Wales & West Utilities

RIIO-GD1 Eighth Year Annual Report

Continuing to deliver for our customers

Year ended 31 March 2021

WALES&WEST UTILITIES

Strategic Performance Overview

Appendices

Strategic Performance Overview

1

Continuing to deliver for our customers

In this section:

1.0 Continuing to deliver for our customers

Our final year of GD1 has been an important one in the design and development of our long-term future, responding to the COVID-19 pandemic as well as spending more time than ever listening and responding to the needs of our customers. The energy sector remains under the spotlight and is clearly central to the UK in delivering "Net Zero" by 2050. Our GD2 plan includes a commitment to deliver a net zero ready network by 2035 and we're dedicated to working collaboratively to support a Green Recovery out of COVID-19.

In this unprecedented year, the safety and wellbeing of customers and colleagues has been our absolute priority. As the pandemic progressed, we completely refocused our engagement and work activities as expectations and attitudes evolved quickly. I am so proud of how our people responded in such exceptional circumstances, delivering the high levels of customer service that have made us trusted and valued by the millions of people who rely on us every day in their homes and workplaces.

We are aware of the impact of the economic climate at this current time on affordability and we have worked hard to innovate and change the way we do things to deliver lower costs and better value for all our customers.

I am, therefore, pleased to present our final GD1 annual strategic performance report for 2020/21 which is summarised below:

- We have achieved all but one of our RIIO-GD1 regulatory commitments whilst spending less than our regulatory allowances, sharing these cost savings with our customers.
- The Fuel poor primary output was not met solely due to COVID-19 impacts but we remain committed to supporting fuel poverty schemes into GD2.
- Overall bill reduction over the whole of GD1 of 18% with our portion of the average domestic gas consumers' bill at £131 in 2020/21.
- Continuing to deliver excellent customer satisfaction; scored at 9.17 out of 10; maintaining our position as second against all eight of the gas distribution networks.
- Resolved more than 8 out of 10 complaints within a day.
- An additional 5,862 customers added to the energy supplier priority service register all of which are now eligible for further help and support.
- Intently listened to our customers and supported the continued use of our consumer engagement group for the last year of GD1 and into GD2.
- Saved 718 families an average of £1,242 per annum through our Healthy Homes, Healthy People programme.
- Recovered more than £126k from unregistered gas users that will be returned customers.

Our efforts have been recognised across the board with a range of external recognitions including:

- A unique gas industry achievement of "RoSPA Gold" award for the eighth year in a row
- Highly commended RoSPA Oil and Gas Sector Award
- Retained the British Standard for Inclusive Service Provision (BS18477)
- Responsible Business Champion from Business in the Community Cymru for demonstrating our commitment to the responsible business agenda during a time of extreme and testing change
- Accreditation ISO 14001 for environment from the Internal Organisation for Standardisation

I am proud to lead colleagues in our business who are passionate about continuing to improve our services to customers and who are committed to delivering a green future for the benefit of our country.

Looking ahead

As we embark on GD2, with the challenges this brings, we have an ambitious business plan which delivers the important priorities our customers asked us for. With a refreshed leadership team, a new insourced operating model, a commitment to implementing new IT systems and more efficient processes – our commitment to continuing our great safety and customer performance and affordable services has never been stronger.

We will continue to listen to our customers, our local authorities and the decision and policy makers as we start to shape our network for the future. We will be investing in innovative research and demonstration projects to prove the future role of gas networks in delivering affordable, reliable, and greener energy for the future. With a new focus on hydrogen combined with a continuation of the drive to increase biomethane and investment in the network to make it ready for this green gas; we plan to deliver a Net Zero ready network by 2035. We remain committed to developing smart controlled hybrid heating technology to provide customers with choice and we plan to further roll out the use of our pioneering 'Pathfinder' model to support local and national energy decisions based on reliable and robust data and modelling.

At the heart of our success are our people – from the front line to back-office support. The outstanding value for money service we continue to provide is very much down to them. Our values driven culture, accredited by Investors in People, supports, and challenges our people to deliver for customers in an effective, innovative way.

Leading Wales & West Utilities remains a great privilege for me. I want to thank colleagues, customers and all our stakeholders for their continued support, and I look forward to continuing to lead this business into the future.

Graham Edwards
Chief Executive
Wales & West Utilities

1.1 Board Statement

Board Statement

Our ambition is to continue to deliver outstanding levels of gas safety, reliability, and customer service so that we are trusted and valued by the millions of people we serve every day – now and into the future.

The Company's vision of success is to be consistently recognised as one of the top performing companies by our stakeholders and regulators.

Underpinning this strategy is a strong compliance culture which the Board directly monitors through its Health Safety & Environment, Audit and Treasury committees. Incentive arrangements for the senior management team are directly linked to safety, customer, and efficiency targets. These targets are updated annually.

I can report that the Company has met all the primary output targets for RIIO-GD1 with the exception of the Fuel poor connections output. The COVID-19 pandemic has impacted the delivery of the fuel poor primary output, which affected our outstanding track record in delivering all primary outputs until the eighth year. We were forecasting to achieve this output but the requirement to stop planned works during the initial lockdown impacted our ability to achieve the output. We look forward to addressing the COVID-19 impacts on GD1 within the close out process with Ofgem this Autumn.

The Company has again demonstrated strong customer service and safety performance throughout the year and after over 40 years of investment we now have a 74% PE network.

The focus of the Board is to support the strategy through significant investments and innovations aimed at improving the performance of the business for the benefit of all stakeholders. Our strategy and associated processes make sure we continuously capture feedback from a broad range of stakeholders, review it and put in place appropriate action plans to continuously improve our services.

The principal risks associated with the business, and the associated mitigations, are regularly reviewed by the Board and remain largely unchanged over the course of the year. These risks include (1) RIIO-GD2 final determination, which does not adequately fund our efficiently incurred costs and resulted in our appeal to the CMA, (2) a breach of legal and regulatory obligations, (3) health and safety failure, (4) network asset performance failure, (5) employee retention and (6) financial risks associated with interest rates, liquidity, and credit. The long-term future of the business is directly linked to the role of gas networks in meeting the UK's decarbonisation targets. The expanding role of the gas network, as highlighted by the increase in green gas connections and peaking power plants, shows significant opportunity for energy customers from increased integration of the gas and electricity networks, together with increased renewable gas and renewable electricity. The interaction between the gas and electricity networks is set to increase in the move to create a dynamic, flexible, integrated energy system to support a green energy UK.

Our collaboration with other gas networks to deliver net zero continues with pace. We have further developed the Gas Goes Green project, worked together to secure new regulatory funding and increased our focus on joint communication. Our co-ordinated GDN representation on the BEIS working groups is set to deliver some exciting new projects which deliver against the commitments in the Government's 10 Point Plan issued in December, specifically a hydrogen village by 2025. Our joint working is being strengthened further with a new strategic electricity and gas ENA group with a focus on delivering whole systems for our customers.

We are pleased to have secured additional funding for RIIO2 to roll out our whole systems model 'Pathfinder' more widely and we are committed to supporting energy planners to understand the impact of different decarbonisation options.

We continue to contribute to a range of national hydrogen ready projects including H21 with NGN and Hynet with Cadent – collaborative work to demonstrate how converting the UK gas network to carry 100% hydrogen can tackle the UK's decarbonisation challenges. We are pleased the HSE has issued an exemption certificate to allow us to put up to 1% Hydrogen into our distribution network at Swindon. Our focus is now on potential options for establishing a Hydrogen Village within our operating region – an exciting proposition being supported by Ofgem and BEIS.

The publication of the Energy white paper and the Government's 10-point plan are starting to signal the direction for the UK to move to net zero and we look forward to the publication of the Heat & Buildings Strategy in the autumn. The future role of the gas networks is crucial in meeting the energy needs of the UK and helping the UK government deliver net zero.

As we commence GD2, we are committed to delivering our ambitious plan which will also focus on our future and our role within the energy sector over the longer term.

As a Company we will continue to make the case for effective use of the gas grid and decarbonised gas as essential elements of a low cost, low carbon, and sustainable energy system as part of the UK's target of reaching Net Zero by 2050.

Andrew J Hunter
Chairman of the Board

2

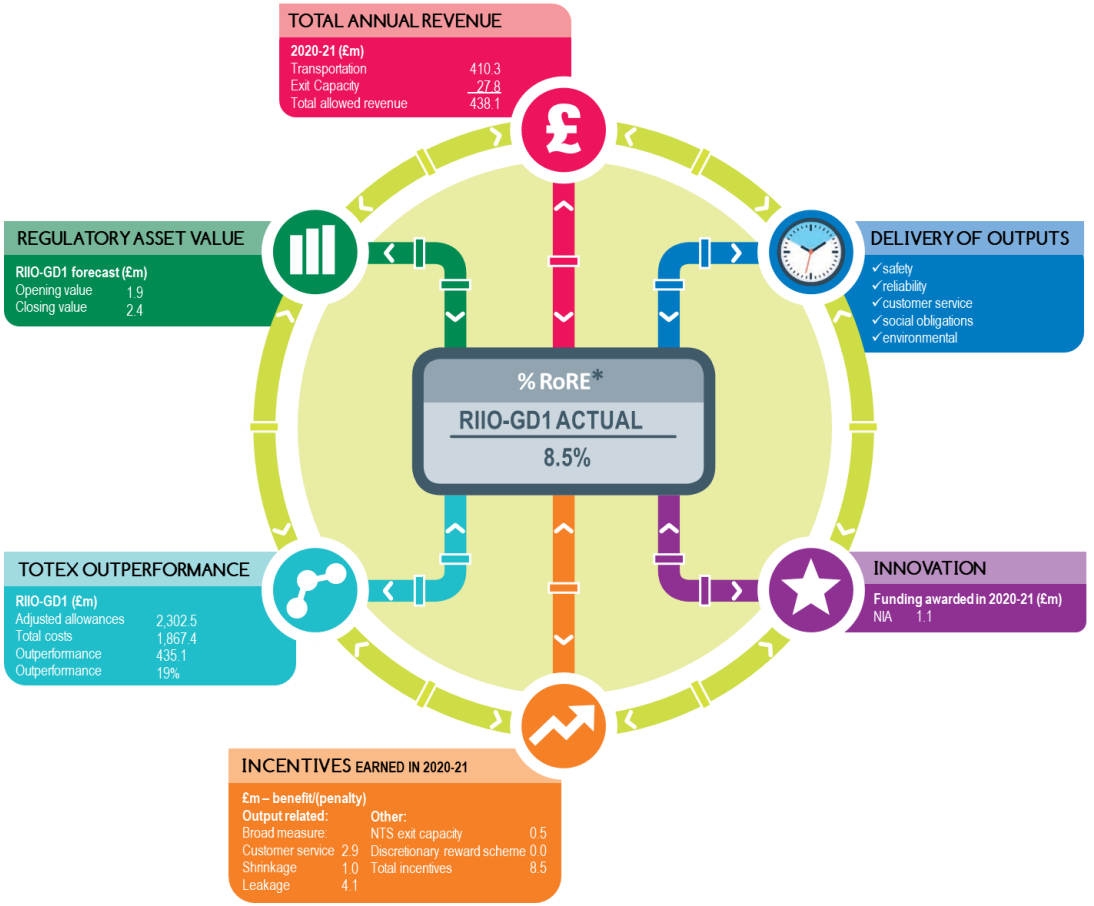
Strategic Performance Overview

In this section:

2.0 Strategic Performance Overview

2020/21 Summary Performance

RIIO-GD1 Actual Performance



2.1 Effect of Coronavirus

COVID-19 impacts on 2021

Due to the pandemic and resulting restrictions from mid-March 2020 and through the 2020/21 year, our works were significantly affected.

With our area of operation covering both Wales and the Southwest of England we have seen additional challenges due to the devolved governments alternative approaches to restrictions.

The main challenges we continue to face are:

- Attending emergency works, keeping both customers and our staff safe
- Managing planned works where we need to access a property
- Social distancing for colleagues and engineers working in teams
- Managing business critical processes remotely
- Staff sickness, isolation procedures and resource management

Emergency works continued to be a priority even during the tightest restrictions. Purchasing the appropriate PPE and keeping engineers and customers safe has been a challenge that we have risen to and addressed. Productivity has been impacted from additional tool disinfecting, PPE changes and increased customer liaison.

Planned works were stopped for a period of 2020 while the HSE and BEIS worked on an appropriate risk assessment process, to allow engineering works to continue safely throughout the pandemic.

Overall productivity and cost of delivery continues to be impacted. Productivity and cost impacts include, increased PPE usage, additional site set up requirements, additional vans required to allow engineers to travel to site individually and enhanced customer liaison. On average it is impacting productivity by 89 minutes per day. This equates to 11.1% reduction in the 2020/21 productivity compared to the prior year.

Business critical processes like emergency dispatch and system control have followed our existing business continuity measures. Creating two teams with the ability to operate from two different sites to allow work bubbles to be created, increasing resilience, and safeguarding our network safety processes.

COVID-19 has impacted our 2020/21 cost base by £23.5m, these costs were not anticipated within the price control and will be addressed in the GD1 close process this autumn. We didn't take advantage of any of the government support schemes and didn't furlough any of our own staff.

The table below documents the costs of COVID-19 demonstrating the impact on stranded labour and even with a reduction in work delivery there remain a number of fixed costs we continue to incur.

RIIO-GD1 Costs (2020/21 Prices)	2021 Actuals
Stranded Resource Costs - Non-Essential Work Reduction	8.0
Fixed Cost Incurred	16.4
Overhead Costs incurred - PPE, IT costs	0.7
Gross Totex impact	25.1
Overhead reductions - Travel, Fuel, Training	(1.5)
Net Totex impact	**23.5**

Social distancing impacts have forced us to provide additional IT equipment to allow staff to work at home where possible and to provide vehicles for operational staff to maintain social distance in travelling to site.

While some work was stopped and a significant portion of our office-based workforce worked from home, we have saved on some overheads in relation to business travel and training costs. Training during the pandemic has been reduced to only mandatory training requiring a phasing into GD2 for non-mandatory training.

While dealing with COVID-19 impacts we have still achieved all but one primary outputs for GD1. The Fuel poor network connections target has been missed by 6%. This was solely due to the pandemic impacting the ability to deliver planned works to the level we had forecast for 2020/21.

We submitted a close out report on the fuel poor impacts separately to this submission and will continue to work with Ofgem to deal with this as part of the GD1 close out process.

2.2 Customer Bill Update

2.2.1 Overview of Customer Bill

All figures are in 2020/21 prices.

There was a 2% decrease in the customer bill between 2020/21 (£131) and 2019/20 (£134) due to an overall decrease in transportation allowed revenue of £12m (in 2020/21 prices).

The decrease is made up of:

- A decrease of £14m as a result of Enhanced Physical Site Security Reopener allowance in 2019/20 which was not present in 2020/21
- A reduction of £3m to base allowance (set at RIIO-GD1 final proposals)
- A reduction of £1m from a greater level of negative true ups on a 2-year lag

The decreases in revenue are offset by the following:

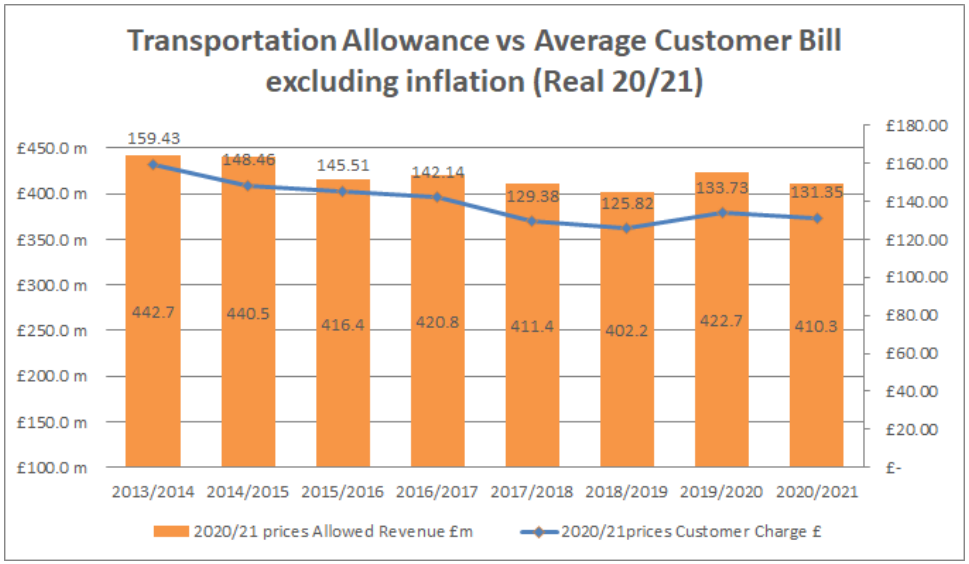
- An increase of £2m in incentive income
- An increase of £2m to financial adjustments (an increase to tax related adjustments offset by reductions in cost of debt allowance)
- Higher Totex incentive mechanism revenue (£2m) which is a result of out-performance on Totex allowances from two years ago

Since the start of the RIIO-GD1 price control the domestic customer bill (excluding inflation) has steadily fallen, a reduction of 18% from £159 in 2013/14. Figures exclude exit capacity charges and consumers only benefit if the reductions are passed on by shippers.

