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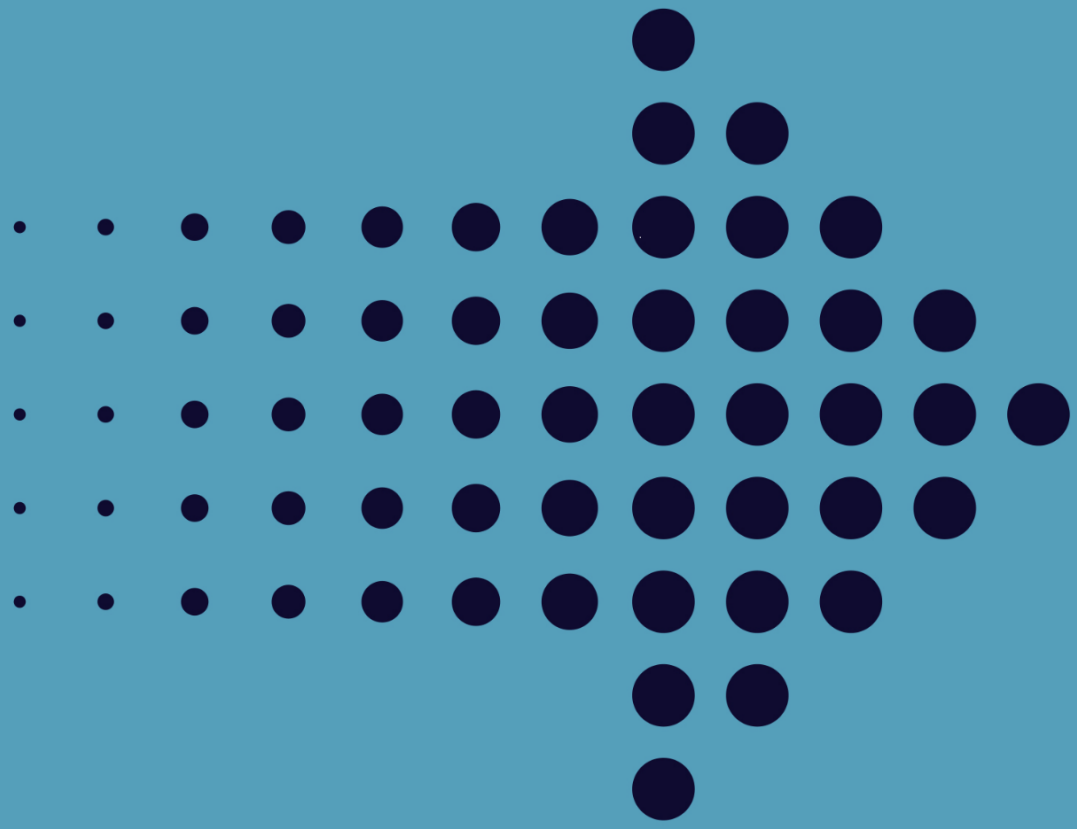
Report

RIIO-GD1
Annual Report
2020-21



Contents

1. Introduction

1.1. This report in line with Standard Special Condition A40[1] as well as the Regulatory Instructions and Guidance (v 1.1)[2] , presents a summary of the Gas Distribution Networks' (GDNs) output delivery and financial performance for the final year of the eight-year RIIO-GD1 price control. It provides data and supporting information on the following areas:

- Annual outputs: Actual delivery in 2020/21 against output targets.
- Totex performance: Updated year 8 expenditure and key drivers
- RoRE: Updated Return on Regulated Equity (RoRE)
- The consumer bill impact: An estimate of an average Great Britain (GB) domestic gas cost consumers paid in 2020/21 attributed to GDN operations.

Key messages

Annual outputs: GDNs have largely delivered their annual outputs target for year 2020-21 except for connections and duration of planned and unplanned interruptions which were impacted by the COVID-19 pandemic, with GDNs committing to delivering any outstanding outputs during the RIIO-2 period without additional allowances.

