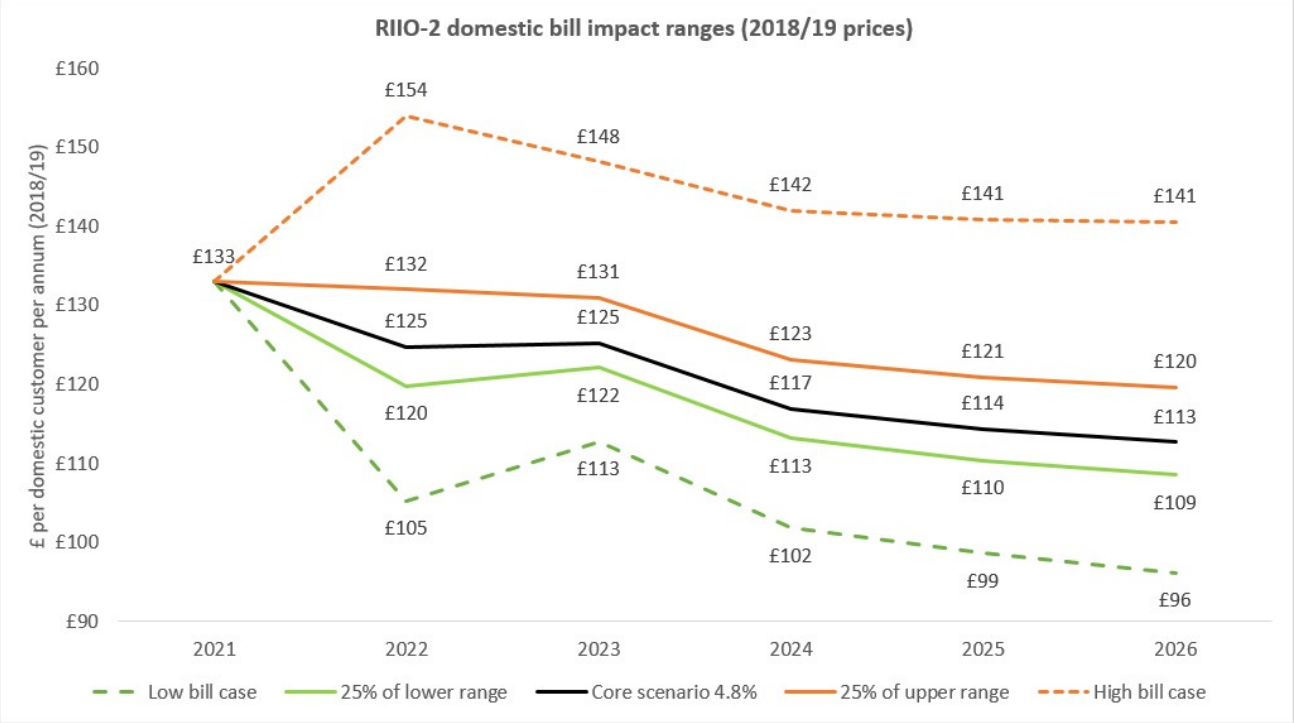
Table 7: Illustrative High and Low Bill Case – Key assumptions

Parameter	Detail	Low Bill	Base case	High Bill
INFLATION CPIH	ANNUAL %	1.50%	2%	2.50%
ALLOWED COST OF EQUITY	CPIH STRIPPED REAL	4.80%	4.80%	5.60%
ALLOWED COST OF DEBT	CPIH STRIPPED REAL	1.93%	1.93%	2.50%
DIVIDEND YIELD (AS % EQUITY RAV)	ANNUAL %	3%	3%	3%
CORPORATION TAX RATE	ANNUAL %	17%	17%	21%
UNCERTAINTY MECHANISMS **	Range	Low	Mid	High
% OVER / (UNDER) SPEND: TOTEX	ANNUAL %	-5%	-	5%
LEVEL OF BUSINESS PLAN INCENTIVE AWARD	1st yr of RIIO-2 % Totex	-2%	-	2%
% ODI RORE PERFORMANCE SCENARIO	ANNUAL %	-2.50%	-	1.50%
PASS THROUGH COSTS	ANNUAL %	-5%	Base Plan	5%

*** UMs are modelled at the high end with Real Price Effects, a higher spend profile and both revenue drivers and Reopeners. As we move to low end bills the level of UMs are reduced.*

The chart below shows an indicative range of outcomes based on these parameters and assumes no change in customer numbers as noted in the commentary above. The high and low bill profile is more pronounced in 2022 due to the assumption that the Business Plan Incentive (BPI) award/penalty is fully applied in this year.