Customer bill movements fall into two elements; movements in our “Allowed Revenue” and changes in customer numbers and volumes of gas flowing through our network each year i.e., if there is an increase in the number of customers, then the revenue to be collected from each customer will decrease. Our allowed revenue is made up of base revenue as set by Ofgem at the start of the control period and adjustments for actual costs and performance against targets. The most significant movements over the whole of RIIO GD1 are explained below:

- Domestic customer growth trend – over the course of RIIO-GD1 our domestic customer base has increased, and the average gas used by each customer has decreased. The net effect of this is to reduce the amount paid by each customer.
- Increased capitalisation of Repex – the Repex capitalisation rate increases from 50% at the start of RIIO-GD1 to 100% at the end of RIIO-GD1. This increases the proportion of slow money. As slow money is recovered over 45 years, this increases the period over which we recover our investment in the network and reduces customer bills in the short term.
- Increased tax allowance – there was no tax allowance in 2013/14 due to the existence of regulatory tax losses. Such tax losses are now fully utilised.
- Reduction in cost of debt allowance – we are funded for a return on RAV. The return rate is based on cost of debt, cost of equity and notional gearing. Cost of equity and the notional level of gearing, against which we are funded, remain constant through RIIO-GD1. However, the cost of debt allowance is based on the rolling 10-year iBoxx index which is decreasing and therefore causes a year-on-year reduction in the allowance for the cost of debt.
- Hand back of outperformance to customers – where we have invested efficiently and taken advantage of innovation, we spend less than our Totex allowance in a given year, this underspend is shared with customers (36.8%) through reduced allowed revenues.

Average Customer Bills in RIIO-GD1



Figures exclude NTS exit capacity charges.

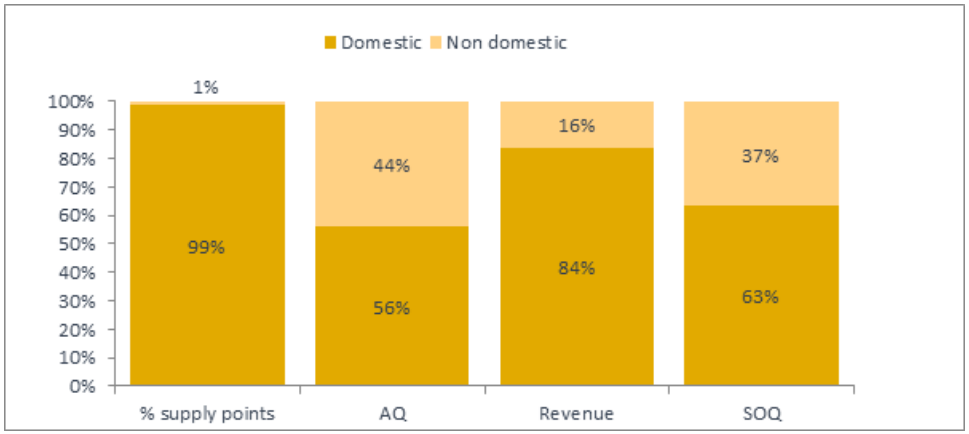
New connections to our network have continued over the past 12 months and we supply over 2.5m customer premises.

2.2 Customer Bill Update

2.2.2 Customer Bill Allocation

Domestic loads make up over 99% of our connections but account for only 56% of the annual throughput, however 83% of our revenue is paid by domestic customers. This is due to the fact that large customers (non-domestic) pay a lower unit rate on transportation charges. Charges are split by load band (based on annual quantity forecast to be used in the year). All customers in a particular load band are charged the same unit rate.

Non-domestic customers (load band 2 and above) pay a lower unit rate due to where they are situated within the gas network. Smaller customers (usually domestic customers and small businesses) are more likely to be at the end of a gas network i.e., gas flows through more of our pipes to get to the customer, whilst large customers are more likely to be closer to the gas entry point on our network i.e., using less of our pipes to supply them with gas. The unit rates are weighted so that customers that use more of the network i.e., domestic customers absorb more of the cost of maintaining it.



AQ = Annual quantity of gas transported

SOQ = Peak capacity usage (System Offtake Quantity)

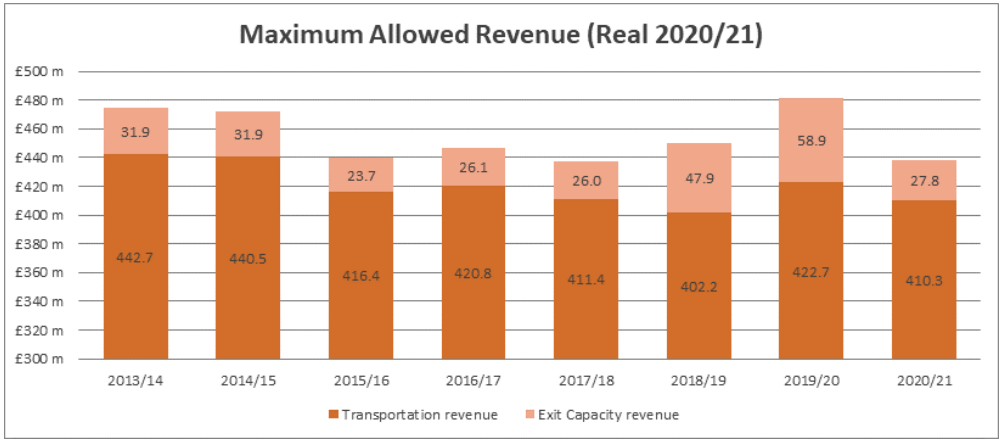
At the end of RIIO GD1, domestic consumers on our network used an average AQ of 12,705 kWh of gas each. The use of the average AQ is important, as the unit rates charged in any one year will reflect these. If a network's allowance remained constant throughout the price control, but its users required less capacity year on year, there would be a corresponding increase in unit rates in order to collect the allowance permitted and therefore would be no overall change in the cost to the consumer irrespective of the amount of gas they consumed.

The Ofgem calculation of customer bills for Gas Distribution Network uses the same average domestic AQ across all networks and therefore doesn't reflect the actual numbers of domestic customers connected to, and the volumes of gas flowing through, each network. All the GDNs believe that Ofgem's calculation is less accurate and that they should use each GDNs' actual AQ figures to more accurately reflect the actual bills being charged and the number of customers connected to each network: the approach taken by us in this report.

2.3 Maximum Allowed revenue over the Price Control

2.3.1 Overview of Allowed Revenue

The eighth and final year of the RIIO-GD1 price control, 2020/21, shows a drop in total allowance compared with 2019/20. In addition, 2020/21 revenue is below the RIIO-GD1 average for both transportation and exit capacity.



The three key reasons behind the changes are:

- NTS Exit Capacity allowed revenue decreased by £31.0m between 2019/20 and 2020/21. The most significant movement relates to the cost true up. The movement in the cost true up is a decrease of £28.0m and represents the difference between the cost true up stemming from 2017/18 and 2018/19 respectively. In 2017/18 we were subject to a large cost increase which meant the cost true up in 2019/20 was a positive to us of £14.1m, whereas in 2018/19 our exit costs were much lower than our allowance, therefore the opposite was true. The resulting cost true up impacting 2020/21 is a give back of £13.9m, so the movement in cost true up year on year is £28.0m.
- This was offset by a £12.4m positive correction factor as a result of an under recovery of allowed revenue in 2018/19. In addition, a negative movement in base allowance of £15.5m reflects an increase to 2019/20 base allowance that we requested in 2017/18, to reflect indicative NTS charges at the time. There was no such increase requested for 2020/21.
- Transportation allowed revenue – the year-on-year reduction of £12m relates to a number of factors including Enhanced Physical Site Security Reopener included in 2019/20 but not 2020/21, decreases to base allowances and two year lagged true ups, offset by increases in incentive income, financial adjustments and Totex incentive mechanism revenue. Further details are in section 2.2

2.3.2 Allowed vs collected for 2020/21 (excluding exit capacity)

The allowed transportation revenue in 2020/21 was £410.6m. In this year we actually collected slightly less at £408.4m (a difference to allowance of -0.5%). This under collection was driven by movements in our chargeable base, being the AQs that are used to calculate charges to shippers. For price setting in a regulatory year, we use an AQ assumption which is based on a snapshot of AQ data from the previous December. Between December and 1 April, when the new prices are effective, the AQ's may change, and they may continue to change throughout the year, leading to under or over recovery of allowed revenue.

2.3.3 Forecast performance in 2021/22

Forecast allowed transportation revenue for 2021/22 is £419.0m in nominal prices, compared with a forecast collected revenue of £415.4m. This results in an under recovery of £3.6m. Under the RIIO-GD2 price control, the revenue adjustment "k", will be reflected in the pricing decision for the immediately following year 2022/23 (rather than a two-year lag as in RIIO-GD1) on a forecast basis and then trued up to actuals the following year when setting allowed revenue for 2023/24.

The allowed revenue in 2021/22 reflects a forecast of allowances for the first year of RIIO-GD2 as set by Ofgem's RIIO-GD2 Final Determinations, along with a number of 2-year lag true ups from 2019/20.

Exit capacity allowed revenue in 2021/22 is £28.4m which includes an increase in base revenue of £12.5m from 2020/21, that reflects a full year of the NTS postage stamp charging methodology (see 2.5.2), which was implemented on 1 October 2020, as well as a positive 'k' of £9.2m due to an under recovery of allowed revenue in 2019/20. These increases are offset by a large negative cost true up of £25.1m which was generated when we increased our base allowance for 2019/20 to align to price indicatives at the time. Actual prices in 2019/20 were much lower than NTS price indicatives, (which had been used to increase base allowance), leading to a significant difference between allowance and cost.

2.3.4 RIIO GD2 forecast

We are working to the PCFM submission on 31st August 2021, the forecast revenue will include any updated costs and assumptions linked to our CMA appeal. Notably we have included £76m for increased repex costs and £6m for ongoing efficiency assumptions to the revenue forecast.

These will be subject to the annual iteration process and 'trued up' by November each year.

2.4 Return on Regulated Equity

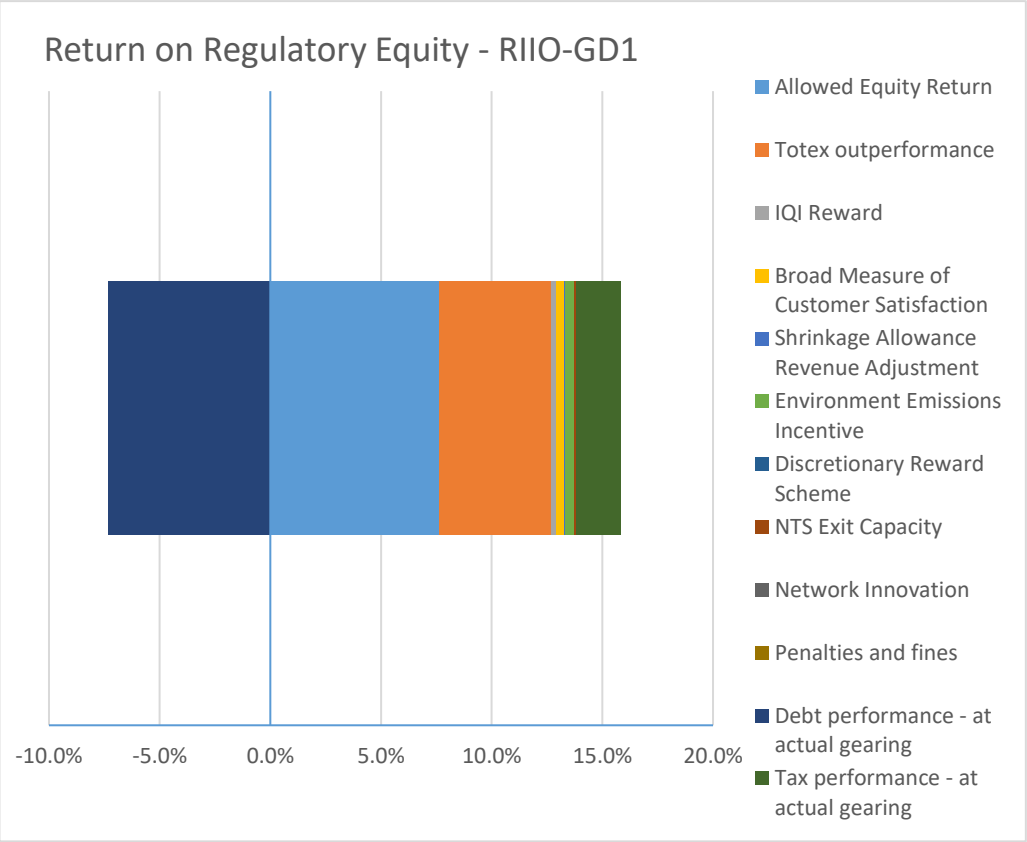
The return on regulatory equity ("RORE") involves two measures.

The first measure assumes notional gearing of 65%. On that basis, RORE was 8.5% for RIIO-GD1. This comprises operational RORE of 12.1%, reduced by a shortfall on debt performance, net of tax, of 3.6%. For the year 2020/21, RORE was 4.1% (8.7% for 2019/20), a reduction of 4.6% over 2019/20.

The main reasons for the decrease of 4.6% over 2019/20 are: -

- Lower Totex outperformance at 2.2% in 2020/21, a reduction of 2.0% compared to 2019/20
- Higher debt underperformance, net of tax, of 5.9% for RIIO-GD1, and a year-on-year increase of 2.6%

The second measure uses actual gearing. On that basis, RORE was also 8.5% for RIIO-GD1. This comprises operational RORE of 13.8%, reduced by a shortfall on debt performance, net of tax, of 5.3%. For the year 2020/21, RORE was 4.1% (8.5% for 2019/20), a reduction of 4.4% over 2019/20. Lower Totex outperformance and higher debt underperformance, net of tax, are the main factors for this reduction.



2.5 Our Totex Outperformance

Outputs, Totex costs and Workloads

The costs and workloads included within this section have efficiently delivered the Outputs as defined within the RIIO-GD1 Final Proposals. There are areas that caused uncertainty throughout the price control of which many continue into RIIO-GD2:

- Roll out of Smart Meters – minimal costs incurred however uncertainty still on impact on future costs and workload.
- Winter severity - we experienced a number of mild winters in recent years with the last sustained cold winter being 2010/11. However, we did experience a significant cold spell in February and March 2018. The winters of RIIO-GD1 period were some of the mildest in history continuing through 2020/21 with warm spells across the year. We clearly are required to plan for a 1 in 20 winter and therefore our future resource forecasts (including through the implementation of our winter contingency plan and the use of reservists etc.) reflect this requirement.
- The economy - whilst the economic downturn in the first few years of RIIO-GD1, and the COVID-19 pandemic, has impacted some specific workloads, for example general reinforcement, FPNES and non-rechargeable diversions, the indications are that the UK as a whole is now growing.
- Fuel poor connections - across RIIO-GD1 we successfully connected 11,865 customer properties, where the occupants were in fuel poverty. Following the Ofgem review of the Fuel Poor Network Extension Scheme, a revised Output target of 12,590 connections, up from 10,800, over the eight-year price control was agreed with Ofgem in September 2015. Ofgem subsequently directed further changes to the scheme eligibility criteria including the removal of the IMD criteria reducing the number of connections qualifying as fuel poor. The overall workload delivered in RIIO-GD1 ended up 6% lower than the revised Ofgem target due to the impact of COVID-19.
- Resources - we continue to see a decline in the number of resources we are able to recruit in certain areas of the network (predominately in the Southwest) along with increasing market rates. The level of recruitment and impact on costs remain a concern for us. We have tried to mitigate this risk in recruitment by training a number of resources in specific areas of the network such as Cornwall in order for us to be prepared to manage the challenges of RIIO-GD2.
- The full impact of COVID-19 pandemic on costs and workloads within our network has yet to be fully realised and has created a level of uncertainty into the new price control.