Due to the COVID-19 pandemic, respective GDNs through reporting arrangements[1] were required to provide up to date view of the extent of any impact as it was being experienced with notice of impending shortfall in performance[1] given to ofgem in advance. Ofgem actively monitors performance to protect consumers where appropriate.

Totex performance: GDNs spent £17.4 billion over RIIO-GD1, which is an underspend of 10.7% against an allowance of £19.5 billion. Key areas of underspend were the iron mains replacement expenditure (Repex) and the Operational expenditure (Opex).

RoRE: GDNs' current RoRE ranged from 3.9% to 11.39% across the GDNs for 2020-21.

Consumer bill impact: Based on estimates, the average British domestic consumer in 2021/22 will pay £121/per annum in 2020/21 prices for gas distribution.

[1] Standard Special Condition - PART A Consolidated (ofgem.gov.uk)
[2] RIIO-GD1 Gas Distribution Price Control – Regulatory Instructions and Guidance: Version 1.1 (ofgem.gov.uk)

Gas Distribution Network: Overview and Context

1.2. Gas Distribution Networks (GDNs) are responsible for operating, maintaining and extending the gas distribution network, and for providing a 24-hour gas emergency service within Great Britain (GB).

Company	Gas Distribution Network (GDN)	GDN abbreviation
Cadent	East of England	EoE
	North London	Lon
	North West	NW
	West Midlands	WM
Northern Gas Networks Limited	Northern	NGN
SGN	Scotland	Sc
	Southern	So
Wales & West Utilities Limited	Wales and West	WWU

Figure 1: Gas Distribution Networks

1.3. There are eight GDNs operating in GB, managed by four companies. To ensure value for money for consumers, we[3] regulate the GDNs through periodic price controls that determine the amount of revenue that can be earned by the GDNs and stipulate levels of performance they are required to deliver. To set our price controls we use the RIIO (Revenue = Incentives + Innovation + Outputs) framework. 2020/21 was the eighth year of the eight-year RIIO-GD1 price control.

[3] The terms 'we', 'us', 'our' refer to the Gas and Electricity Markets Authority. Ofgem is the office of the Authority.

2. Output Performance

Company	Network	Environmental	Connections	Customer Service	Social Obligation	Safety	Reliability
Cadent	EoE		*				
	Lon						*
	NW		*				
	WM		*				
NGN	NGN						
SGN	Sc						
	So						
WWU	WWU		*				

KEY	Score based on annual, cumulative performance and Ofgem's consideration of COVID-19 pandemic.
	GDNs have successfully achieved an annual output or met RIIO-GD1 target.
*	GDNs output target impacted by COVID-19 pandemic and are committed to achieving target in RIIO-2 without additional allowance.
	GDNs have not achieved an annual or cumulative target.

2.1. As part of RIIO-GD1, we set a range of outputs which the GDNs have committed to deliver during the price control period. Outputs form the cornerstone of the RIIO price control framework, against which GDNs allowances have been set. There are six categories and a summary of GDNs' performance in each is provided below.

Safety

Iron Mains Risk Reduction

2.2. Iron mains risk reduction was one of the primary measures of the safety output category throughout RIIO-GD1. GDNs undertook the long-term programme of replacing iron mains (repex) on their networks on the basis of the Health and Safety Executive (HSE) iron mains policy.

2.3. Consistent with last year's report[4] predictions, all eight networks have exceeded their total RIIO-GD1 primary risk removal target as of 2020/21 (please refer to supplementary datafile Table 2.060 for both year 8 and RIIO-GD1 values).

Emergency Response

2.4. Emergency response was another primary measure under the safety output category throughout RIIO-GD1. A 97% response standard was set for the GDNs. This standard required GDNs to attend 97% of reported escapes within one hour for uncontrolled escapes and two hours for controlled escapes.

2.5. In 2020/21 the GDNs exceeded the emergency response targets. Both reported uncontrolled and controlled escapes were responded to within their allowed timescales on average over 99% of the time as shown in the supplementary datafile Table 2.070).