Figure 4: Illustrative range in domestic bills (2018/2019 real prices)



As well as showing the extremes of all of the high and low parameters hitting at the same time, we have shown a more probable high and low range of 25% of the full range. This reflects the fact that it is less probable that all the factors will impact in one direction or the other. This shows a range of +£7 to -£4 from the base scenario.

In the tables below, we present the results of the bill impact in terms of nominal allowed revenue for each individual parameter for the regions annually in RIIO-2. As we have not proposed changes to capitalisation rates, assets lives for depreciation of assets or gearing (relative to Ofgem guidance) to support financeability we do not show the impact of these mitigations on customer bills in this section but analysis on these parameters is provided in later sections of this Appendix if required.

We provide the below analysis in nominal terms for allowed revenue to permit Shippers to understand and scale the range of potential outcomes. To convert into domestic bill impact, a change of c. £14m in annual revenue will result in a £1 p.a. change in customer bills.

Table 8: Cadent Illustrative impact of potential changes in Business Plan nominal revenues (maximum allowed revenue, including timing adjustment).

Subsequent tables include data for East of England, London, North West and West Midlands networks respectively

Actual structure, 4.8%, Nominal	Cadent				
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**1,909**	**1,988**	**1,933**	**1,946**	**1,974**
HIGH CASE: CPIH INFLATION IMPACT	8	18	28	38	49
HIGH CASE: EQUITY RETURNS IMPACT	39	41	43	45	46
HIGH CASE: DEBT RETURNS IMPACT	35	36	37	39	40
HIGH CASE: CORPORATION TAX RATE IMPACT	29	29	30	30	30
HIGH CASE: UNCERTAINTY MECHANISM TYPE IMPACT	81	87	89	100	113
HIGH CASE: RPEs IMPACT	15	23	32	39	46
HIGH CASE: TOTEX OVER/(UNDER) SPEND IMPACT	(0)	2	19	22	23
HIGH CASE: BPI IMPACT	115	1	1	1	1
HIGH CASE: INCENTIVES IMPACT	75	79	82	85	88
HIGH CASE: PASS THROUGH COSTS IMPACT	17	18	17	18	18
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**1,909**	**1,988**	**1,933**	**1,946**	**1,974**
LOW CASE: CPIH INFLATION IMPACT	(8)	(18)	(28)	(38)	(48)
LOW CASE: EQUITY RETURNS IMPACT	-	-	-	-	-
LOW CASE: DEBT RETURNS IMPACT	-	-	-	-	-
LOW CASE: CORPORATION TAX RATE IMPACT	-	-	-	-	-
LOW CASE: UNCERTAINTY MECHANISM TYPE IMPACT	(26)	(29)	(43)	(44)	(51)
LOW CASE: RPEs IMPACT	-	-	-	-	-
LOW CASE: TOTEX OVER/(UNDER) SPEND IMPACT	0	(2)	(19)	(22)	(23)
LOW CASE: BPI IMPACT	(115)	(1)	(1)	(1)	(1)
LOW CASE: INCENTIVES IMPACT	(125)	(131)	(137)	(142)	(147)
LOW CASE: PASS THROUGH COSTS IMPACT	(17)	(18)	(17)	(18)	(18)