The table below provides a Totex overview for RIIO-GD1 including a comparison against last year's forecast view across the price control.

In headline terms, controllable costs increased in the year and the movements are detailed throughout this document. We continue to be mindful of the impact that COVID-19 has on costs and workloads in future years.

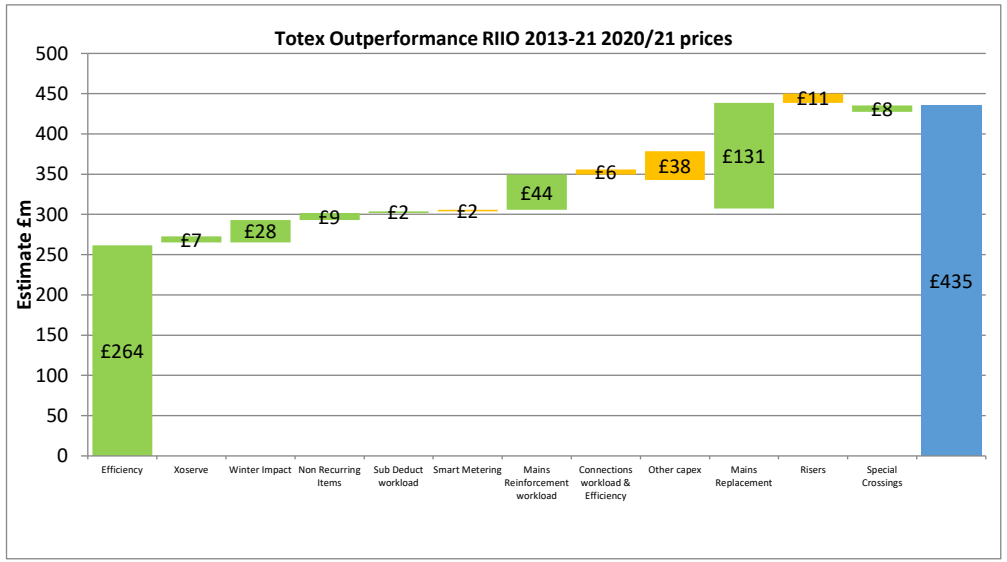
RIIO-GD1 Costs (2020/21 Prices)	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	RIIO Total	2019/20 view
Total Capex	59.6	49.6	55.4	53.5	53.0	57.2	51.7	65.7	**445.8**	439.8
Total Repex	84.2	88.7	87.3	85.6	72.2	80.9	80.4	77.5	**656.8**	659.6
Total Controllable Opex	109.1	102.6	94.1	95.4	83.2	87.1	95.3	98.2	**764.8**	766.2
Total non-controllable Opex	86.1	86.2	86.0	112.4	124.1	92.3	99.4	99.3	**785.8**	782.0
Total funded costs – including uncertainties	339.0	327.1	322.7	346.9	332.6	317.4	326.8	340.7	**2,653.2**	2,647.7
2019/20 view	339.0	327.1	322.7	346.9	332.6	317.4	326.8	335.1	**2,647.7**	

2.5 Our Totex Outperformance

2.5.1 Totex Outperformance Summary

The financial outperformance on controllable costs reported in the RRP 2020/21 for the full eight-year RIIO-GD1 price control period was £435.1m whilst delivering on our commitments to our customers. The detailed information on Totex performance is contained within Section 3 along with the supplementary commentary. Data has been produced on a best endeavours basis. The allowances were set using regression analysis and therefore it is not possible to produce a detailed walkdown. A high level walkdown and commentary is shown below.

(All financial allowances in this document match back to the Price Control Financial Model as confirmed with Ofgem)



Details of cost (under)/overspend	Cost Driver Category	Ref no.	Opex	Capex	Repex	Totex
Final Proposals (20/21 prices)	Efficiency		**909.5**	**533.5**	**859.5**	**2302.5**
Efficiency	External factors	1	(100.6)	(88.6)	(74.7)	(263.9)
Xoserve	External factors	2	(7.4)	0.0	0.0	(7.4)
Winter Impact	External factors	3	(27.8)	0.0	0.0	(27.8)
Non-Recurring Items	Efficiency/Price control assumption	4	(8.7)	0.0	0.0	(8.7)
Sub Deduct workload	External factors	5	(2.1)	0.0	0.0	(2.1)
Smart Metering	Efficiency/External factors	6	1.8	0.0	0.0	1.8
Mains Reinforcement workload	Efficiency/External factors	7	0.0	(43.6)	0.0	(43.6)
Connections workload & Efficiency	Efficiency/External factors	8	0.0	6.5	0.0	6.5
Other Capex	Efficiency/External factors	9	0.0	38.0	0.0	38.0
Mains Replacement	Efficiency/External factors	10	0.0	0.0	(131.2)	(131.2)
Risers	Efficiency/External factors	11	0.0	0.0	11.3	11.3
Special Crossings		12	0.0	0.0	(8.1)	(8.1)
Total Cost Spend			**764.8**	**445.8**	**656.8**	**1,867.4**
Variance			**144.7**	**87.7**	**202.7**	**435.1**

Key Initiatives – Efficiency (impacting Totex)

- **Efficiency (1)**
- **Working time solutions** – The introduction of Working Time Solutions in December 2012 to our operational workforce, which has optimised working patterns and reduced the ongoing overtime bill.
- **Productivity improvements, employee contract changes and severance** – The voluntary severance schemes and the introduction of revised terms and conditions for new employees along with our continued focus on productivity has significantly contributed to the success of our cost base step change.
- **Contract re-negotiations** – Renegotiation with partners of key strategic contracts allowing for outperformance including a cutting-edge alliance to drive maximum benefit for consumers.
- **Innovation** – Techniques introduced leading to cost savings such as coil trailers for larger pipe coils and Ductile Iron Cutters.
- **Network management optimisation** – Our leading asset management strategy that strives for lowest whole life Totex cost is maintaining the health of our assets at efficient levels, whilst minimizing our costs for the benefit of consumers.
- **Other small initiatives –** We have introduced various smaller initiatives that have resulted in a cost reduction such as making employees more accountable for the equipment they use and only replacing when needed with a process of control in place.
- **COVID-19 –** As stated in section 2.1, productivity has decreased across 2020/21 due to the impact of the pandemic, ensuring we operate safely with restrictions such as social distancing making workload delivery more inefficient. This alongside the stranding of resources in Opex has impacted on Opex outperformance.

2.5 Our Totex Outperformance

- **Workforce utilisation** –
  - Training all of our first call operatives (FCOs) to carry out new metering work such as Smart Metering, transferring otherwise efficiently incurred non-productive FCO labour time from our base emergency costs along with the utilisation of FCO's on replacement & capital activities providing lower costs for our customers, and allowing flexibility to deliver against tough conditions such as the Beast from the East.
  - An element of the emergency workforce is now competent to support network maintenance activities which increase the productivity of the workforce and allow us to meet the maintenance workload demands.
  - Use of a single manager to effectively manage the Mains Replacement programmes in North Wales allowing for the delivery to be more effective and efficient. This ensures best practice and innovation is used across all activities through the consistent management of workload
  - Network services have resources trained in key areas across the network to assist with the demand on the emergency workforce through peak workload periods. This also allows for further support on emergency activities while Smart Metering workload is completed

Highlights of Opex outperformance

- **Xoserve (2) –** A reduction in Xoserve costs in Opex resulting from the new funding and governance arrangements (FGO)
- **Winter Impact (3) –** We experienced a number of mild winters in recent years with the last sustained cold winter being 2010/11. However, we did experience a significant cold spell, albeit, short in February and March 2018 (Beast from the East) and ensured standards of service were met. The majority of the winters experienced over the RIIO-GD1 period have been some of the mildest in history continuing throughout 2020/21.
- **Non-Recurring Items (4) –** A number of costs accrued and expected to be incurred by us prior to the RIIO-GD1 price control were reversed in 2017/18 resulting in a decrease in costs.
- **Sub Deduct workload (5) –** Our approach is based on removal of the sub-deduct network at the lowest overall cost. This has been done by using innovative ways of removing the risk, which include adoption by third parties, removal of the prime meter by installing a bypass and reconfiguring the sub-deduct set up. We have also found that a number of sub-deducts no longer exist.
- **Smart Metering (6) –** We have seen an impact of the Smart Metering installation programme on the number of emergency calls we have received and cost £1.8m over the price control.

Highlights of Capex outperformance

- **Mains Reinforcement workload (7) –** To ensure our reinforcement workload is sufficient, without over-engineering, we invest significantly in network analysis tools and expert analysts to operate them. Where these tools indicate capacity issues, analysts consider a wide range of intervention options, balancing cost, and benefit. These options go through a challenge and review process with operational colleagues to ensure we end up with the best solution, taking into account areas such as, engineering resilience future demand on the network – lowest Whole Life Cost. We have outperformed allowances through:
  - Use of excellent data and analytical tools to ensure we only intervene, when necessary,
  - Innovative approaches to dealing with capacity issues – avoiding expensive and disruptive pipe laying where possible,
  - Outperforming unit cost allowances when we lay pipe.
- **Connections workload & efficiency (8) –** costs have increased against the allowance in RIIO-GD1 due to the following:
  - Utilisation across TOTEX activities of our direct labour resource which can be more expensive than external resource, however this approach ensures that direct labour remain fully productive, therefore minimising overall Totex costs. This is an example of how we manage our workload and resources in a TOTEX environment.
  - We use our direct labour to complete surveys prior to most connections jobs resulting in a better experience for the customer.
- **Other Capex (9) –** Increased investment in key infrastructure elements especially IT throughout the price control including increased costs in the final years of the control for the ongoing SAP upgrade to S4 HANA along with new operational depot builds and purchasing newer vehicles and equipment.

2.5 Our Totex Outperformance

Highlights of Repex outperformance

Mains Replacement (10) – We have delivered on our promises whilst driving efficiency and thus benefiting consumers. We aim to continue to deliver our stakeholder driven outputs through effective decision making, innovation and a focus on efficiency.

The key strategic eight-year alliance contract has ensured that our customers and the company benefited from lower delivery rates through RIIO-GD1, than we would expect to see in future price controls. However, as can be seen from the performance of our alliance contract in this and the last few periods (in 2020/21 prices c. £30.4m has been borne by partners over the last 4 years), this is not a sustainable position that we will be able to replicate as we enter RIIO-GD2. This is placing an increased strain on the remaining delivery partner following the exit of the other partner in the 2018/19 period.

Below are some areas which provided a benefit to our alliance contract in early years of the price control, but as opportunities are exhausted our underlying cost base continues to rise, only protected to the end of RIIO-GD1 by our contractual arrangement.

In the early years of this price control, the labour market was in a favourable position and our mains replacement programme benefited from a reliable and consistent workforce for a number of years before the labour rates in our fixed contractual pricing reflected this. In the past few years, however, this landscape has changed significantly, and labour rates are continuing to increase. This is being driven predominantly by competition with other GDNs and other capital programmes (including in the water, electricity, nuclear, telecoms and transport sectors). We continue to invest heavily in our workforce to try to offset some of this rising pressure, an investment which will also be required in the future.

As we entered RIIO-GD1 the change to the programme design constraints agreed with the HSE and the impact on the pipe selection criteria provided greater flexibility without any impact on the primary focus on risk reduction and customer safety. This in turn provided a short-term opportunity to design schemes that were significantly larger than had been possible previously, something that was reflected in our Alliance contract rates and allowed us to benefit from the following:

- Using larger teams in smaller geographical areas – the success of the five/six-person team model during the first half of GD1 improved operational efficiency and produced a level of performance beyond our forecasts. This opportunity is now limited.
- More efficient support functions – larger teams delivering larger quantities of work in a small geographical area can be serviced more easily by support functions. For instance, logistics support functions have fewer projects to service and there is less travel time between sites. Reinstatement teams can also deal with a higher number of excavation pits in one geographical location saving on travel time. Again, this opportunity continues to reduce as scheme sizes become smaller and less efficient.
- Lower mobilisation / demobilisation costs – larger and fewer schemes reduced the significant cost of safe mobilisation and demobilisation of sites in the first years of the price control.
- Scheme sizes continue to fall, and the number of teams/schemes is increasing which is pushing up cost.
- Lower management to team ratio – operational and safety management is most efficient when team sizes are maximised and the number of schemes that are in progress are kept to a minimum. The change in the design constraint allowed us to achieve this balance. Now these schemes have been depleted we are seeing a fall in the team size with a related increase in scheme numbers – moving back to a similar profile as in GDPCR1.

We have significantly driven down mains replacement delivery costs in RIIO-GD1 through a number of innovations, some of which enable enduring efficiencies, others sustainable only in the short term.

- 500m coil trailers: Our self-funded innovation project to develop 500m coil trailers has significantly supported insertion and has reduced the number of insertion pits, pipe wastage and the environmental impact. This is now used throughout the GDNs, driving improved performance for all gas consumers.
- Ductile Iron (DI) cutters: In the first half of GD1 we avoided DI and instead targeted cast iron/spun iron because of its lower risk, and to avoid the complications and associated cost of cutting DI to connect services to the newly inserted PE main. This approach was taken to reduce the whole life cost of the programme while a more cost-effective solution was developed through our DI cutter innovation project. We led on an NIA project to develop a suitable tool that makes this activity easier and more cost-effective. DI cutters are now operational and will help to counteract the increased cost of replacing DI mains in our remaining programme.

However, the opportunity for such large schemes has been largely exhausted reducing to a size similar to that experienced in GDPCR1. As scheme sizes have reduced, so have team sizes.

- **Risers (11) –** Intervention on multi-occupancy buildings (MOBs) and Special Crossings is broadly maintaining the overall health of these asset populations. We achieved this at lowest whole life cost by innovative solutions and by utilising life extending refurbishment options where appropriate and where cost efficient.
- The intervention plan for MOBs is primarily replacement at present but we are leading on a number of innovation projects to develop the use of cost-effective refurbishment techniques. In RIIO-GD1 we replaced another 1,339 risers supplying 4,458 consumers. Although this has come at a higher cost than expected, we believe that this is the correct course of action, given the associated risks.

2.5 Our Totex Outperformance

- Following the tragic events at the Grenfell Tower we have been carrying out further checks on our high-rise MOB population to ensure that the risk imposed by fire is managed appropriately. Our spend in the price control was £15.8m within this asset group and demonstrates our commitment to ensuring a safe, reliable supply to these types of buildings.
- **Special Crossings (12) –** Intervention on Special Crossings is broadly maintaining the overall health of this asset population. We achieved this at lowest whole life cost by innovative solutions and by utilising life extending refurbishment options where appropriate and where cost efficient.

2.5.2 NTS exit capacity revenue and charges

Over the course of RIIO-GD1 we have been subject to dramatically changing NTS costs, which we incur in receiving gas at the 17 offtakes into our network and as a result of the RIIO-GD1 two-year lag mechanism the profile of revenues has fluctuated considerably, contributing to varying bills for our customers.

An industry modification (UNC678) was raised by National Grid NTS in January 2019 to amend the pricing methodology in place. The aim of this was to produce stable and predictable transmission charges and ensure compliance with TAR NC (Commission Regulation (EU) 2017/460). The main difference to the current long run marginal cost (LRMC) methodology was the use of capacity weighted distance basis to allocate revenues.

On 28 May 2020, the Authority approved modification proposal UNC678A: 'Amendments to Gas Charging Regime (Postage Stamp), one of the ten alternative modification proposals to UNC678 submitted to Ofgem. The new NTS exit capacity prices which are based on a postage stamp charging methodology came into effect on 1 October 2020 and from this point, prices at all offtakes were the same. Our NTS 2020/21 cost forecast rose from £25.6m using prices calculated under the LRMC methodology, published in their indicative notice in May 2020, to £31.8m under the UNC678 postage stamp charging methodology, published in June 2020.