Reliability

Loss of Supply

2.6. The primary outputs for network reliability was developed to maintain specific levels of operational performance, maintain the integrity of network assets, as well as meet network capacity and security of supply standards.

2.7. The primary output, loss of supply, was measured by both the number and the duration of planned and unplanned interruptions across the network.

2.8. None of the GDNs exceeded the allowed number of planned or unplanned interruptions across the network over RIIO-GD1.

2.9. The London network was the only network to exceed the duration of interruptions target over RIIO-GD1. Both the unplanned and planned

[4] RIIO Gas Distribution annual report 2019-20 | Ofgem

interruptions targets were exceeded in the 2020-21 reporting year. This was primarily attributed to the engineering restoration of supply challenges attributed to multiple occupancy buildings (MOB) and the COVID-19 pandemic.

2.10. With regards to improving the restoration times for consumers living in MOBs, Cadent has made good progress since the introduction of it's Improvement Plan in 2019[5]. Since the start of the improvement plan, MOBs interruptions reduced from an overall median of 20.9 days per interruption in 2018/19 to 13 days at year end 2020/21.

2.11. There is still more to do, however, Cadent and other GDNs indicate they are using innovative techniques such as Microstop bypass systems which enables gas to keep flowing to consumers whilst a repair is being carried out to improve restoration times and consumer experience for its consumers living in MOBs. Ofgem continues to monitor Cadent's performance in this area (please refer to Tables 2.2 to 2.25 of the supplementary datafile for more details on reliability)

Connections

2.12. Throughout RIIO-GD1 we expected GDNs to continually meet the current connection standards of service set out in the GSOP. If a GDN fails to meet the service level specified in the GSOP, it must make a payment to the customer affected.

2.13. In the 2020/21 performance year, East of England (EoE) and West Midlands (WM) did not reach the GSOP 9 target, offering a date for commencement and substantial completion of connections work <275kWh per hour, of 90%. North West (NW), WM, and Wales and West Utilities (WWU) did not reach the GSOP 10 target, offering a date for commencement and substantial completion of connections work >275kWh per hour, of 90%.

[5] Cadent pays £24 million for past failures and establishes a £20 million community fund | Ofgem

2.14. Reduced performance for GSOP 9&10[6] (provision of commencement and substantial completion dates for connections ≤275kWh or >275kWh respectively) was attributed to the impact of the COVID-19 related lockdowns in the first quarter of the year. Due to the COVID-19 pandemic, respective GDNs through reporting arrangements were required to provide up to date view of the extent of any impact as it was being experienced with notice of impending shortfall in performance given to ofgem in advance.

2.15. In 2020/21 GDNs made GSOP mandatory payments of c.£3m. Refer to supplementary datafile tables 2.310 and 2.320 for payment breakdown.

Customer Satisfaction

2.16. Ofgem introduced a financially incentivised measure of customer satisfaction in RIIO-GD1. This consisted of a number of customer survey scores. All GDNs had a baseline performance targets which they needed to achieve each year. Customer satisfaction is scored out of 10 for the following areas: planned work, emergency response and repair, and connections.

2.17. The average survey score has consistently improved over RIIO-GD1 from 8.41 in 2013/14 to 9.00 in 2020/21. All GDNs achieved their customer survey targets in 2020/21. Scotland (Sc) had the highest average customer satisfaction score in 2020/21, with an average score of 9.28 out of 10.

Social Obligations

2.18. RIIO-GD1 Final Proposals provided baseline funding for the GDNs to collectively deliver 77,450 connections to fuel poor customers, constituting the GDNs primary social output. Following a review of the FPNES[7] scheme in 2015, the GDNs' target was collectively increased to 91,203 connections[8]. However,

[6] gsop_statutory_consultation.pdf (ofgem.gov.uk)
[7] Fuel Poor Network Extension Scheme final decision document | Ofgem
[8] Decision to change the criteria for the Fuel Poor Network Extension Scheme | Ofgem

decision on the closeout methodologies[9] for RIIO-GD1 which was published on 14th April, 2022 after consultation[10] with stakeholders, states that we would not consider any under-delivery against new targets to be unjustified or liable for a financial penalty as predicated under Special Condition 7.12 of the GT2 licence.