Source: Cadent Regulatory Model

Actual structure, 4.8%, Nominal	East of England				
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**631**	**640**	**629**	**632**	**640**
HIGH CASE: CPIH INFLATION IMPACT	3	6	9	12	16
HIGH CASE: EQUITY RETURNS IMPACT	13	14	14	15	15
HIGH CASE: DEBT RETURNS IMPACT	12	12	12	13	13
HIGH CASE: CORPORATION TAX RATE IMPACT	10	10	10	10	10
HIGH CASE: UNCERTAINTY MECHANISM TYPE IMPACT	40	41	31	34	38
HIGH CASE: RPEs IMPACT	5	7	10	12	14
HIGH CASE: TOTEX OVER/(UNDER) SPEND IMPACT	(0)	1	6	7	7
HIGH CASE: BPI IMPACT	35	0	0	0	0
HIGH CASE: INCENTIVES IMPACT	25	26	27	28	29
HIGH CASE: PASS THROUGH COSTS IMPACT	5	5	5	5	5
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**631**	**640**	**629**	**632**	**640**
LOW CASE: CPIH INFLATION IMPACT	(3)	(6)	(9)	(12)	(16)
LOW CASE: EQUITY RETURNS IMPACT	-	-	-	-	-
LOW CASE: DEBT RETURNS IMPACT	-	-	-	-	-
LOW CASE: CORPORATION TAX RATE IMPACT	-	-	-	-	-
LOW CASE: UNCERTAINTY MECHANISM TYPE IMPACT	(9)	(9)	(16)	(17)	(20)
LOW CASE: RPEs IMPACT	-	-	-	-	-
LOW CASE: TOTEX OVER/(UNDER) SPEND IMPACT	0	(1)	(6)	(7)	(7)
LOW CASE: BPI IMPACT	(35)	(0)	(0)	(0)	(0)
LOW CASE: INCENTIVES IMPACT	(42)	(44)	(45)	(47)	(48)
LOW CASE: PASS THROUGH COSTS IMPACT	(5)	(5)	(5)	(5)	(5)

Source: Cadent Regulatory Model

Actual structure, 4.8%, Nominal	London				
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**463**	**503**	**479**	**486**	**497**
HIGH CASE: CPIH INFLATION IMPACT	2	5	7	10	12
HIGH CASE: EQUITY RETURNS IMPACT	10	10	11	11	12
HIGH CASE: DEBT RETURNS IMPACT	9	9	9	10	10
HIGH CASE: CORPORATION TAX RATE IMPACT	7	7	7	7	7
HIGH CASE: UNCERTAINTY MECHANISM TYPE IMPACT	15	17	22	25	28
HIGH CASE: RPEs IMPACT	5	7	10	12	14
HIGH CASE: TOTEX OVER/(UNDER) SPEND IMPACT	(0)	1	5	6	7
HIGH CASE: BPI IMPACT	34	0	0	0	0
HIGH CASE: INCENTIVES IMPACT	18	19	20	22	23
HIGH CASE: PASS THROUGH COSTS IMPACT	4	4	4	4	4
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**463**	**503**	**479**	**486**	**497**
LOW CASE: CPIH INFLATION IMPACT	(2)	(5)	(7)	(9)	(12)
LOW CASE: EQUITY RETURNS IMPACT	-	-	-	-	-
LOW CASE: DEBT RETURNS IMPACT	-	-	-	-	-
LOW CASE: CORPORATION TAX RATE IMPACT	-	-	-	-	-
LOW CASE: UNCERTAINTY MECHANISM TYPE IMPACT	(6)	(7)	(8)	(8)	(9)
LOW CASE: RPEs IMPACT	-	-	-	-	-
LOW CASE: TOTEX OVER/(UNDER) SPEND IMPACT	0	(1)	(5)	(6)	(7)
LOW CASE: BPI IMPACT	(34)	(0)	(0)	(0)	(0)
LOW CASE: INCENTIVES IMPACT	(31)	(32)	(34)	(36)	(38)
LOW CASE: PASS THROUGH COSTS IMPACT	(4)	(4)	(4)	(4)	(4)