UNC Modification 0678A introduced the Transmission Services Revenue Recovery Charge (RRC) as a mechanism to manage any under or over recovery of National Grid revenues at Entry and Exit within the Gas Year. National Grid NTS published a price notice on 30 December for an additional RRC as a result of significant under recovery of revenues from 1 October 2020. The RRC applied from 1 February 2021 to 30 September 2021. The additional RRC increased exit costs in 2020/21 to £33.2m and increased forecast costs in 2021/22 by £4.3m. As a result of these additional charges, networks have not yet experienced a reduction in the volatility of NTS costs, however it is hoped that in the long term, a more stable and predictable charging regime will be in place.

2.5.3 Theft of Gas

We continued to focus on identifying and investigating cases of theft of gas in 2020/21 in order to return this money to users through a lower allowed revenue charge. The net benefit to the consumer in 2020/21 was £18,460. There is also an ongoing benefit as the number of consumers with unregistered supplies has reduced.

In year prices £'000s	Gross payments received	Recovery Net of VAT	Associated Costs	Net benefit/ (cost) to the consumer
2014/15	£0.00	£0.00	£29.30	(£29.30)
2015/16	£496.80	£415.40	£95.60	£319.80
2016/17	£857.40	£754.90	£124.10	£630.80
2017/18	£540.20	£489.80	£151.50	£338.30
2018/19	£326.82	£293.07	£128.43	£164.64
2019/20	£516.82	£437.41	£130.43	£306.98
2020/21	£126.97	£106.24	£87.78	£18.46
Total	**£2,865.01**	**£2,496.82**	**£747.14**	**£1,731.22**

The number of theft of gas investigations carried out by us in 2020/21 has decreased to 192 from 318 in the previous year due to restrictions to visits to unregistered MPRNs as a result of the COVID-19 pandemic. Associated costs relate to the number of investigations undertaken and not the number of back-bills raised. Consequently, we will request a pass through for £18k which results in a reduction to our allowances in the regulatory year 2020/21.

2.6 Innovation and the Future of Energy

2.6.1 Changing shape of the network

With more than 80% of heat and power at peak times met by the gas network in the UK, we're planning for the future to make sure we continue to deliver reliable energy at affordable costs for customers, whilst helping the UK meet decarbonisation targets.

The facts

- There has been a shift change in the interaction between the gas and electricity networks which is set to increase in the move to create a dynamic, flexible, integrated energy system to support a green energy UK.
- Gas and electricity are now increasingly intertwined at distribution level due to CHP, power generation and gas fired heat networks.
- After over 40 years of investment, we now have a 74% PE network.
- More electric vehicles are charged with intermittently generated renewables, this creates larger demand swings on the electricity network, affecting demand on the gas distribution system as gas peaking plants respond to maintain capacity on the electricity network.
- Green gas entry has expanded rapidly from concept to practical BAU over the last few years. Further expansion needs investment and the right level of government incentives, a new Green Gas Support Scheme announced by BEIS is expected to run from September 2021 until Autumn 2025, which will pay biomethane producers a tariff along similar lines to the previous non-Domestic Renewable Heat Incentive.
- It is now widely acknowledged across the energy sector that storage is key not just in day, but across days and months, and across seasons. Gas provides this storage at the cheapest cost. The gas network is already a storage battery.
- Intermittent renewables continue to be supported by gas; the energy system would not work without this balance. We see the impact of this on gas demand profiles, experiencing regular double breakfast peaks when flexible generation meets the deficit that intermittent renewables create.
- The demand for gas vehicle fuelling has increased over the last year, particularly in the Southwest area of the network.
- We have seen a step change in industry activity looking at the conversion of the natural gas network to transport up to 100% Hydrogen. We have engaged on relevant initiatives and innovations to date in this area including the South Wales Industrial Cluster (SWIC).
- As part of our Business Plan for GD2, we have developed a Net Zero ready vision which describes our role in helping the UK government meet its decarbonisation ambition.
- We have connected 19 biomethane sites during the period 2013-2021, we have our 20th site connecting in August 2021 and have a further four accepted enquiries.
- We have seen an increase in requests to support local area planning initiatives, for example SWIC, Tools of Engagement, EPIC MH:EK, as set out below.

Our response in GD1 includes:

The Bridgend Study, Freedom Project, Pathfinder 2050 Model – We have delivered a number of unique projects looking at the best options available to decarbonise heat in homes and simulate future energy supply and demand needs. Further projects are in progress to build upon the knowledge gained through this earlier work on how the gas network will best compliment the energy network of the future.

Pathfinder Plus – Building on from the success of our Pathfinder 2050 model, this model takes into consideration costing of technologies and impact of the National Grid FES. To make sure we have a secure supply of affordable and sustainable energy for future generations, we must continue to invest in and use the gas network.

Green City Vision – Following on from the ground-breaking Freedom Project, we have delivered a project jointly with UK Power Networks and SSEN. This project was completed in July 2019 and demonstrated the opportunity to optimise infrastructure investment, using Pathfinder modelling, to enable gas and electricity networks to work together to assess whole-systems solutions to decarbonise energy in the most affordable way.

OptiNet – We continue work on proving new applications of existing technology through field trials to primarily facilitate additional green gas into the network. We are leading on the 'Smarter Pressure Control' phase, to maximise existing demand for green gas entry whilst maintaining security of supply; and Cadent leading on the compressor trial to create additional demand. This project is supported by Passiv UK and is due to complete in 2022.

Regional Future Energy Scenarios (FES) – In 2018 we completed a project with Regen providing forecasts locally, across 15 zones and 5 distinct scenarios for the whole of our network, in order to inform network planning and support future investment decisions. The scenarios focus on the evolution of heat demand, delivery technologies and fuels, the growth of gas fired power generation and the changing gas supply mix, including the introduction of hydrogen and injection of biomethane. In 2020, we have revisited the scenarios for the South Wales region to develop integrated whole system distributed FES with WPD which will feed into the Net Zero 2025 South Wales project.

2.6 Innovation and the Future of Energy

Net Zero 2050 South Wales – Net Zero 2050 is an initiative to speed up progress of the decarbonisation of South Wales in order to hit Government targets of 'net zero' by 2050. The project aims to design a pathway by bringing stakeholder (utilities, industry, academia, SME, consultants, Government, regional experts etc.) views together. It will adopt a whole system view and technology neutral perspective, critically review, and challenge the options, quantify them with facts and analysis, and assess the impact on utility networks. This work can form the framework for how other regions of England and Wales will meet the zero-carbon challenge in the future, and influence approaches across a range of sectors.

Milford Haven: Energy Kingdom – aims to accelerate the transition to an integrated hydrogen and renewable energy system by creating diverse, local, community-based markets that integrate with, and benefit from, the cluster of major energy infrastructure along the Milford Haven Waterway. The project will build and demonstrate hydrogen-ready features and technologies such as fuel cell RASA cars with an electrolyser providing green hydrogen for refuelling and a hydrogen-ready hybrid heating system into one of the Port's commercial buildings. We plan to test the hydrogen boiler with a hydrogen blend and 100% hydrogen later in 2021. The project is also developing the early hydrogen market architecture with smart energy systems to link up supply with demand and to utilise local renewable electricity via virtual private wire.

SWIC – We are partners on the SWIC Cluster Plan and Deployment projects. We have recently received Innovate UK funding to develop the plans for a South Wales hydrogen distribution network to supply industry and other sectors including domestic heating. The projects will look at the infrastructure required for the development of the hydrogen economy, for large scale CO2 capture, usage and storage (CCUS) and transport/shipping as well as onsite strategic opportunities specific to each industry. SWIC comprises a diverse set of industries including oil refining, paper, nickel, insulation, chemicals, LNG import, coin production, general manufacturing, steel and cement. The further benefits of decarbonising transport and power generation are also included within the cluster activities.

Tools of Engagement – This project has developed a set of materials and resources to aid local authorities, combined authorities and city/growth deals/regions in becoming more aware of the key milestones and decisions to be made in transitioning to net zero. Through engaging with these authorities and similar stakeholder groups, we aim to become a key partner in planning various low carbon projects, thus ensuring customers are provided with the least cost/least disruption whole systems solutions. Provision of a beta testing version of this tool for the engaged authorities is due to take place during 2021.

EPIC (Energy Planning Integrated with Councils) – EPIC will look to develop a standardised process and tool for local authorities to create more accurate energy plans, capable of taking into account uptake of technologies like electric vehicles, small scale renewable generation and the decarbonisation of heat. Following engagement with Local Authorities within the West England Combined Authority region, future scenarios will be developed into detailed plans, which will be analysed by Wales & West Utilities and Western Power Distribution to identify network impacts, with several sensitivities assessed. These impacts will feed into a Cost-Benefit Analysis tool developed as part of the Energy Networks Association's Open Networks programme, to further refine the plan.

Flexible Generation Forecasting Project (FlexGen) – This innovation project provides a new, innovative statistical model that will help energy networks to better understand and forecast the operation of these flexible generation loads. These sites generate electricity to balance the power network when renewable generation is unable to and the numbers connecting to the gas networks are set to continue to rise. This project has utilised relevant data including real time data held across both gas and electricity networks to develop a model that will help us all better manage flexible generation. The model will be used in the control rooms for day ahead and within day forecasting rather than longer term planning activities.

Gas Goes Green – brings together the engineering expertise from the UK's five gas network operators, building on the foundations of the existing grid infrastructure, innovation projects and the wider scientific community. This is a blueprint to meet the challenges and opportunities of climate change, delivering net zero in the most cost effective and least disruptive way possible.

Hydrogen Ready – Continue to contribute to a range of national projects including H21 and in addition, in the year, we have completed our HyHy project which is investigating the use of hybrid hydrogen systems as a pathway to decarbonisation. We have recently secured the exemption certificate from the HSE to support the entry of up to 1% Hydrogen into our distribution network at Swindon.

Business Plan – In December 2019, we submitted our business plan to Ofgem for the five-year period of 2021-26. Within the plan was an ambitious commitment in the long term to create a Net Zero ready gas network by 2035, along with shorter term targets and objectives to meet this vision along the way. One of the most valuable elements proposed was investment to support increased injection of biomethane (an appendix to our business plan – 13J, provides more details around our bio-gas proposals). Investment is also proposed for smart control systems on the gas network to favour low carbon feeds and compressors to move gas back up the network to areas of higher demand or into storage systems. We continue to pro-actively share the outcomes from our work to ensure it is visible and challengeable. We are delighted that key decision makers within BEIS and Welsh Government are engaging with us on the outcomes and usefulness of our work in their future plans.

2.6 Innovation and the Future of Energy

2.6.2 Green gas

With our 19 sites connected, green gas injection into the gas distribution network has reached a level where we now have an increasing need to manage pressures more effectively to maximise green gas entry capacity. To facilitate this need, we continue to work on innovative field trials to prove the technology and communications required to move towards more automated control of the medium pressure network as a first step. As part of the OptiNet project, we are leading on the Smarter Pressure Control phase and have implemented a trial to automate control of our pressure regulators via our SCADA system. The findings of this trial have been positive to date with full results and learning being made available when the project concludes in March 2022. We have also kicked off a complimentary project working with Utonomy, to enable remote control of a pressure regulator in a different part of our network which would reduce manual setting changes at site and maximise green gas in.

In addition to dynamic pressure management, establishing compression as a workable solution has the potential to remove a number of existing barriers to entry where Green Gas suppliers want to connect to parts of the network where there is insufficient demand available to take their gas. In 2017/18 we undertook preliminary works to assess the feasibility of installing compression in the part of our network which is most constrained. We are also supporting Cadent Gas Network with the installation of a compressor in their network and will utilise the learning to inform future installs in our area.

The OptiNet project as described above, will consider how smarter pressure control and compression can best work together and will provide a robust assessment and recommendation of the best approach to take to optimise green gas entry. A third phase of the OptiNet project is to review the available storage techniques and how storage can complement the compression and control elements.

We currently have 19 green gas connections with a maximum connected capacity of 1,820 GWh/year which is enough to provide heat to over 151,000 homes. We have seen an increase in contracted maximum capacity due to a revision of the Network Entry Agreements at some of our connected sites.

We are about to start a project under the Gas Goes Green programme to assess the commercial barriers and opportunities of increasing green gas from existing biogas CHP plants to gas grid. The review will look at the number of biogas CHP plants on ROC in each gas network and across GB, the remaining length of tariff, remaining asset life of biogas consumption assets, and typical conversion costs for gas grid entry - both on-site gas grid entry, shared biomethane upgrade and injection hub approaches. We are leading this with NGN in partnership with CNG Services.

2.6.3 Embedded power generation

We continue to receive enquiries for small flexible generation plants and have connected a further three sites this year which provide an additional 20 MW electricity output from our network. These small power stations play an important role in offering balancing services to the power networks, effectively using storage in our network to provide flexible generation to the electricity network.

Power generation from the 46 power plants connected to our network is now 702MW, providing the ability to power some 1.1 million homes. This has decreased considerably over the last year due to a large CCGT site going offline. We have a further 216 MW of accepted capacity that is due to connect soon and 311MW of potential sites listed on the Capacity Market register.

The levels of connections seen to date have not required significant investment for storage or pressure management on our Network. However, given the continued loss of coal and nuclear generation over the next few years, along with increasing power requirements for new loads such as electric vehicles and interconnectors, we are forecasting that flexible generation requirements will continue to increase as will the need for investment on our network. We have completed a number of distribution reinforcement schemes and are now seeing investment being triggered at our gas pressure reduction sites on the higher-pressure tiers. We have modelled all known potential power generation loads in our area and identified the resulting investment. should all of these sites connect.

We continue to engage with these customers to better meet their needs and understand the future impact of this growth sector on our network.

To enable this significant growth, we have developed new processes for these sites and contributed to a joint GDN Distributed Power Generation Workshop hosted by Cadent Gas in January 2020, to further engage with developers, consultants and other GDNs on our processes. This built on a similar workshop hosted by us in 2018. A further online event is being planned for later in 2021 with a newsletter developed by us going out to all industry stakeholders to inform and help shape the workshop.

2.6 Innovation and the Future of Energy

2.6.4 Gas Vehicle Fuelling

We have connected three Compressed Natural Gas (CNG) bus fuelling stations during GD1 taking our total connected sites for vehicle fuelling to four (3 for buses and 1 for HGVs). We have one further CNG fuelling station which is planned to connect to our network later in 2021 and will provide fuel for a mix of fleet for specific requirements (such as buses and distribution vehicles for large retailers) and have several similar enquiries in progress. To improve forecasting in this area and assist with industry guidance and standards, we are engaging with the Natural Gas Vehicle Network, and are supporting Cadent's Gas Transport Transition Pathways project. This aims to provide transition pathways from the initial forays into CNG fuelling to a large-scale hydrogen fuelling infrastructure, with gas distribution networks at its heart.

Processes and commercial requirements for these sites are the same as those for power generation because of the way they take gas from the network, and we are engaging with the site developers to ensure their needs are met whilst maintaining safety and security of supply. It has not been necessary to invest in reinforcement to date because of these connections, but several forecasting sources suggest future growth in this area. Bristol City Council's commitment to fuelling the city's entire bus fleet with CNG indicates further growth in this area.

2.6.5 Investing in our future

In 2020/21 we invested £1.2m (2019/20: £1.6m) on the 36 (2019/20: 30) Network Innovation Allowance (NIA) projects we undertook, an increase in the number of live small-scale projects.

Our annual "Network Innovation Allowance Activity Summary" which details how we, and our innovation partners, have used the eighth year NIA, is available on our website.

The key headlines are:

- We took part in 38 innovation projects (36 NIA and 2 NIC projects – H21 Phase 2 and H100). Since 2013, we have started 109 NIA projects with a total investment of £10.6m. We maintain a balanced innovation portfolio, consisting of a range of projects with 54% seeking to deliver for today's customers and 46% delivering a net zero ready network.
- To date our innovation portfolio has delivered benefits of £16.3 million (£1.7m through NIA and £14.6m business-as-usual innovation). We have led a range of research and demonstration projects to build towards a net zero ready network by 2035, and to ensure that our impact on the environment is minimised.
- We are committed to rolling out previously proven innovation into our business. We've built a strong innovation operating model that maximises project potential, allowing us to report that 28% of projects in our portfolio are successfully implemented within the business.
- 27 (2019/20: 17) of these projects have been worked on collaboratively with one or more of the other Network Licensees. As trusted leaders, we were the lead GDN on five (2019/20: six) of these collaborative projects.
- We maximise our innovation activities through collaboration. We are proud to maintain a record high level of collaboration, with 68% of our NIA project portfolio since 2013 having been delivered in collaboration with one or more network licensees. This sets us apart from the sector average, driving our average project cost lower than that of our GDN partners.
- We have participated in projects with over 169 unique partners – since 2013 we have nurtured relationships with over 500 organisations, businesses of all sizes and academia.