Environmental Outputs

2.19. Shrinkage refers to gas which is lost from the transportation network and is the dominant element of the GDNs' Business carbon footprint. Shrinkage is comprised of leakage from pipelines (95% of the gas loss), theft from the GDN networks (3% of the gas loss), and companies' own use (2% of gas loss). GDNs use a common leakage model to assess the leakage from each of their networks.

2.20. RIIO-GD1 included both a shrinkage allowance and an Environmental Emissions Incentive (EEI). These provided enhanced incentives to reduce gas transport losses and network emissions, based on over or underperformance against performance targets.

2.21. The sector total annual business carbon footprint (from running their business, excluding shrinkage), measured in $_{t}CO2_{e}$, decreased by 21.6% from 146,906 $_{t}CO2_{e}$ in 2019/20 to 115,199 $_{t}CO2_{e}$. The decrease was relatively consistent across GDNs. The reduction was driven by significant reductions in business milage emissions, reduction in office gas and electricity use – a by-product of homeworking and building efficiency improvements.

2.22. All GDNs met their 2020/21 targets for shrinkage and leakage (reference to the supplementary datafile tables 2.030 and 2.040 for additional data on GDNs business carbon footprint, shrinkage, and leakage reductions).

[9] Decision on the closeout methodologies for RIIO-GD1 | Ofgem
[10] Consultation on the closeout methodologies for RIIO-GD1 | Ofgem

2.23. A year on year output incentive table can be found in the supplementary data file submitted alongside this report. Summary output incentives for 2020-21 and RIIO-GD1 are shown below:

£m, 2020-21 prices	Cadent					SGN		
	EoE	Lon	NW	WM	NGN	Sc	So	WWU
2020-21	18.4	10.2	16.7	8.0	8.6	2.4	14.1	9.5
RIIO-GD1 Period	128.1	65.1	80.5	46.4	79.0	27.6	122.3	60.4

3. Innovation

3.1. Innovation in RIIO-GD1 falls into two basic categories. Operational innovation, which focuses on improving operational effectiveness, efficiency, and safety, and network innovation, which focuses on exploring and defining the future of gas.

3.2. GDNs continue to use innovative solutions such as stub end abandonment innovation, a technique that allows companies to cap off smaller pipe connections without leaving exposed pipework and CISBOT (Cast Iron Sealing Robot) – for mains replacement programme. These techniques and systems are examples of GDNs commitment to implementing innovative solutions whenever feasible.

3.3. GDNs continue to research hydrogen supplies to gain quantified safety-based evidence to support the transportation and distribution of hydrogen. One example of this innovation is H21[11], a collaborative hydrogen ready service pipes project which is currently in development. GDNs are working together at a customer-built investigation site to test existing service pipes with hydrogen and explore whether current services are sized correctly for conversion to hydrogen. Others projects are HyNet, H100[12], HyDeploy[13], HyHy and hydrogen village[14].

[11] Project Direction - H21 Phase 2 - signed (ofgem.gov.uk)
[12] Amended Project direction: H100 Fife SGN | Ofgem
[13] Network Innovation Competition - Project Direction for HyDeploy | Ofgem
[14] Consultation on Hydrogen Village Trial Detailed Design Studies .pdf (ofgem.gov.uk)

4. Totex Performance

4.1. The totex approach to the price control aimed to incentivise companies to deliver outputs at the lowest total cost, without preferred cost savings derived from capital expenditure (Capex), operating expenditure (Opex), and replacement expenditure (Repex).