Source: Cadent Regulatory Model

Actual structure, 4.8%, Nominal	North West				
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**473**	**491**	**472**	**472**	**474**
HIGH CASE: CPIH INFLATION IMPACT	2	5	7	9	12
HIGH CASE: EQUITY RETURNS IMPACT	9	10	10	11	11
HIGH CASE: DEBT RETURNS IMPACT	8	9	9	9	9
HIGH CASE: CORPORATION TAX RATE IMPACT	7	7	7	7	7
HIGH CASE: UNCERTAINTY MECHANISM TYPE IMPACT	16	16	20	23	26
HIGH CASE: RPEs IMPACT	3	5	7	8	10
HIGH CASE: TOTEX OVER/(UNDER) SPEND IMPACT	(0)	0	4	5	5
HIGH CASE: BPI IMPACT	25	0	0	0	0
HIGH CASE: INCENTIVES IMPACT	18	19	19	20	21
HIGH CASE: PASS THROUGH COSTS IMPACT	5	5	5	5	5
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**473**	**491**	**472**	**472**	**474**
LOW CASE: CPIH INFLATION IMPACT	(2)	(5)	(7)	(9)	(12)
LOW CASE: EQUITY RETURNS IMPACT	-	-	-	-	-
LOW CASE: DEBT RETURNS IMPACT	-	-	-	-	-
LOW CASE: CORPORATION TAX RATE IMPACT	-	-	-	-	-
LOW CASE: UNCERTAINTY MECHANISM TYPE IMPACT	(7)	(7)	(10)	(11)	(11)
LOW CASE: RPEs IMPACT	-	-	-	-	-
LOW CASE: TOTEX OVER/(UNDER) SPEND IMPACT	0	(0)	(4)	(5)	(5)
LOW CASE: BPI IMPACT	(25)	(0)	(0)	(0)	(0)
LOW CASE: INCENTIVES IMPACT	(30)	(31)	(32)	(33)	(34)
LOW CASE: PASS THROUGH COSTS IMPACT	(5)	(5)	(5)	(5)	(5)

Source: Cadent Regulatory Model

Actual structure, 4.8%, Nominal	West Midland				
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**342**	**355**	**353**	**356**	**364**
HIGH CASE: CPIH INFLATION IMPACT	1	3	5	7	9
HIGH CASE: EQUITY RETURNS IMPACT	7	7	8	8	8
HIGH CASE: DEBT RETURNS IMPACT	6	7	7	7	7
HIGH CASE: CORPORATION TAX RATE IMPACT	5	5	6	6	6
HIGH CASE: UNCERTAINTY MECHANISM TYPE IMPACT	11	13	16	18	21
HIGH CASE: RPEs IMPACT	3	4	6	7	8
HIGH CASE: TOTEX OVER/(UNDER) SPEND IMPACT	(0)	0	3	4	4
HIGH CASE: BPI IMPACT	21	0	0	0	0
HIGH CASE: INCENTIVES IMPACT	14	14	15	15	16
HIGH CASE: PASS THROUGH COSTS IMPACT	3	3	3	3	3
YEAR ENDING 31ST MARCH	2022	2023	2024	2025	2026
MAXIMUM ALLOWED REVENUE: BASE CASE (OFGEM DEFINED)	**342**	**355**	**353**	**356**	**364**
LOW CASE: CPIH INFLATION IMPACT	(1)	(3)	(5)	(7)	(9)
LOW CASE: EQUITY RETURNS IMPACT	-	-	-	-	-
LOW CASE: DEBT RETURNS IMPACT	-	-	-	-	-
LOW CASE: CORPORATION TAX RATE IMPACT	-	-	-	-	-
LOW CASE: UNCERTAINTY MECHANISM TYPE IMPACT	(4)	(6)	(9)	(9)	(11)
LOW CASE: RPEs IMPACT	-	-	-	-	-
LOW CASE: TOTEX OVER/(UNDER) SPEND IMPACT	0	(0)	(3)	(4)	(4)
LOW CASE: BPI IMPACT	(21)	(0)	(0)	(0)	(0)
LOW CASE: INCENTIVES IMPACT	(23)	(24)	(25)	(26)	(27)
LOW CASE: PASS THROUGH COSTS IMPACT	(3)	(3)	(3)	(3)	(3)