Some examples of the NIA projects we've worked on in this regulatory year are outlined below:

- We are leading our HyCompact project, working with UKPN and Passiv UK to investigate if single unit Hybrid heating systems can play a pivotal role in the decarbonisation of heat. Our Freedom Project gave us valuable insights into how hybrid heating would affect the broader energy system, while last year's HyHy project (NIA_WWU_060) showed how such systems would work in practice with hydrogen. HyCompact now seeks to develop and demonstrate a lower-cost, single-unit solution that meets customer needs while still delivering on our decarbonisation targets.
- We are collaborating with PMC and IRM Systems on a project called Permanent Leak Repair Clamps Phase 2. This builds on Phase 1, which completed a global review and provided a recommendation that a double seal clamp provided the best engineering solution needed for the management and repair of leaking pipelines. This new technique will allow for a permanent repair to be made avoiding costly diversion works. We are at a key stage in the project, an installation is planned at one site in Anglesey, North Wales and the project will report on the operational and cost effectiveness of the solution. This has the potential to deliver benefits and could result in significantly reduced costs and disruption to supply.

We continue to work closely with the UK gas networks and this year we are chairing the ENA's Gas Innovation Governance Group and continue to share project learning and outputs through the implementation log. This log is updated regularly to provide updates to all networks as projects reach completion and are embedded within our respective organisations.

2.6 Innovation and the Future of Energy

Knowledge dissemination amongst network licensees and the wider industry is a crucial element of the NIC and NIA. Each year, we host an annual conference to highlight and effectively share key learning. Ensuring that we provide the best value for money for conference attendees is essential to effective dissemination, so in 2020/21, we alongside gas and electricity network licensees organised the first virtual, free-to-attend Energy Network Innovation conference. Here, 1,956 stakeholders registered to attend and 979 attended the live event, sharing a breadth of new learning on both gas-specific and cross-vector innovation projects. At its height, over 750 private messages were being exchanged between delegates per hour.

This year, in collaboration with all UK gas and electricity network partners, we produced our first Energy Networks Innovation Process document. Developed jointly through the ENA, this document details the processes that will be followed consistently by all companies when registering and completing projects that are funded using NIA, from inception through to roll out. This provides us with documented common practices that will help innovators understand how they can work with us on challenges.

Seven of our RIIO-1 projects will carry over up until 31 March 2022 using the agreed carry-over arrangements and will be completed in RIIO-2. This represents a value of up to £500k from the RIIO1 NIA allowance.

2.7 Summary of Output Performance

As we conclude GD1 we look back on the 8-year performance across our primary outputs, we are pleased to report we have achieved all but one of our primary outputs, the fuel poor connections target being the exception linked to the unforeseen COVID-19 impact:

- We have exceeded our shrinkage target helping the UK to achieve net zero.
- Our proven track record on safety has ensured we have achieved all but one of our primary outputs keeping customers safe for the last 8 years.
- Maintaining a consistent upper quartile position within customer service outputs demonstrates our commitment to customer support and the high level of service we offer.
- We were on track to achieve our fuel poor output until COVID-19 impacted our final years workload. The output is based on fuel poor services, for which we did not deliver the required output. However, we overspent our allowances by delivering more fuel poor mains schemes and increasing the costs of partnerships to try and counter the impact of COVID-19 on our fuel poor service forecast – our connections close out report documents our COVID-19 position.
- Interruptions targets – We were the only GDN which chose not to resubmit lower targets as part of the midpoint review of interruptions. We committed to our original challenging targets and have delivered these within RIIO-GD1, setting the bar in this area across all GDNs.
- We will be working with Ofgem to shape the GD1 close out report this autumn to address any primary output over/under delivery.
- Secondary workload deliverables – metallic service replacements. We have engaged with the Ofgem Cost & Output team to highlight our strategy and approach. In simple terms we have not seen the target mix of work to deliver the numbers anticipated ahead of RIIO-GD1. We have delivered our committed Network Output Measures (NOMs) targets and will use this measure to demonstrate that the lower level of metallic services workload has been risk traded off against more efficient work.

RIIO-GD2 Outputs have been set through the final determinations, we are currently forecasting to meet year 1 GD2 outputs.

2.7.1 One Year Outputs

Primary Output	Deliverable	FP target	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Connections	Guaranteed Standards of-Performance	✓	✓	✓	✓	✓	✓	✓	✓	✓

Primary Output	Deliverable	Units	FP target	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Environmental	Shrinkage	GWh	409	330.8	340.0	351.5	371.5	378.5	381.1	394.8	417.4

Primary Output	Deliverable	Units	FP target	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Safety (emergency response)	97% Controlled gas escapes	% attended within 2 hours	≥97%	99.83%	99.70%	99.80%	98.60%	99.40%	99.60%	99.60%	99.49%
	97% Un-controlled gas escapes	% attended within 1 hour	≥97%	99.17%	99.00%	99.00%	98.00%	98.50%	98.60%	98.50%	98.30%
Safety (management of repairs)	"GS(M)R 12-hour escape repair requirement"		✓	✓	✓	✓	✓	✓	✓	✓	✓
	Management of repairs (Repair risk)		✓	✓	✓	✓	✓	✓	✓	✓	✓
Safety (major accident hazard prevention)	GS(M)R safety case acceptance by HSE		✓	✓	✓	✓	✓	✓	✓	✓	✓
	COMAH safety report reviewed by HSE		✓	✓	✓	✓	✓	✓	✓	✓	✓

Primary Output	Deliverable	Units	FP target	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Customer service	Planned interruptions survey	Scores out of 10	8.5	9.03	8.83	8.80	8.74	8.62	8.72	8.68	8.59
	Emergency response and repair survey	Scores out of 10	9	9.56	9.56	9.56	9.53	9.55	9.55	9.44	9.14
	Connections survey	Number	8.4	8.93	9.13	9.18	9.19	9.17	8.88	9.01	8.34
	Complaints metric	Number	11.57	1.79	2.48	2.51	2.80	2.83	4.43	6.93	7.39

2.7 Summary of Output Performance

2.7.2 Eight-Year Outputs

Primary Output	Deliverable	Units	FP target	2020/21	GD1
Connections	Introduce distributed gas entry standards			✓	✓

Primary Output	Deliverable	Units	FP target	2020/21	GD1
Social Obligations	Fuel poor connections	# Connections	≥12,590	1,192	11,865
	Carbon monoxide awareness		✓	✓	✓

Primary Output	Deliverable	Units	FP target	GD1
Environmental	Shrinkage (leakage)	GWh	≤398	312.0
	Provide biomethane connections information	Total Connected Capacity KWh	✓	✓

Primary Output	Deliverable	Units	FP target	GD1
Reliability (loss of supply)	Duration of planned supply interruptions	Million minutes	≤92	70
	Duration of unplanned supply interruption	Million minutes	≤45	31
	Number of planned supply interruptions	#	≤451,235	334,171
	Number of unplanned supply interruptions	#	≤90,169	68,593
Reliability (network capacity)	Achieving 1 in 20 obligation		✓	✓
Reliability (network Reliability)	Maintaining operational performance		✓	✓

Primary Output	Deliverable	Units	FP target	2020/21	GD1
Safety (mains replacement)	Iron mains risk reduction (based on MPRS)		≥98,727	5,989	112,129
	Sub-deducts networks off-risk		✓	✓	✓

2.8 Performance Against Primary Outputs

2.8.1 Entry Connections

In year output	Deliverable	Section Ref	Units	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Connections	Introduce distributed gas entry standards	6.1.10	Live sites	19	19	19	18	16	12	2	1

We continue to believe in a future integrated energy network and have introduced distributed gas entry standards to support the connection of Biomethane injection. We haven't connected any new sites during the 2020/21 year, but we do have five sites in varying stages of development, which we are hopeful will connect over the next couple of years. In fact, our next site is on track to be commissioned in late 2021 and will be our first Bio-SNG site, located in Swindon.

Injecting green gas into the distribution network directly helps both to achieve climate change targets (reducing reliance on fossil fuels) and to improve security of supply. We continue to support potential and existing customers through the connections process to ensure a reliable, clean, and safe supply of gas into our network. Research suggests that there is significant feedstock available to support further growth in this area. Our current projections are for up to 35 biomethane sites to connect by 2026. In Autumn 2021, The Department for Business, Energy, and Industrial Strategy (BEIS) intends to launch the Green Gas Support Scheme which will support the deployment of new biomethane production plants to inject into the gas grid. The Green Gas Support Scheme will be funded by the Green Gas Levy.

We now have 19 green gas connections with a maximum connected capacity of 1,757 GWh/year, which is enough green gas to provide heat to approx. 150,000 homes. We have two further sites expected to connect in 2021/22; one in the Swindon location as discussed above, and the other in Malmesbury, both of which are in the Southwest LDZ.

2.8.2 Environmental

In year output	Deliverable	Units	FP Target	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Environmental	Shrinkage	GWh	409	330.8	340.0	351.5	371.5	378.5	381.1	394.8	417.4

8 year performance	Deliverable	Units	FP Target	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Environmental	Shrinkage (leakage)	GWh	398	312.0	320.3	332.1	350.4	357.9	363.0	376.0	398.0
	Provide biomethane connections information	Total Connected capacity (KWh)	✓	200.543	200,543	129,792	123,292	108,125	86,125	35,208	5,400

Our primary impact on the environment is gas lost to atmosphere during transportation through our network.

Utilising pressure control systems and reinforcing our network we actively manage system pressures down to a minimum and therefore also minimise emissions. We invested heavily in pressure control systems in previous price controls, saturating our network where it could be justified through cost benefit analysis. This investment has significantly benefited today's consumers.

We performed this work in advance of the other GDNs and have therefore already realised the opportunity which those other GDNs still have to further reduce emissions through installing new control systems.

Therefore, for us mains replacement is the most significant contributor to reducing emissions, delivering over 90% of the reduction in RIIO-GD1. This equates to a reduction of 680,000 tonnes of carbon dioxide equivalent (CO_2e) saved over RIIO-GD1. Without mains replacement we would fail to meet our emissions targets.

A further aspect of our role in the environment is in supporting wider decarbonising strategies. We now have 19 DN entry sites connected to our network, one within Wales and the remainder in the Southwest. These sites produce 'green gas', for use by our customers, having a direct impact on their decarbonisation without the need for expensive works within the homes.

These sites have the capacity to supply over 150,000 domestic homes with heat, a contributor towards the Government's 2020 renewable heat targets.

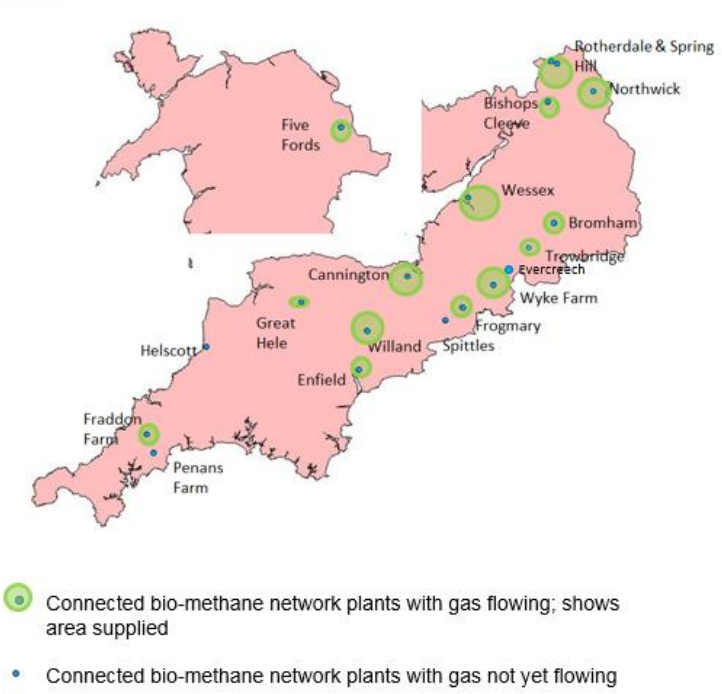
The Renewable Heat Incentive (RHI) scheme will be replaced in Autumn 2021 with the Green Gas Support Scheme, and we continue to work with potential entry customers to support and encourage this growth which we believe is a positive development in the future viability of the energy network.

2.8 Performance Against Primary Outputs

Our support of new flexible generation plants and changes to the contracts with existing power stations means that power can be generated on a more flexible basis by power stations within our network. This is supporting the decarbonisation of the power grid by ensuring that intermittent sources can be accommodated with no risk to the reliability of those networks.

We are also proud of our environmental achievements and again maintained certification to ISO 14001:2015 Environmental Management System standard. By utilising and developing industry-wide best practices, we have reduced our environmental impact. Key areas of focus have been reducing our carbon emissions that contribute to climate change, the reduction in both the disposal of waste to landfill and the use of quarried stone for reinstatement. Protecting the environment is a key focus for us going forward, and we are constantly looking for ways to minimise the environmental impact of our past, present and future activities.

Figure 1 showing location and relative size of connected green gas entry sites within our region



2.8.3 Social

8-year performance	Deliverable	Section Ref	Units	FP Target	GD1 Total
Social obligations	Fuel Poor Connections	8.1.9	No.	12,590	11,865
	Carbon Monoxide awareness	8.1.10	Increase awareness	✓	✓

Vulnerable Customers

We are fully committed to supporting the most vulnerable and fuel poor across our geography. Our core duties are to identify people in vulnerable situations who could be impacted by our works by using the Priority Service Register (PSR). We referred 5,862 people to the energy suppliers PSR in 2020/21 compared to 11,652 people in 2019/20. Our Facebook social media campaign with targeted messages and adverts continued to work well but partners largely stopped home visits and our engineers focused on safeguarding all and not signing up people to the PSR via their phones. Our Customer Support Officers have been key to giving customers assurance ahead of and during our works allowing us to continue our replacement works programme. We also deliver many services which have been developed working with stakeholders and third parties over the last 4 years. We are currently working with partners including:

Partnership	Delivery of services
Care & Repair (Cymru and some SW England)	PSR sign ups and CO monitors to over 65s
Fire & Rescue Services (All 7 agencies in our area)	PSR sign ups and CO monitors to vulnerable households
CSE, Bristol	Referrals from our engineers of vulnerable households for financial, tariff and energy advice
Warm Wales	Healthy Homes, Healthy People (previously named Community Energy Champion project) – income maximisation, energy bills and debt, energy efficiency advice and measures, safeguarding, PSR and CO
Warm Wales, British Gas, Flintshire Council, NEST team, QERB and City Energy, Yorkshire Energy Services, and Arbed am Byth	Ofgem approved fuel poor partners
Teignbridge, Rent Smart Wales and Swansea Council	We supported bids for the final rounds of the Warm Homes Fund This work will be delivered primarily in 2020/21, but some work may carry over into the first year of RIIO-GD2.

2.8 Performance Against Primary Outputs

Fuel Poor Connections (FPNES)

The COVID-19 situation did however mean we did not hit our FPNES targets for RIIO-GD1. At the start of March 2020 we had enough connections in our forecast from the various heating systems funding streams to exceed our target of 12,590 connections by between 50 and 250. COVID-19 saw organisations furloughing staff and not marketing their schemes. When work did restart, it was very slow to get going with the continued restrictions on surveying and working in homes where people were shielding. Organisations therefore reprofiled their workload and budgets from 2020 into 2021.

Yorkshire Energy Services (YES) managed to get four schemes completed by UIPs for housing associations. These saw 74 connections which we adopted and FPNES funding of £142k paid to YES which would be returned to the Housing Associations.

We look forward to addressing the fuel poor shortfall as part of the RIIO-GD1 close out process.