(£m 20/21 price)	Cost (£m)								RIIO-GD1 Total (£m)	RIIO-GD1 Allowed (£m)	RIIO-GD1 Variance (£m)
	2014	2015	2016	2017	2018	2019	2020	2021			
Capex	331	385	373	381	395	439	£458	470	3,232	3,266	(34)
Repex	811	823	876	849	843	906	996	1,065	7,168	8,494	(1,326)
Opex	958	932	879	888	827	841	839	827	6,992	7,716	(723)
Totex	2,100	2,140	2,128	2,118	2,065	2,186	2,292	2,362	17,393	19,476	(2,084)

4.2. GDNs were incentivised to outperform their totex allowances as part of the Totex Incentive Mechanism (TIM). Through the mechanism, any underspend against the allowed totex was shared between the GDNs and consumers. At the start of RIIO-GD1, Ofgem provided GDNs with totex allowances. Those allowances have been adjusted during the price control period through a number of mechanisms.

GDN (£m 20/21 price)	2021 Cost (£m)	RIIO-GD1 Totex Spend (£m)	RIIO-GD1 Allowed Totex (£m)	RIIO-GD1 Variance (£m)
EoE	452	2,921	2,920	(1)
Lon	355	2,374	2,589	(215)
NW	310	2,081	2,174	(92)
WM	228	1,515	1,692	(177)
NGN	229	1,968	2,266	(299)
Sc	171	1,488	1,829	(341)
So	376	3,178	3,704	(526)
WWU	241	1,867	2,302	(435)
Industry	2,362	17,393	19,476	(2,083)

4.3. The cumulative underspend for the sector against totex was 10.7%. Key areas of underspend are the iron mains replacement expenditure and the operating expenditure (Opex).

4.4. GDNs noted a number of cost reduction drivers contributing to network performance over RIIO-GD1 – improved project planning, updated contractual terms, cross-flexing employees and resources, improved scheduling and work management, innovation, improved data analytics, and optimising contractor relations.

Capital Expenditure (Capex)

4.5. At a sector level, GDNs broadly performed in line with RIIO-GD1 allowances. The cumulative spend for the sector against Capex was £3,232m versus an allowed £3,266m. This represents a £34m (1.05%) underspend over the price control period.

(£m 20/21 price)	2021 Cost (£m)	RIIO-GD1 Capex Spend (£m)	RIIO-GD1 Capex Allowance (£m)	RIIO-GD1 Variance (£m)
EoE	115	540	467	(73)
Lon	57	303	251	(52)
NW	53	307	318	(11)
WM	27	202	239	(37)
NGN	42	449	455	(6)
Sc	43	404	419	(15)
So	67	580	584	(4)
WWU	66	446	533	(87)
Industry	470	3,232	3,266	(34)

4.6. Cadent stated that the overspend against the allowances over the price control period reflects the step change increase in workload that was necessary to ensure delivery of the Asset Health Network Output Measures (NOMs). The NOMs targets have been delivered but attributed to growing cost pressure.

(£m 20/21 price)	2021 Spend (£m)	2021 Cost Allowance (£m)	2021 Variance (£m)
EoE	115	42	(73)
Lon	57	22	(35)
NW	53	30	(24)
WM	27	23	(5)
NGN	42	50	(8)
Sc	43	39	(4)
So	67	57	(10)
WWU	66	63	(2)
Industry	470	325	(145)

4.7. The annual overspend for the sector against capex allowance of £325m was £470m. The 2020/21 capex overspend was greatest to date - £145m. This was driven primarily by Cadent which had an overspend of £137m. NGN was the only network to underspend the 2020/21 capex allowance by continuously

improving their planning capabilities through close engagement with their supply chain.

Iron mains replacement expenditure (Repex)

4.8. The cumulative underspend for repex was £1.3bn. This represented the largest component (65%) of the total industry underspend during RIIO-GD1.

4.9. Repex underspend has primarily been driven by workload optimization, networks' greater use of inserting smaller polyethylene mains into larger iron mains instead of relaying new mains, and improved contracting approaches.