Source: Cadent Regulatory Model

4. Intergenerational impact – beyond RIIO-2

Ofgem's objectives relate to both existing and future consumers. Ofgem rightly states:

*"Our **duty** to **current** and **future consumers** is to protect their 'interests taken as a whole, including their interests in the reduction of greenhouse gases and in the security of the supply of gas and electricity to them'.*

We are monitoring the risks associated with uncertainty over the future role of gas and its implications on the need to re-assess asset lives and depreciation assumptions. Any change would impact current customers based on an assessment of the future that is not yet known. Our current position is the existing policy of sum of digits 45 year depreciation is cost reflective and suitably reduces asset stranding risk.

Based on our assessment of the future role of gas pathways, we don't believe now is the right time to make adjustment to asset lives. The spend in our Plan is focused on safety (Iron Mains Replacement), work justified by cost benefit analysis and customer funded investment (e.g. connections) rather than discretionary spend to support increasing load on the network.

We are proposing to continue to depreciate assets on a sum of digits approach over 45 years. Assets commissioned at the start of RIIO-2 will have 87% of the value of assets that will be depreciated by 2050. In comparison, using straight line depreciation method 64% of the asset value will be depreciated by the same year.

The speed of change in this area is large and it is complex. We continue to review and assess as we move through RIIO-2 with a view to having a clearer pathway to make an informed decision for RIIO-3 and beyond. We see no credible scenario where there is no need for a gas network. Further details can be found in the Environment Action Plan – Appendix 07.04.00 and Chapter 6 of the Plan discusses the different pathways to Net Zero and whole systems solutions.

Assessment of depreciation rates across RIIO periods and impact on stranded asset risk

Reducing asset lives (for RIIO-2 additions only) brings some of the revenue forward from future years. The determination on whether it is appropriate to change the asset life is still under considerable debate as the pathways to Net Zero emissions are explored further, however the effect is that if further depreciation is brought forward, customers in the near-future will be penalised to the benefit of customers over the long term. Based on our assessment of the future of gas pathways, we don't believe now is the right time to make any such adjustment to asset lives as noted above.

The table below shows the effect of changing asset life on key metrics. Whilst significant revenue is brought forwards from later years increasing FFO, the increase to RIIO-2 credit metrics does not justify negatively impacting customer bills in this way. As noted above and in Chapter 11 of our Plan (and Appendix 11.01 Financeability), credit rating agencies would likely "see through" this type of adjustment to support financeability and as such it is unlikely to be supportive of our credit position.

As the change to asset life is analysed only for RIIO-2 additions, the impact on key metrics are more profound in the later price control periods. All scenarios assume sum of digits depreciation methodology.

Table 9: Impact of changing depreciation on credit metrics and customer bills (Notional company)

Notional structure, 4.8%	Net Debt / RAV	FFO / Net Debt	AICR	RCF / Net Debt	FFO (post interest)	FFO Delta
Base case 45y	60.1%	10%	1.48	8%	**712**	0
Asset life 40y	60.0%	10%	1.48	8%	**720**	8
Asset life 35y	60.0%	10%	1.48	8%	**730**	18
Asset life 30y	59.9%	10%	1.49	8%	**743**	31
Asset life 25y	59.7%	11%	1.49	9%	**761**	50

Source: Cadent Regulatory Financial model

RIIO-GD2 Assets Lives reduced to 40 years (Domestic bill impact in 2018/19 prices)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
East of England	-	+£0	+£1	+£1	+£1	+£1	+£1	+£1	+£1	+£1
London	-	+£0	+£1	+£1	+£2	+£2	+£2	+£2	+£2	+£2
North West	-	+£0	+£1	+£1	+£1	+£1	+£1	+£1	+£1	+£2
West Midlands	-	+£0	+£1	+£1	+£1	+£1	+£1	+£2	+£2	+£2
Cadent average	-	+£0	+£1	+£1	+£1	+£1	+£1	+£2	+£2	+£2