Carbon Monoxide awareness

Stakeholders continually place raising the awareness of carbon monoxide (CO) as a high priority for our business. Feedback from a range of stakeholders said we should make sure we target CO awareness and alarm installation to those most at risk. As a result, last year:

- More than 2,000 CO alarms were distributed
- 100% of the CO alarms were distributed by our partners and our EMS engineers to the homes of the most vulnerable in our society as soon as they are identified as vulnerable
- 100% of our CO alarms went to those most affected, more than in 2019/20
- Our schools CO safety programme was disrupted due to COVID-19, but we directed parents of home-schooled children to a joint GDN safety Seymour website with activities that raise awareness of CO in a fun way

COVID-19 restrictions impacted our Safety Seymour gas safety school sessions, so all GDNs supported a new Safety Seymour website with fun activities for younger children with built in gas safety messaging. More than 53,000 people saw our social media posts about the Safety Seymour website, with more than 10,000 engaged with the content. We jointly ran the CO Schools safety competition in 2020/21 sharing a joint national winner from our area. We targeted young people aged 16-25 in a new CO safety campaign, Game Over, prompted by research demonstrating their increased CO risk from not having CO alarms or regularly servicing gas appliances. The campaign encouraged some 12,000 young people to visit our CO information portal.

Tackling fuel poverty Healthy Homes Healthy People (HHHP)

We launched the Community Energy Champions (CEC) project in partnership with our fuel poor partner, Warm Wales in 2017/18. This has been rebranded Healthy Homes Healthy People.

Warm Wales agents offer a range of advice on debt and benefits, home and personal safety, tariff switching, energy efficiency and health and wellbeing. They identify 'hard-to-reach' vulnerable and fuel-poor households through Foundation Data for Robust Energy Strategies (Fresh) mapping, which layers data on poor health, poverty, poor housing and over-65s so we know where we need to focus our resources. By working closely with health professional, we are seeing an increasing number of referrals of individuals into this scheme.

Different approaches have evolved in south Wales, north Wales and Cornwall, working with key support services in local authorities and helping lift people out of fuel poverty in ways other than simply providing a gas connection. The outcomes for 2020/21 were as follows.

Area	Savings	Total no. households assisted	Average saving per household	PSR sign ups	GP/health referrals	No. households (60yr+)	No. households 0-5 yr olds
South Wales	£303,260	211	£1,437.25	143	20	111	14
North Wales	£487,549	377	£1,293.23	260	123	179	57
Cornwall	£101,210	130	£778.54	14	3	71	9
Total	£892,019	718	£3,509	417	146	361	80

In addition, we referred a number of customers to the Centre for Sustainable Energy. 60 homes were provided with help that resulted in savings of £40k in total and an average of £665 saving per household.

2.8 Performance Against Primary Outputs

Increasing access to Priority Services Register (PSR) support

Stakeholders have told us that the PSR is vital to ensure we can proactively identify vulnerable customers and safeguard them during our works. A report we commissioned by Mindset highlighted the lack of knowledge of the PSR by individuals, carers, and health workers. We have been focusing our partners on signing up individuals, and in addition have attended Occupational Health worker conferences across our network to spread the word about the PSR for gas, and other utilities to encourage them to sign people up, and whilst also ensuring we share our data with water and electricity companies as well as the gas suppliers.

In May 2019 we launched a Facebook social media campaign with targeted messages and adverts which we continued into 2020/21 after a pause to consider the COVID-19 situation. As a result, we referred 5,862 people in 2020/21 compared to 11,652 people in 2019/20. We have plans to revamp the social media campaigns in 2021/22 to further increase our reach and the number of sign-ups.

2.8.4 Customer

In year output	Deliverable	Section Ref	Units	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Customer Service	Planned work survey	7.3.5	Score of out of ten	9.03	8.83	8.80	8.74	8.62	8.72	8.68	8.59
	Emergency response repair survey	8.1.8	Score of out of ten	9.56	9.56	9.56	9.53	9.55	9.55	9.44	9.14
	Connection survey	8.1.8	Score of out of ten	8.93	9.13	9.18	9.19	9.17	8.88	9.01	8.34
	Overall score		Score of out of ten	9.17	9.17	9.18	9.15	9.11	9.05	9.04	8.69
	Complaints metric	8.1.8	#	1.80	2.48	2.51	2.80	2.83	4.43	6.93	7.39
	Stakeholder engagement	8.1.8	Metric score	TBC	5.55	5.43	5.00	6.00	6.05	7.05	6.30

Customer Satisfaction

We scored 9.17/10 for overall customer satisfaction this year in the Ofgem surveys. This is the same as in 2019/20. Planned work saw an improvement in scores from 8.83 to 9.03 with our Customer Support Officers and nominated team members providing face to face customer contact before, during and after the works, allowing work to continue safely (when allowed) during the COVID-19 disrupted year.

The Emergency score at 9.56 continues to be the best GDN score for the 8th year in a row. The Connections score of 8.93 was lower than the 9.13 from the six-month period of 2019/20 but was impacted due to lockdowns and subsequent backlogs of work which resulted in longer lead-times than traditionally seen.

We have continued to have our customer service independently evaluated by the Institute of Customer Service (ICS). At the end of 2019, we achieved a customer satisfaction score of 93/100 for our whole business, considerably higher than the utility sector benchmark of 73.3 and the all-sector benchmark score of 77.4. The report from the ICS following a visit in February 2020 said:

"It became clear from the start that Wales & West Utilities think, live and breathe customer service – both for external and internal customer"

Our complaints metric score is 1.80 this year compared to 2.48 last year (the lower the better and Ofgem's target is <11.57 to avoid a penalty payment). Our complaints resolution performance of 87.8% of complaints resolved within 24 hours was our best ever performance aided by more people being at home and we improved our D+31 and repeat complaints performance. For the 12th year in a row, we had no Ombudsman findings made against us.

The total volume of complaints remained very low at 1,285 compared to 1,549 in 2019/20 across 250,000 customer contacts, so a rate of 0.6%. Connections work complaints did rise with communication issues and lead times being the key root causes. We have several initiatives ongoing to improve this.

Inclusive Service Provision

We have maintained our British Standard for Inclusive Service Provision (BS 18477) in 2020/21. The December audit looked at our whole business. Some minor non-conformances were recorded around training records and are being addressed ahead of the January 2022 audit.

2.8 Performance Against Primary Outputs

Guaranteed Standard of Performance

We also performed well above the benchmark performance for all Guaranteed Standards of performance (GSoP) despite the COVID-19 challenges. We have continued to voluntarily pay double the statutory payments where we provide a poor service to a customer as well as ex-gratia good will payments, even in cases where we have not failed the GSoP definition.

In summary, we have had a very successful year improving the experience for our customers which has been reflected in our Customer Service metrics. We continue to drive outstanding service and there are many initiatives on the horizon which we anticipate will further improve our performance in the next regulatory year and beyond. A key component of this is our upgrade to the C/4 SAP CRM product in readiness for RIIO-GD2. This will be complimented by a new field force system and enhanced integration with SAP S4 Hana products during RIIO-GD2.

2.8.5 Reliability

8 year performance	Deliverable	Section ref	Units	8 year FP target	8 year actual
Reliability	Duration of planned supply interruptions	7.3.5	Millions of minutes	≤92	70
	Duration of unplanned interruptions	8.1.6	Millions of minutes	≤45	31
	Number of planned supply interruptions	7.3.5	#	≤451,235	334,171
	Number of unplanned supply interruptions	8.1.6	#	≤90,169	68,593
Reliability (network capacity)	Achieving 1 in 20 obligation	6.1.4	Capacity booked	✓	✓
Reliability (network reliability)	Maintaining operational performance	6.1	To maintain	✓	✓

Interruptions.

Our average planned interruption time for 2020/21 was 170 minutes compared to 171 minutes in 2019/20. We achieved a 96% performance in getting customers reconnected within 24 hours, and ensured we safeguarded any who were off gas for a longer period.

Our performance in unplanned interruption times is equally good given their unplanned nature. On average we got customers back on gas in 420 minutes.

The Ofgem Mid-Point Review of interruptions targets concluded in 2017/18 with Cadent, NGN & SGN having targets reset to a lower number. We were the only GDN which chose not to resubmit targets as part of the Mid-Point Review of interruptions. We are committed to our original challenging targets and intend to deliver these rather than weaken them.

We continue to use live insertion where appropriate which minimises disruption by being able to undertake work without isolating supplies and therefore keeping the consumer “on gas” for longer (as it only requires one interruption whereas other techniques require two). We have sought to share this practice with the other gas networks to help identify if other networks could utilise this technique further which we continue to see as a key success in the way we manage our Repex programme.

The 2020/21 winter was generally mild but with a few days of severe weather in our region. Our winter preparedness planning paid off with both the network in terms of supply and our response to emergencies. All gas demands were met and, despite the significant disruption, Repair and Emergency standards were achieved for the 2020/21 period, validating the pre-planning that had taken place.

2.8 Performance Against Primary Outputs

2.8.6 Safety

In year output	Deliverable	Ref	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Safety (management of repairs)	GSMR 12-hour escape repair equipment	8.1.4	✓	✓	✓	✓	✓	✓	✓	✓
	Management of repairs (repair risk)	8.1.4	✓	✓	✓	✓	✓	✓	✓	✓
Safety (major accident hazard prevention)	GS(M)R Safety case acceptance by HSE	6.1.1	✓	✓	✓	✓	✓	✓	✓	✓
	COMAH safety report reviewed by HSE	6.1.1	✓	✓	✓	✓	✓	✓	✓	✓
Safety (emergency response)	97% Controlled gas escapes attended in 1 hour		✓	✓	✓	✓	✓	✓	✓	✓
	97% Uncontrolled gas escapes attended in 1 hour		✓	✓	✓	✓	✓	✓	✓	✓

8 year performance	Deliverable	Section Ref	Units	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14
Reliability (network capacity)	Achieving 1 in 20 obligations	6.1.4	Capacity booked	✓	✓	✓	✓	✓	✓	✓	✓
Reliability (network reliability)	Maintaining operational performance	6.1	–	✓	✓	✓	✓	✓	✓	✓	✓
Safety (mains replacement)	Iron mains risk reduction (based on MPRS)	7.3.1	Risk reduction	✓	✓	✓	✓	✓	✓	✓	✓
	Sub deducts networks off risk	8.2.4	#	✓	✓	✓	✓	✓	✓	✓	✓

We continue to make sure colleague and stakeholder safety remains top of our agenda, and that we have rigorous safety systems and processes and a commitment to continuously improve our record.

Royal Society for the Prevention of Accidents (RoSPA)

As may be expected of a company like ours, safety is, of course, our number one priority. The RoSPA Awards are among the most prestigious in the sphere of health and safety.

We were awarded the RoSPA Gold Award for our health and safety performance again in 2021; this is our eighth such award in a row. No other UK gas network has achieved this, and we are immensely proud of the success. This message of safety achievement is a welcome reassurance to the people, organisations and interest groups who rely on us for a high quality and very safe service. In 2021 we were also commended the RoSPA Oil and Gas Sector Award.

International Standard ISO 45001 – Occupational Health and Safety Management Systems – we were certified to OHSAS 18001 which is to be superseded by a new international standard ISO 45001 over the next three years. Following the latest re-certification inspection conducted by the accrediting organisation SGS in October 2020 we are delighted to be fully certificated for the next three years until 2022. We were the first GDN to achieve this accreditation in 2018.

Keeping people safe

We have robust systems to deal with a major loss of gas supply, understanding our stakeholders want to see us reviewing and testing those systems regularly. Work continued though 2020/21 to further develop our internal response. We continued to test and develop a solution to capture data in the field from both our own and non-WWU engineers on the status of the gas supply for our customers and people in vulnerable situations during a Local Gas Supply Emergency (LGSE). This allowed us to produce reporting to facilitate the effective management and communication by us of a LGSE. This was tested during our own internal and national exercises and best practice was shared among the other GDNs at industry forums.

We have continued working with other gas networks to review, further develop the self-isolation and restoration cold weather model and update the risks associated with customer self-isolation and restoration during a gas outage. This has involved exhaustive external independent review of the supporting data. Furthermore, the impact of the COVID-19 pandemic has provided another opportunity for us to work collaboratively and develop a support tool for risks associated with our engineers visiting properties and potentially catching the COVID-19 virus and / or passing the virus on to other people may be greater than the risk posed by customer self-isolation and restoration.

3

Totex Cost Summary

In this section:

3.0 Totex Cost Summary

Introduction

In delivering the Outputs and innovation described within this document we have incurred the costs set out in this section.

The current RRP tables detail RIIO-GD1 actual expenditure into separate Opex, Repex and Capex categories. Outputs delivered are generally specified on separate RRP tables with no, or limited, linkage to the associated cost information.

Section 5 provides the analysis of our Totex spend by asset class/output, which in our view provides a more informative understanding of costs incurred.

As an illustration of this point, the Ofgem analysis identifies a “Capex” underspend of £6.4m for LTS and storage in 2020/21. We review the best means of maintaining the health of our infrastructure assets and consequently we have identified that the cheapest whole life solution is to perform less Capex and more Opex work and have carried out £4.2m of “Opex” interventions specifically related to this asset category.

To properly understand our approach, and the associated cost, of maintaining the integrity of the infrastructure asset for which we are responsible, it is appropriate to review spend by asset category on a Totex basis.

In summary, without the full Totex cost analysis linked to Outputs, the headline cost variances, and hence comparisons of network performance, can be quite misleading.

Within this section we provide a high-level cost analysis using the traditional Opex, Repex and Capex basis. This includes both current year and cumulative price control to date analysis.

We continue to encourage Ofgem to move to full Totex reporting, linked to specific Outputs and asset intervention activity, to facilitate a better understanding of the decisions we make to maximise intervention benefits and therefore return for all our stakeholders; and the trade-offs between the types of spend considered.

Unless stated to the contrary, all financial values within this report are stated in 2020/21 prices.

The summary position of actual expenditure against allowances is set out below:

		2020/21			RIIO-GD1		
£m 2020/21 Prices	Section	Actual	Allowance	Variance Fav/ (adv)	Actual	Allowance	Variance Fav/ (adv)
Controllable Opex	3.2	98.2	110.0	11.8	764.8	909.5	144.7
Repex	3.3	77.5	106.2	28.7	656.8	859.5	202.7
Capex	3.4	65.7	63.4	(2.3)	445.8	533.5	87.7
Totex (excluding Pass through and Shrinkage)		**241.4**	**279.6**	**38.2**	**1,867.4**	**2,302.5**	**435.1**
Innovation costs	2.6.5	1.5	0.0	(1.5)	12.4	0.0	(12.4)
Pension Deficit payment	9.2.2	7.8	10.5	2.7	108.7	80.0	(28.7)
Pension admin and PPF	9.2.4	1.3	1.0	(0.3)	9.1	8.7	(0.4)
Total Controllable spend		**252.0**	**291.1**	**39.1**	**1,997.5**	**2,391.2**	**393.7**

No allowance/recovery of cost included for Innovation which is 90% funded by the customer through an adjustment to the maximum allowed revenue. In order to efficiently deliver the RIIO-GD1 Outputs within a Totex regime, we manage the business by asset class and output delivery rather than by type of spend.

3.1 Governance Structure

In January 2013 we implemented an updated governance structure. We operate under four committees that focus on specific operational areas of our business. Attendees at each of the four committees are from a number of different departments and across management levels.

All four committees feed into our executive committee to ensure effective overall delivery.

The four committees and a brief overview of their responsibilities are:

- Network Management – pro-active delivery of asset health across all asset categories utilising a range of timely interventions,
- Replacement – delivers the key iron mains safety risk reduction targets. Attendees include representatives from our alliance partner Morrison and Wales & West Utilities,
- Emergency and Repair – manages the reactive work required to deliver an efficient and effective emergency service and also ensure appropriate repairs to our network assets, together with connections and reinforcement; work driven by customer requests, and
- Business Operations – responsible for all other areas of Opex and Capex, notably, work management, back office (including IT, Fleet and Property) and Xoserve.

Sub-committees and Interfaces – we have a number of sub-committees and interfaces that focus specifically on key areas such as customer service, innovation, and stakeholder to name a few.

The rest of this section provides some high-level narrative of our Totex performance during the final year of RIIO-GD1 on the “traditional basis” to allow comparisons to the Final Proposals. It also shows the cumulative position against the allowances for the control period to date.

Sections 6 - 9 of this report provide a more detailed analysis broken out by the four Wales & West Utilities committees we use to manage our gas infrastructure and ensure regulatory compliance.