(£m 20/21 price)	2021 Cost (£m)	RIIO-GD1 Repex Spend (£m)	RIIO-GD1 Repex Allowance (£m)	RIIO-GD1 Variance (£m)
EoE	188	1,058	1,200	(141)
Lon	192	1,124	1,430	(306)
NW	151	835	935	(100)
WM	125	646	758	(112)
NGN	100	800	917	(116)
Sc	55	516	627	(111)
So	176	1,531	1,769	(238)
WWU	77	657	859	(203)
Industry	1,065	7,168	8,494	(1,326)

4.10. The main indicator of repex programme performance throughout RIIO-GD1 was risk reduction. Since different locations and pipe characteristics correlated with different risk scores, GDNs were able to meet their primary risk reduction target without carrying out the total allowed workload. The Health and Safety

Executive (HSE) sets a total iron mains replacement workload target that must be met by 2030. GDNs are committed to meeting this important milestone[15].

Operational Expenditure (Opex)

4.11. At a sector level, GDNs broadly underspent the allowances. The cumulative spend for the sector against Opex was £6.9bn versus an allowed £7.7bn. This represents a £723m (9%) underspend over the price control period. The annual spend was similar in nature - £827m spent versus £928m allowed. This represented a £101m (11%) underspend in 2020/21.

GDN (£m 20/21 price)	RIIO-GD1 Opex Spend (£m)	RIIO-GD1 Opex Allowance (£m)	RIIO-GD1 Variance (£m)
EoE	1,322	1,254	(68)
Lon	947	908	(38)
NW	940	920	(20)
WM	667	695	(28)
NGN	718	895	(177)
Sc	567	783	(216)
So	1,067	1,351	(284)
WWU	765	910	(145)
Total	6,992	7,716	(723)

4.12. GDNs attributed overall Opex outperformance to the replacement and capital investments they made throughout the course of the price control period. Other factors such as improved project planning, optimized working patterns, updated contractual terms, cross-flexing employees and resources, improved scheduling and work management, and improved data analytics also played a role.

[15] Iron mains risk reduction (hse.gov.uk)

(£m 20/21 price)	2021 Cost (£m)	2021 Allowance (£m)	RIIO-GD1 Variance (£m)
EoE	149	151	(2)
Lon	107	108	(1)
NW	105	110	(5)
WM	76	84	(8)
NGN	87	107	(20)
Sc	72	96	(24)
So	133	162	(29)
WWU	98	110	(12)
Industry	827	928	(101)

4.13. Cadent noted that they have delivered significant efficiencies since becoming a standalone company as evidenced by their downward trajectory of actual Opex spend in the final 4 years of the regulatory period which has enabled them to outperform their Opex allowances by approximately 2% during that period, compared to overspending against allowances by 7% whilst under the ownership of National Grid. Cadent has since delivered relatively significant Opex savings.

5. Rate of Regulatory Return on Equity (RoRE)

5.1. Ofgem intended that companies should have been able to achieve an upside return on (notional) equity in the low double-digits and should have been exposed to a downside return at or below the cost of debt.

5.2. Ofgem used RoRE analysis to estimate the financial benefits, measured by the return on the notional proportion of the RAV that is financed by equity, that were available to network companies in RIIO-GD1 from outperforming the price control assumptions.

5.3. Ofgem was also able to use RoRE analysis to assess the financial penalties for underperforming the price control output performance.