Source: Cadent Regulatory Financial model

RIIO-GD2 Assets Lives reduced to 35 years (Domestic bill impact in 2018/19 prices)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
East of England	-	+£1	+£1	+£2	+£2	+£2	+£3	+£3	+£3	+£3
London	-	+£1	+£2	+£3	+£4	+£4	+£4	+£5	+£5	+£5
North West	-	+£1	+£1	+£2	+£2	+£2	+£3	+£3	+£3	+£3
West Midlands	-	+£1	+£1	+£2	+£3	+£3	+£3	+£4	+£4	+£4
Cadent average	-	+£1	+£1	+£2	+£2	+£3	+£3	+£3	+£4	+£4

Source: Cadent Regulatory Financial model

RIIO-GD2 Assets Lives reduced to 30 years (Domestic bill impact in 2018/19 prices)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
East of England	-	+£1	+£2	+£3	+£4	+£4	+£5	+£5	+£5	+£6
London	-	+£2	+£3	+£5	+£6	+£7	+£8	+£8	+£9	+£9
North West	-	+£1	+£2	+£3	+£4	+£4	+£5	+£5	+£6	+£6
West Midlands	-	+£1	+£2	+£3	+£4	+£5	+£6	+£6	+£7	+£7
Cadent average	-	+£1	+£2	+£3	+£4	+£5	+£5	+£6	+£6	+£7

Source: Cadent Regulatory Financial model

RIIO-GD2 Assets Lives reduced to 25 years (Domestic bill impact in 2018/19 prices)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
East of England	-	+£2	+£3	+£4	+£6	+£6	+£7	+£8	+£8	+£9
London	-	+£3	+£5	+£8	+£10	+£11	+£12	+£13	+£13	+£13
North West	-	+£2	+£3	+£5	+£6	+£7	+£7	+£8	+£8	+£9
West Midlands	-	+£2	+£4	+£5	+£7	+£8	+£9	+£10	+£11	+£11
Cadent average	-	+£2	+£4	+£5	+£7	+£8	+£8	+£9	+£10	+£10

Source: Cadent Regulatory Financial Model

For comparison, we present below the impact of change in asset life for all the assets including pre RIIO-2 period assets. The figures below are for RIIO-2 average except forecast bill increase which take a view at FY25/26. For an asset life of 40 years the customer bill at the end of the RIIO-2 period is forecast at £116, an increase of £3 compared to the base case. This compares to just £1 if adjusting just RIIO-2 additions.

Notional structure, 4.8%	Net Debt / RAV	FFO / Net Debt	AICR	RCF / Net Debt	FFO (post interest)	FFO Delta	FY25/26 Forecast bill increase
Base case 45y	60.1%	10%	1.48	8%	**712**	0	0
Asset life 40y	59.6%	11%	1.49	9%	**754**	42	3
Asset life 35y	59.1%	12%	1.50	10%	**800**	88	6
Asset life 30y	58.6%	13%	1.51	11%	**847**	136	9
Asset life 25y	58.0%	14%	1.53	12%	**891**	179	11

Source: Cadent Regulatory Model

Change in notional gearing assumption

Feedback from the October Plan R2CG was clear that different levels of gearing should be explored and explained as part of our December Plan. We believe that reducing gearing from 65% to 60% supports financeability but in practice, raising this level of equity in an environment with record low returns and liquidity is reducing is not an assumption that should be taken without due consideration of the impact on network companies. Any change in gearing level is something that needs to be well justified and supported to avoid swings between regulatory periods that have a direct impact on network companies.

However, we have provided the analysis to illustrate and challenge the assumed Ofgem notional gearing of 60% net debt to RAV. The table below shows the average RIIO-2 key metrics under both 55%, 65% gearing and the Base Case (60%).

The results below show that at 4.8% return on equity, Cadent would be at significant risk of its credit rating dropping below target Baa1 at 65% gearing with AICR falling below the 1.4x target. On the other hand, at 55%

gearing Cadent would be able to achieve stronger ratios and sufficient headroom to a solid investment grade rating. However, in practice this is not a viable reduction from one regulatory period to the next.