Continuous improvement – we continue to look at the way we operate the business and how we could make it more efficient. Utilising our staff and resources across activities and departments is a key focus area. Following trials conducted towards the start of the price control some key results that have been embedded are:

- Use of a single manager to effectively manage the Mains Replacement programmes in North Wales allowing for the delivery to be more effective and efficient. This ensures best practice and innovation is used across all activities through the consistent management of workload.
- An element of the emergency workforce is now competent to support network maintenance activities which increase the productivity of the workforce and allow us to meet the maintenance workload demands.
- Network services have resources trained in key areas across the network to assist with the demand on the emergency workforce through peak workload periods. This also allows for further support on emergency activities while Smart Metering workload is completed.

The training of network services resources to assist our emergency department became a reality in the winter of 2017/18 when the “Beast from the East” was upon us enabling us to draw on the additional trained resources to ensure standards and the reliability of the gas supplies were maintained throughout the period.

3.2 Controllable Opex

Controllable Opex increased year on year by £4.7m, in constant prices. We underspent the allowance by £9.3m in the year.

£m 2020/21 Prices	Link to Committee structure	2020/21 Actual	2020/21 Allowance	2020/21 Variance Fav/(adv)	RIIO-GD1 Actual	RIIO-GD1 Allowance	RIIO-GD1 Variance Fav/(adv)
Work management	9.1.1	27.0	23.6	(3.4)	173.6	191.3	17.7
Emergency	8.2.1	9.3	18.7	9.4	82.4	145.0	62.6
Repair	8.2.2	12.4	14.0	1.5	82.8	120.1	37.3
Maintenance	6.2.17	16.7	14.7	(2.0)	145.0	117.1	(27.9)
Other direct activities (exc Xoserve)	9.1.2	3.9	2.7	(1.2)	30.5	18.6	(11.9)
Voluntary severance & other staff management	9.1.3	0.4		(0.4)	19.7	0.0	(19.7)
Xoserve	9.1.4	2.0	1.8	(0.2)	28.9	36.3	7.4
Holder demolition	6.2.16	0.0	0.6	0.6	3.3	4.9	1.6
Land remediation	6.1.12	0.1	1.1	1.0	9.1	18.0	8.9
Business support	9.1.5	23.1	27.2	4.2	160.4	214.8	54.4
Training & apprentices	9.1.10	3.4	5.2	1.8	28.7	40.1	11.3
Sub-deducts	8.2.4	0.0	0.4	0.4	0.3	3.3	3.0
Total Controllable Opex		**98.2**	**110.0**	**11.8**	**764.8**	**909.5**	**144.7**

Several the key cost increases for the year-on-year movements are explained by the following: -

- COVID-19 costs in the year impacting Opex amounted to £7.1m. Of which a large element was for under-utilised direct labour and contractor costs (including contractual costs to our Western Gas Alliance partner) stranding back into Opex from Repex and Capex due to the shut-down of non-essential works across April to June 2020. Non-Essential workload stopped from the 23rd of March 2020. This stranding is after we have taken all reasonable action to minimise the level of costs incurred, without resorting to utilising UK Government support measures. Such measures were not utilised given the regulated nature of our revenues, which we expect to be largely unaffected by the impact of COVID-19. In addition, we worked with Ofgem in early 2020/21 to help support those smaller shippers who requested support, and therefore their customers, through deferred payment terms. Offsetting an element of the cost increase we saw a reduction in some overhead areas.
- Increase in cost of £1.8m for external consultancy and legal support associated with the RIIO-GD2 allowance CMA appeal, this was offset partly by a reduction of £1.1m compared to the prior year of external costs relating to the preparation of our RIIO-GD2 business plan submission.
- Training & Apprentice costs decreased by £2.7m mainly due to the qualification of a number of previously trained resources and apprentices. This especially related to the Cornwall region of the network where significant investment in resource has happened over the past few years in order to meet workload requirements.
- Repair & Emergency workload decreased across the year resulting in lower premium time and associated material costs. This is partly related to COVID-19 whereby less PRE's were reported in the year along with a warmer winter period in 2020.
- Other costs have reduced year on year following increases in 2019/20 across areas such as IT, Customer Management and Maintenance.
- During March and April 2021, the IFRS Interpretations Committee published two agenda decisions clarifying how arrangements in respect of a specific part of cloud technology, Software-as-a-Service (SaaS) should be accounted for. The agenda decisions have immediate effect and should be implemented on a timely basis.

  As a consequence, WWU is considering whether it should change its treatment of SaaS configuration costs and SaaS license costs during the configuration phase. Under existing UK GAAP such costs are capitalised as part of the IT intangible asset being developed.

  These costs continue to be treated as Capex for the purposes of the RRP. Should the accounting treatment require a change, this will not affect the Totex spend reported via the RRP process, but merely move the costs from Capex to Opex.

The outperformance against allowance was partly achieved by ongoing savings as a result of:

- The introduction of Working Time Solutions in December 2012 to our operational workforce, which has optimised working patterns and reduced the ongoing overtime bill.
- Continued significant changes to reactive leakage workload as a result of the continuing unseasonably warm weather, with reduced external materials, reinstatement costs and direct labour time, allowing us to utilise industrials on more planned work whilst also reducing unproductive time.
- Utilisation of Workforce – Training all our first call operatives (FCOs) to carry out Smart Metering Non-Formula work transferred FCO labour time from our base emergency costs along with the utilisation of FCO's on replacement and capital activities providing lower costs for our customers. We also have workforce from our emergency and maintenance department trained on various activities across both workstreams allowing for further utilisation.
- Settlement of property charges with National Grid property followed successful negotiations resulted a released accrual of £0.7m in the year in 2018/19.

3.3 Repex

£m 2020/21 Prices	Link to Committee structure	2020//21 Actual	2020//21 Allowance	2020//21 Variance Fav/(adv)	RIIO-GD1 total Actual	RIIO-GD1 total Allowance	RIIO-GD1 total Variance Fav/(adv)
Mains replacement programme	7.5.1	69.5	99.7	30.2	582.4	798.7	216.3
Multi-occupancy buildings	7.5.3	1.5	0.4	(1.1)	15.9	4.5	(11.4)
Sub-deducts	8.2.4	0.0	0.4	0.4	0.1	3.3	3.1
Relay following escape	8.2.3	6.5	5.7	(0.8)	58.4	53.0	(5.3)
Repex		**77.5**	**106.2**	**28.7**	**656.8**	**859.5**	**202.7**

COVID-19 impact on 2020/21 - The eighth year of RIIO-GD1 has been impacted by the COVID-19 pandemic. We ceased interruption of customer supplies and unavoidably paused the Iron Mains Replacement Programme (IMRP) at the end of March 2020 following the Government announcements on lockdown and the instruction to stay at home. After a 3 month pause, at the end of June 2020 the programme resumed whilst adhering to new stringent COVID-19 procedures.

We have delivered the agreed Outputs related to the replacement of assets, specifically around the IMRP. We over-achieved the target for the majority of Outputs related to Repex, these include removal of risk from iron mains, minimising gas transport losses, management of repairs, high levels of customer service and minimising interruption of the end consumer. In addition to these Outputs, we have also delivered the majority of secondary deliverables associated with the replacement of assets which include, but are not limited to, reducing the number of fractures and Gas in Buildings (GIBs), and significantly outperforming other GDNs in terms of time and number of interruptions to the end user. However, the unavoidable pause in the IMRP due to COVID-19 has resulted in an under-delivery of the secondary deliverable of length of mains decommissioned; prior to the pandemic we were forecasting to achieve and outperform this output.

Where costs have been deemed to be efficient and production has been achieved the associated costs have been attributed to Repex and where not, this cost has been classified as Opex.

8-year performance: we have significantly driven down mains replacement delivery costs in the eight years of RIIO-GD1 through a number of innovations, some of which enable enduring efficiencies, others sustainable only in the short term. In 2020/21 the cost incurred for Repex activities was £77.5m against an allowance of £106.2m.

The main reason for our outperformance in RIIO-GD1 has been the favourable alliance contract that we secured following on from the design constraint changes implemented at the start of GD1. The following factors enabled us to achieve a low contract price and beneficial contract rates:

- A long price control period: In 2013 we were able to enter an eight-year alliance contract, which was only possible because of the eight-year RIIO-GD1 price control period. This provided our alliance partners with certainty about workloads over a longer period; it also allowed us more of an opportunity to negotiate and to lock in a lower contract cost.
- More flexible pipe selection criteria: greater flexibility provided a short-term opportunity to design schemes that were significantly larger than had been possible previously. This was reflected in the rates we were charged, and allowed us to benefit from the following:
    - Using larger teams in smaller geographical areas – the success of the five/six-person team model during the first half of RIIO-GD1 improved operational efficiency and produced a level of performance beyond our forecasts.
    - More efficient support functions – larger teams delivering larger quantities of work in a small geographical area can be serviced more easily by support functions. For instance, logistics support functions have fewer projects to service and there is less travel time between sites. Reinstatement teams can also have a higher number of excavation pits in one geographical location.
    - Lower mobilisation/demobilisation costs – larger and fewer schemes reduce the significant cost of safe mobilisation and demobilisation of sites.
    - Lower management to team ratio – operational and safety management are most efficient when team sizes are maximised and the number of schemes that are in progress are kept to a minimum. The change in the design constraint allowed us to achieve this balance. Now these schemes have been depleted we are seeing a fall in the size of our teams with a related increase in scheme numbers – moving back to a similar profile as in GDPCR1.
    - A favourable labour market: Our mains replacement programme benefited from a reliable and consistent workforce for several years before contract negotiations; the labour rates in our fixed contractual pricing reflected this. In the past few years, however, this landscape has changed significantly, and labour rates are continuing to increase. This is being driven predominantly by competition with other GDNs and other capital programmes (including in the water, electricity, nuclear, telecoms and transport sectors). This is explored further in section 5.

3.3 Repex

As a result of securing a favourable Alliance contract, our business and our customers continue to be protected from adverse market conditions and to benefit directly from our commercial arrangements.

However, as has been demonstrated by the exit of one of our Alliance contract partners in 2018/19, and the Pain receivable due from our remaining contract partner (in 2020/21 prices £30.4m over the last four years), this is not a sustainable or enduring position. The other contributing factors above will not continue into GD2.

We have worked hard to apply an innovative approach to the management of our workforce to ensure delivery of our mains replacement programme while planning for succession into the future. During the year we continued to experience significant turnover of contractor resource due to other GDNs offering above market rate deals to our workforce to enable them to recover their Repex programmes.

To reduce the influence of other GDNs on our performance in the coming years, we have continued the implementation of a Resource Strategy introduced during 2018/19 to recruit graduates and apprentices and by more general upskilling of the current workforce for supervisor and technician roles. In 2018/19 and 2019/20 we also recruited over 150 new employees across the network to sustain and increase our delivery capacity, including significant intakes in Cornwall to deliver our large programme of work in that county. These staff are now embedded within our business and, following COVID-19 lockdown, will continue on their training and upskilling pathway.

We are continuing to experience adverse cost pressures as previously reported:

- The opportunity to design larger mains replacement projects is becoming exhausted. In the future we will see project sizes reduce significantly and the number of main-to-main connections we will undertake will be higher on a “per metre” basis. Consequently, we expect lower outputs from our delivery teams and more frequent mobilisation and demobilisation of projects. Aligned with this we expect a reversal of the cost reductions made in support services such as grab lorries, pick-up trucks, and reinstatement costs.
- Remuneration demands from the resources we have managed to retain, or train continue to increase.

Our remaining Alliance partner is incentivised by a KPI suite which includes financial risk and reward mirroring our regulatory commitments. These include, but are not limited to:

- Primary Output – level of Risk Removed
- Total Mains Replacement length
- Completion of 8″ mains abandonment within Tier 1 programme; and
- Completion of Tier 2 and Tier 3 mains abandonment.

3.3.1 Metallic service replacement

Our approach to management of services provides an appropriate balance of risk and cost benefit analysis (CBA) and is as follows.

- Replacing all steel services when the parent main is replaced
- Delivering a bulk service replacement programme based on a ‘hotspot’ analysis of metallic service failures
- Replacing steel services when they are found to be leaking or have visible condition issues that indicate a high probability of failure, and
- Cutting off services found to be no longer in use.

This approach to the management of services is supported by the HSE and, with the exception of the detailed hotspot calculation, is consistent across GDNs.

The table below shows the number of services intervened in GD1 vs the Final Proposal numbers.

	RIIO-GD1 delivered	FP Allowance	Variance
Metallic (Relays)	157,338	210,329	(52,991)
PE (Transfers)	125,531	132,102	(6,571)
Total services worked on	282,869	342,431	**(59,562)**

There is no financial betterment to us through the change of ratio of transfers to relays. Whilst relays are more expensive than transfers the difference is marginal with excavations, time on job and overhead being very similar for both types of work.

In making decisions about where to direct our investment we must balance safety, ongoing operating expenditure, environmental impacts, and the relative efficiency of delivery. As we have previously outlined to Ofgem, we select projects that deliver the greatest benefit to customers. This process has resulted in a shortfall in the number of metallic services we have relayed, when compared with our Final Proposal targets.

We agreed with Ofgem that we would continue to focus our resources on reducing and managing risk in the most efficient way. For example, our Multi-Occupancy Buildings (MOBs) programme goes far beyond the Final Proposal allowances.

3.4 Capex

£m 2020/21 Prices	Section	2020/21 Actual	2020/21 Allowance	2020/21 Variance Fav/(adv)	RIIO-GD1 to date Actual	RIIO-GD1 to date Allowance	RIIO-GD1 to date Variance Fav/(adv)
LTS & storage	6.2.1	10.1	16.5	6.4	76.1	131.9	55.8
Mains reinforcement	8.2.5	7.8	10.8	3.0	42.2	85.8	43.6
Governors	6.2.10	2.1	4.3	2.2	16.1	29.2	13.1
Connections	8.2.12	10.7	12.0	1.3	100.6	94.1	(6.5)
IT	9.1.6	15.5	6.0	(9.6)	72.2	63.0	(9.2)
Xoserve	9.1.4	0.1	0.1	(0.0)	9.3	6.7	(2.6)
Vehicles	9.1.11	10.8	6.2	(4.6)	47.9	47.6	(0.3)
Other Capex	9.1	8.6	7.6	(1.1)	81.4	75.1	(6.3)
Capex		**65.7**	**63.4**	**(2.3)**	**445.8**	**533.5**	**87.7**

The following sections briefly outline the key drivers to the variances against the allowances.

3.4.1 LTS and Storage

The lower than allowed spend is a result of the following key points:

- Effective Totex intervention decisions to undertake an increased level of non-routine Opex refurbishment contributing towards the £6.4m underspend on LTS Capex.
- By continuing to utilise an innovative solution for nitrogen sleeve end-seal replacement (rather than wholesale relay) we have now realised an eight-year cost efficiency giving a lower whole-life cost to the end user whilst still delivering network capacity and reliability Outputs. We completed refurbishment of a further nitrogen sleeve in 2020/21 and to date have restored the integrity of 26 sleeves in total.
- Further reductions against anticipated spend can be attributed to an alternative approach to maintaining the integrity of our pipeline network, in that we continue to implement an “As Low As Reasonably Practicable” (ALARP) methodology in assessing options available to us to identify the most cost-effective method of minimising the societal risk associated with pipelines, specifically targeting high consequence areas.

To manage pipelines in this way requires high quality data and analytics. As reported in previous years, to support this we have re-digitised our entire high pressure pipe network (2,360km) into short sections to better assess consequence of failure. This has enabled very detailed assessment of risk for each of the 10,896 pipeline sections, taking into account people, property, and infrastructure in the vicinity of each pipeline section.

This will achieve the greatest risk reduction for the minimum expenditure in preference to wholesale replacement of pipelines.

3.4.2 Mains reinforcement

As we continue to see growth in housing, we have seen growth in reinforcement of the network. This is partly from the domestic market, but we have also experienced a large number of requests for peaking generation sites resulting in additional reinforcement required. Although we aim to reduce the need for expensive open cut reinforcement solutions, we have seen a marked increase in the length of network reinforcement required. We have used a number of innovative solutions including renegotiation of agreed pressures on the network, replacement of iron and steel to allow network pressure elevation and combining design and delivery to ensure the cheapest cost options are put forward.