GDN	RoRE based on Notional Gearing	2021 (%)	RIIO-GD1 Average (%)
EoE	RoRE Operational Performance	5.3	7.9
	RoRE Including Financing and Tax	5.5	10.0
Lon	RoRE Operational Performance	3.8	9.6
	RoRE Including Financing and Tax	3.9	11.6
NW	RoRE Operational Performance	6.9	8.7
	RoRE Including Financing and Tax	7.4	10.7
WM	RoRE Operational Performance	7.7	9.9
	RoRE Including Financing and Tax	8.2	12.0
NGN	RoRE Operational Performance	11.8	11.2
	RoRE Including Financing and Tax	11.4	13.1
Sc	RoRE Operational Performance	12.7	11.9
	RoRE Including Financing and Tax	10.7	12.3
So	RoRE Operational Performance	12.2	10.9
	RoRE Including Financing and Tax	9.9	11.0
WWU	RoRE Operational Performance	10.0	12.1
	RoRE Including Financing and Tax	4.1	8.5

5.4. In 2020/2021 RoRE, including financing and tax, ranged from 3.9% to 11.4% across the GDNs. Cadent's London network had the lowest RoRE while NGN's network had the highest.

RoRE based on Notional Gearing	Industry (%)								RIIO-GD1 Average (%)
	2014	2015	2016	2017	2018	2019	2020	2021	
Allowed Equity + IOI	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Operational Performance	3.7	2.7	3.8	4.1	4.2	3.3	3.1	1.9	3.3
Financing and Tax	1.4	1.6	-0.4	1.0	3.8	2.9	1.0	-1.2	0.9
RoRE including Financing & Tax	12.1	8.0	10.4	12.1	14.9	13.0	11.1	7.6	11.2

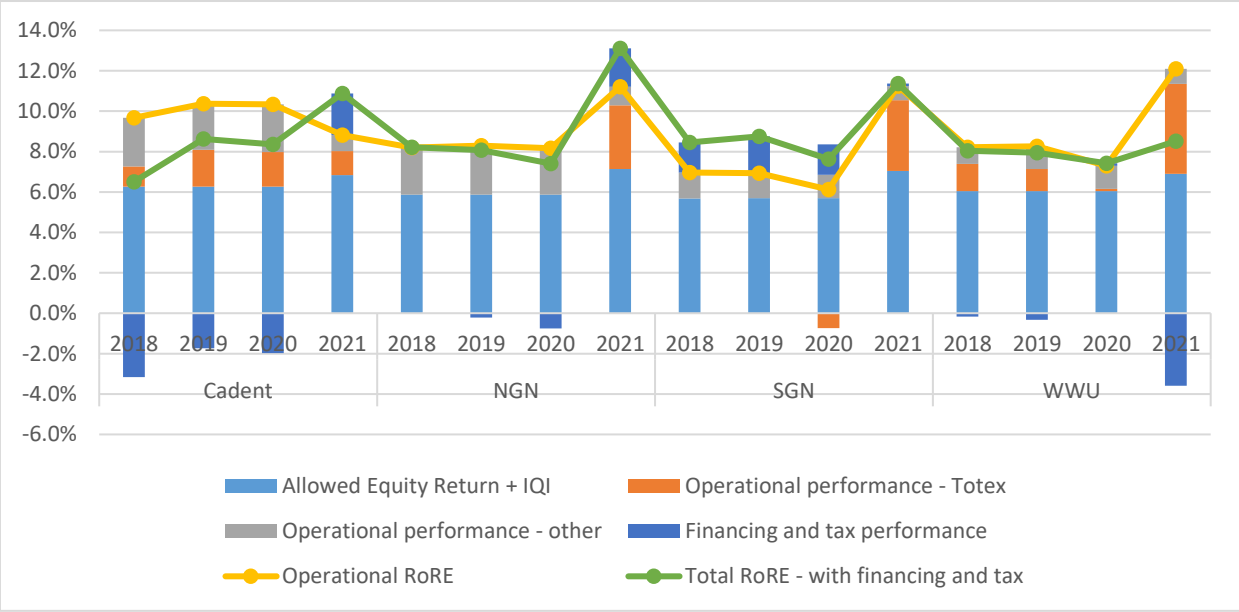


Figure 2: Return on Regulated Equity (RoRE)

6. Consumer Bill Impact

6.1. Ofgem's tariff methodology provides an estimate of the overall cost of domestic energy bills. This includes estimates of the proportion of overall energy cost which relates to gas distribution. The methodology uses an average gas demand applied uniformly across all regions over time.