Despite a customer bill decrease at 65% gearing, the risk of weakening credit metrics adds risk to this scenario. Similarly, the increase in customer bills at 55% gearing to achieve greater headroom is unjustified when compared with the base case results at 60% gearing.

Table 10: Impact of changing Notional company gearing on credit metrics and customer bills

Notional structure, 4.8%	Net Debt / RAV	FFO / Net Debt	AICR	RCF / Net Debt	RORE	Dividend Yield
Base case 60%	60.1%	10%	1.48	8%	4.55%	3.0%
Gearing 55%	55.1%	11%	1.69	9%	4.57%	3.0%
Gearing 65%	65.1%	9%	1.30	7%	4.53%	3.0%

Source: Cadent Regulatory Financial model

RIIO-GD2 gearing at 65% (Domestic bill impact in 2018/19 prices)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
East of England	(£3)	(£1)	(£1)	(£1)	(£1)	(£2)	(£2)	(£2)	(£2)	(£2)
London	(£4)	(£2)	(£2)	(£2)	(£2)	(£3)	(£3)	(£3)	(£3)	(£3)
North West	(£3)	(£1)	(£1)	(£1)	(£1)	(£2)	(£2)	(£2)	(£2)	(£2)
West Midlands	(£4)	(£1)	(£2)	(£2)	(£2)	(£2)	(£2)	(£2)	(£2)	(£3)
Cadent average	(£4)	(£1)	(£2)	(£2)	(£2)	(£2)	(£2)	(£2)	(£2)	(£2)

Source: Cadent Regulatory Financial model

RIIO-GD2 gearing at 55% (Domestic bill impact in 2018/19 prices)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
East of England	+£3	+£1	+£1	+£1	+£1	+£2	+£2	+£2	+£2	+£2
London	+£4	+£2	+£2	+£2	+£2	+£3	+£3	+£3	+£3	+£3
North West	+£3	+£1	+£1	+£1	+£1	+£2	+£2	+£2	+£2	+£2
West Midlands	+£4	+£1	+£2	+£2	+£2	+£2	+£2	+£2	+£2	+£3
Cadent average	+£4	+£1	+£2	+£2	+£2	+£2	+£2	+£2	+£2	+£2

Source: Cadent Regulatory Financial model

Assessment of impact of changing capitalisation rates

For RIIO-2 Cadent propose a 100% capitalisation rate on repex (continuing Ofgem policy set in RIIO-1 when Repex was transitioned gradually from a balance of fast and slow money to 100% slow money by the end of RIIO-1, FY20/21), compared with average RIIO-1 capitalisation rate of 75%. Decreasing repex capitalisation from 100% to 75% significantly increases the bill impact on customers through an immediate increase of fast funded totex. The annual increase in the bills range from £9 to £18 in 2022 depending on the region, which is an increase of 9% on average bills. In comparison, there is only a marginal increase in key financial ratios (AICR increases from 1.48x to 1.51x).

Table 11: Impact of Capitalisation rates on notional company credit metrics and customer bills

Notional structure, 4.8%	Net Debt / RAV	FFO / Net Debt	AICR	RCF / Net Debt	RORE	Dividend Yield
Base case	60.1%	10%	1.48	8%	4.55%	3.0%
Repex 75% slow	58.6%	10%	1.51	8%	4.49%	2.9%

Source: Cadent Regulatory Financial model

RIIO-GD2 Repex capitalisation reduced to 75% (Domestic bill impact in 2018/19 prices)	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
East of England	+£9	+£8	+£7	+£7	+£6	+£5	+£4	+£3	+£3	+£2
London	+£18	+£16	+£15	+£14	+£13	+£8	+£7	+£6	+£4	+£4
North West	+£9	+£9	+£8	+£7	+£6	+£6	+£6	+£5	+£4	+£4
West Midlands	+£11	+£11	+£10	+£9	+£8	+£9	+£8	+£7	+£6	+£5
Cadent average	+£11	+£10	+£9	+£9	+£8	+£7	+£6	+£5	+£4	+£3

Source: Cadent Regulatory Financial model