6.2. Our latest bill assessment using this methodology estimates that the average British domestic gas consumer in 2021/22 will pay £121/per annum in 2020/21 prices for gas distribution.

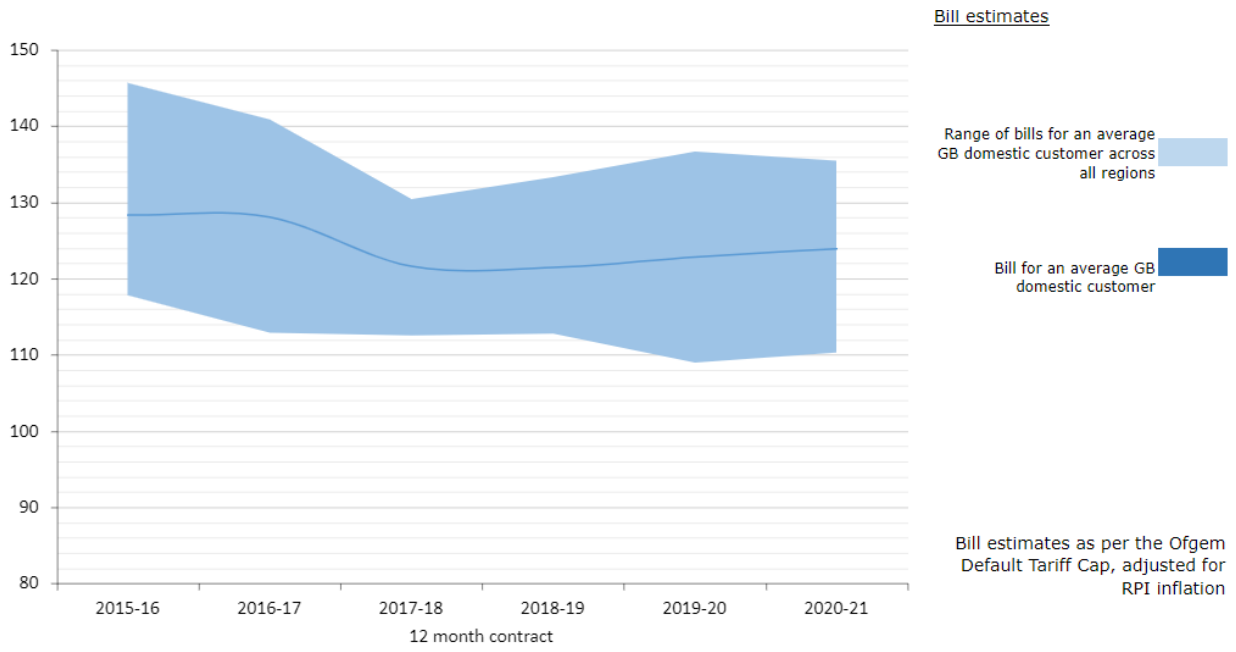


Figure 3: Consumer Bill Impacts

7. Industry Wide Notes

7.1. Decarbonising the UK economy and achieving the shared goal of Net Zero carbon emissions by 2050 remains a significant challenge for energy companies within the United Kingdom.

7.2. GDNs are responding positively to this challenge, preparing future heat policy and working collaboratively with other stakeholders to be at the forefront of decarbonisation solutions. These solutions include looking into both biogas and hydrogen as an alternative to natural gas. GDNs are continuing with their trials, under the H21, H100, HyNet, HyDeploy, Hydrogen village pilots, investigating the safety of transporting Hydrogen on the current networks.

7.3. As the energy regulator, Ofgem is supporting GDNs to meet the national Net Zero targets, whilst ensuring the networks are run efficiently and costs are kept down for consumers.

Additional Note

For additional performance data and GDNs comparative analysis, please refer to the supplementary Datafile which is published along with this report.

The figures stated in this annual report and supplementary datafile covers 2021 which is also the final year of the 8 year RIIO-GD1 price control period.