3.4.3 Governors

The £2.2m lower capex spend than the allowance of £4.3m in 2020/21 is the result of our effective strategy of an increased level of refurbishment resulting in a lower Totex cost whilst delivering the same reliability output illustrated by overall average health and risk. This has resulted in a spend of £1.0m of non-routine Opex for the 2020/21 year.

The district governor intervention plan for 2020/21 resulted in the wholesale capital replacement of 11 governors, a further 2 have been purchased along with the associated planning and design ready for installation in 2021/22 and we’ve completed Capex refurbishment of a further 49 governors. This has been driven by their Health and Risk indices as determined from the Condition Based Risk Management (CBRM) model and taking account of the recently developed Monetised Risk models (AIM).

The net effect on the overall Risk Index is a slight deterioration across the RIIO-GD1 price control and is in line with the committed Outputs for this asset group.

3.4.4 Connections

The net Capex for Connections in 2020/21 was £10.7m, which is £1.3m lower than the allowance. The decrease in cost is detailed within Section 8.2 Connections.

3.4.5 Other Capex

Spend in the year was £1.1m higher than the allowance of £7.6m. The details of actual expenditure for the Other Capex categories are covered within the commentary for the Business Operation Committee.

3.5 Totex Cost Pressures

We have continued to face external cost pressures both in terms of availability and cost of the skilled workforce and the materials, products, and services which we require to complete our essential work alongside the ongoing issues relating to the COVID-19 pandemic:

- In terms of our skilled workforce, we are expecting the recent turbulence in the labour market to continue, leading to increasing delivery costs within our sector. Resulting from other GDNs striving to bring their Repex programmes back on track. Further afield, outside the GDNs, we are facing pressure from other competitive sectors including nuclear, telecommunications, water, smart metering, rail, and electricity as their workloads increase.
- HS2 has created over 150 gas diversions, putting pressure on the availability of qualified resources in the UK.
- The continued development at Hinckley Point has created localised inflation as the nuclear industry looks to ramp up investment in the SW of England.
- The rollout of the national Smart Metering programme has resulted in additional network costs being incurred. This is expected to increase as the programme develops.
- The introduction of the Apprentice Levy has increased payroll costs by 0.5%. We continue to recover what we can on this through the training of our apprentices along with upskilling other employees as appropriate.
- Recent low oil prices have helped achieve our outperformance of the allowance over the first few years of the RIIO-GD1 price control. However, external forecasts indicate that these low prices will not be sustainable in the future.
- The recovering economy is starting to drive up prices as general demand within the economy increases. Current price increases can be attributed to a reduction in manufacturing capacity due to COVID-19 pandemic, longer lead times due to COVID-19 restrictions in international supply chains, increased raw material costs in key areas (oil, copper, ethylene (for PE pipes), electricity etc.
- Whilst little impact has been seen to date, the Brexit vote in favour of Great Britain leaving the EU also added to future uncertainty:
    - Media reports of a shortage of some 100,000 foreign drivers in the haulage industry, this is impacting costs and delivery times,
    - Reduced immigration leading to increased demand for scarce labour resources,
    - Concerns around material cost increases specifically your mains replacement PE pipe,
    - Procurement Regulations are currently under consultation for reform. It is not known if Utilities are going to continue to be treated similar to the existing Regulations or considered alongside the wider Public Sector in the UK. We have responded to the consultation and lobbied for reducing regulatory restrictions, or at least retaining the status quo.

To help mitigate these cost pressures we have engaged in a number of specific activities which should support GD2, these include.

- The Southwest procurement hub to utilise the combined purchasing power of utility businesses in Wales & Southwest England.
- Leveraging the combined purchasing power of the wider group of companies in the UK with common shareholder interests. Operating across utility sectors and across the UK.
- Market testing of all controllable costs over a 3–5-year programme of procurement events.
- Utilising framework contracts and mini-competition events to drive lowest cost solutions for the majority of the work we outsource.
- Identifying alternative sources of supply for materials and products, including overseas sourcing.
- Giving our Repex contractor workforce longer-term visibility of the projects available to them, to encourage stability and a longer-term working relationship built on mutual trust.
- Maintaining, since our inception in 2005, a largely insourced operating model, providing resource stability, and enabling retention of corporate experience and knowledge.
- Continuing with our apprenticeship programme, which we started in GDPCR1, to ensure skills levels are maintained in line with workload for the future.
- We are bringing innovative solutions and techniques to fruition. We are constantly sourcing new technologies to ensure an efficient, safe and reliable delivery programme.
- We have also reviewed our delivery model to produce a more efficient structure for organising and performing our work into GD2.
- We have good working relationships with the trade unions with focus on an insourced resource model.
- Increasing workload programmes to offset the risk of losing key resources in the future. We face significant issues with workforce being attracted to similar companies offering higher pay in the short term.

Whilst we will continue to mitigate cost pressures where we can, we expect costs to grow at more than inflation in the future.

4

Totex Cost Summary: How we manage the network

In this section:

4.0 Totex Cost Summary: How we manage the network

To demonstrate how we manage on a Totex basis, we set out below a summary table across the four committees under which we operate.

The totals in the table below and those in section 3 above are identical. The spend within each of Opex, Repex and Capex has been regrouped by operating committee to better reflect how we manage the network.

2020/21 Totex £m (2020/21 Prices)	Section	Actual cost				Allowed cost				Var
		Capex	Repex	Opex	Totex	Capex	Repex	Opex	Totex	Fav/ (adv)
Network management	6	12.1	0.0	16.7	28.9	20.7	0.0	16.4	37.1	8.2
Repex	7	0.0	70.9	0.0	70.9	0.0	100.0	0.0	100.0	29.1
Emergency & repair	8	18.5	6.5	21.7	46.8	22.9	6.1	33.1	62.1	15.3
Business operations	9	35.1	0.0	59.8	94.8	19.8	0.0	60.6	80.4	(14.4)
Totex		**65.7**	**77.5**	**98.2**	**241.4**	**63.4**	**106.2**	**110.0**	**279.6**	**38.2**

The Totex performance for the RIIO-GD1 price control period, in constant 2020/21 prices, is:

Cumulative Totex £m (2020/21 Prices)	Section	Actual cost				Allowed cost				Var
		Capex	Repex	Opex	Totex	Capex	Repex	Opex	Totex	Fav/ (adv)
Network Management	6	92.2	0.0	157.5	249.6	161.2	0.0	140.0	301.2	51.6
Repex	7	0.0	598.3	0.0	598.3	0.0	803.2	0.0	803.2	204.9
Emergency & Repair	8	142.8	58.5	165.2	366.5	179.6	56.3	266.9	502.8	136.3
Business Operations	9	210.8	0.0	441.8	652.7	192.7	0.0	502.6	695.3	42.7
Totex		**445.8**	**656.8**	**764.8**	**1,867.4**	**533.5**	**859.5**	**909.5**	**2,302.5**	**435.1**

5

Cost & Workload Summary

In this section:

5.1 Opex Summary

5.1.1 Opex Cost Summary

Total costs (2020/21 Prices) £m	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	RIIO Total	2019/20 view
Work Management	26.5	23.2	23.4	22.1	21.1	19.6	22.3	27.0	**185.2**	182.4
Emergency	11.5	11.8	10.1	10.7	10.6	9.5	9.0	9.3	**82.5**	81.5
Repair	11.2	11.3	9.6	10.9	8.4	9.0	9.9	12.4	**82.9**	78.3
Maintenance	16.5	20.4	19.3	19.7	16.5	18.2	17.7	16.7	**145.0**	144.3
Other Direct Activities	22.3	15.5	7.7	7.4	7.3	5.8	6.5	6.3	**78.9**	79.4
Total Direct Opex	88.1	82.2	70.1	70.9	63.9	62.1	65.4	71.7	**574.4**	565.9
Total Indirect Opex	21.0	20.3	24.0	24.5	19.3	24.9	29.9	26.5	**190.4**	200.3
Total Opex	**109.1**	**102.6**	**94.1**	**95.4**	**83.2**	**87.1**	**95.3**	**98.2**	**764.8**	**766.2**
2019/20 view	**109.1**	**102.6**	**94.1**	**95.4**	**83.2**	**87.1**	**95.3**	**99.6**	**766.2**	

The costs for RIIO-GD1 reflect the following:

- Increased investment in enablers such as more reliable vehicles and better tooling has increased productivity levels.
- As productivity levels of direct labour resources increase, availability of the resources has increased allowing them to pick up additional Mains Replacement & Capital workloads, reducing the need for external resources. This has reduced unproductive costs in Opex.
- The total costs reflect an improved succession plan, considering retirees, apprentice intake, different pension arrangements and grade changes.
- Updates to management initiatives and new processes are reflected in both the actual costs i.e., Working Time Solution benefits.
- We have not included any additional costs at this stage for the rollout of Smart Meters, due to continued uncertainty over timing and involvement.
- As the economic climate improves (subject to the impact of COVID-19), we expect to see wage and contractor rates increase, noting that customers have benefited from suppressed rates during the economic downturn.
- We have seen costs significantly increase and impact Opex performance due to the GD2 Business plan preparation and the ongoing CMA appeal against the allowances set by Ofgem.
- COVID-19 impacted on operational productivity and costs stranded within Opex. We managed our costs during the pandemic without seeking any financial assistance from the Government. The stranded costs in Opex due to the shutdown of non-essential workload from March 2020 was £8.5m which is part of the £7.1m impact in Opex for Covid-19 as detailed in section 2.1.
- Costs decreased in 2020/21 from the forecast position submitted last year by £1.4m, this was mainly due to the impact of COVID-19 on Opex costs with the stranding of labour and contractor costs offset by reductions in indirect Opex categories such as Training & Apprentices (See section 3.2 for more detailed analysis).

Metering and Smart metering work

Since its creation in 2005, we have maximised non-regulated meter work to minimise the inevitable amount of unproductive time created by having to respond to a PRE anywhere across the large geographic network, within which we operate. Until 2008 most of this work was delivered through contracts with OnStream and National Grid Metering ("NGM"). In 2008 the OnStream contract went to tender, and our bid was unsuccessful. However, the NGM metering work across both domestic and non-domestic sectors has remained our core metering activities and added valuable income to the business. This has enabled us to keep the critical mass of First Call Operative required to maintain a safe, efficient network 24 hours a day, 365 days a year.

Over the years the changes in the metering arena have seen the workload provided by these contracts reduce as events such as metering competition and more recently Smart Metering have eroded the volumes available via the contract with NGM.

With the continued rollout of the national Smart Metering programme there remains an element of confusion for some customers and we will, without doubt, be the first called to many of these issues. We are committed to making sure our First Call Operatives can deal with as many of the customer concerns as possible and maintain our reputation for delivering outstanding levels of Customer Service.

5.1.2 Opex Workload Summary

The RIIO-GD1 workloads are shown below.

Total workload	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	RIIO Total	FPs
Opex										
Mains condition reports	5,636	6,424	5,569	6,421	6,052	4,889	4,761	4,551	44,303	71,694
Service condition reports	6,317	5,417	5,943	5,621	5,249	5,929	5,772	5,332	45,580	37,518
No. of holders removed	2	7	1	–	–	–	2	–	12	c. 7-8

Mains reports are below the level in Ofgem's Final Proposals with service reports being higher than Final Proposals. Forecast numbers are based on an average winter severity. In this control we have seen exceptionally mild winters resulting in lower than forecast repairs. We estimate a severe winter could add at least 2,000 mains repairs and 1,000 service repairs to our workload. Whilst report numbers are used in preference to repair numbers in table 2.3 of the RRP, our view remains that repairs are a better measure as many people can call in one escape, but the repair drives the cost.

We have accelerated and exceeded the requirements for holder demolition with 12 delivered across the price control against an allowance for 7-8. The opportunity to remove more risk on this group was taken following a review of ongoing Opex costs, safety risk and the opportunity for an efficient delivery programme. We have not found risk to be as high as expected on other asset groups following survey results (e.g., Service governors) so the decision was made to invest in the holder programme.

5.2 Repex Summary

5.2.1 Repex Cost Summary

Total costs (2020/21 Prices) £m	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	RIIO Total	2019/20 view
HSE driven mains & services	75.4	67.8	64.5	65.1	56.0	63.0	61.3	63.2	**516.3**	523.8
Non-HSE driven mains & services	7.0	18.0	20.4	18.4	14.7	16.1	17.2	12.8	**124.7**	120.2
Risers	1.8	2.9	2.4	2.1	1.6	1.8	1.9	1.4	**15.8**	15.5
Total Repex	**84.2**	**88.7**	**87.3**	**85.6**	**72.2**	**80.9**	**80.4**	**77.5**	**656.8**	**659.6**
2019/20 view	**84.2**	**88.7**	**87.3**	**85.6**	**72.2**	**80.9**	**80.4**	**80.2**	**659.6**	

Repex costs reflect the following areas that impact on expenditure levels:

- Continued delivery of our key Iron Mains abandon targets utilising our existing alliance contract. However, 2020/21 has seen a continuation of the cost pressures from previous years which has put our ongoing contractual relationship under strain. This follows the exit of one of our two partners in 2018/19.
- The cost of delivery is impacted by the size and type of project that we can efficiently design in any one year to meet our risk targets. Project sizes continue to decrease.
- We are continuing to experience labour market rate demand increases and are balancing costs with retaining experienced resource in a competitive sector including water, electricity, and rail. A significant investment in new recruits to offset this labour market has come at a significant investment cost as these learn on the job from other experienced teams and begin to become productive.
- Work has become more dispersed, something that is set to continue in GD2 and beyond. We are now experiencing the higher associated support costs i.e., management, logistics and other delivery costs.
- Introduction of innovative products are now embedded and reflected in our cost base, including the ductile iron cutting tool, mobile apps, larger coil trailers and single flow stopping equipment. This is mitigating some of the cost pressures now and into the future.
- Our current insertion ratio following design is better than we have historically achieved but analysis shows this will drop for the remainder of this programme to 2032 and will have an adverse impact on the cost of the mains replacement programme moving forward.

5.2.2 Repex Workload Summary

Total workload	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	RIIO Total	FPs
T1 length decommissioned	333.4	365.7	345.1	337.4	299.1	306.8	315.6	276.8	2,579.8	2,638
T2 length decommissioned	21.7	21.5	20.9	30.9	30.1	25.0	48.0	30.8	228.7	237
T3 length decommissioned	1.4	1.7	0.8	1.1	1.0	0.3	-	-	6.2	1
Steel length decommissioned	64.8	66.8	100.3	84.6	69.9	62.0	59.4	44.0	551.9	571
Other length decommissioned	28.5	25.3	8.9	17.1	17.6	15.2	19.1	10.5	142.3	56
No. of services transferred	19,750	20,361	17,308	17,354	14,043	12,934	13,608	10,173	125,531	132,102
No. of services re-laid	22,851	23,770	21,642	23,268	18,083	17,146	16,700	13,878	157,338	210,329

- Prior to COVID-19, and as reported in previous RRP submissions, we planned to deliver the Repex programme as per FPs, exceeding length targets in some categories.
- The mains length delivery shortfall is the result of the three months pause in the Iron Mains Replacement programme from the end of March to end of June 2020. We have remained agile to changing conditions in what has been a difficult year and have maximised our outputs given these current operating conditions.
- As we deliver the mains replacement programme, we replace all metallic services and transfer all PE services encountered to that new PE main. As can be seen in the table above, the relays and transfers are not as forecast in our FP's, and we explain this in detail in the Repex (section 7) of this document.

5.2 Repex Forecast

5.3.1 Capex Cost Summary

Total costs (2020/21 prices) £m	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	RIIO Total	2019/20 view
LTS, storage and entry	**9.9**	7.3	12.7	10.2	8.0	10.0	7.9	10.1	**76.1**	75.1
Connections	**12.0**	10.9	13.5	12.3	13.5	13.0	14.6	10.7	**100.6**	103.6
Mains Reinforcement	**4.4**	4.0	3.9	3.9	4.9	5.8	7.5	7.8	**42.2**	42.0
Governors (Replacement)	**2.7**	2.4	2.8	1.8	1.1	1.3	2.1	2.1	**16.2**	16.7
Other Capex	**30.6**	25.0	22.5	25.2	25.5	27.0	19.7	35.1	**210.7**	202.4
Total Capex	**59.6**	**49.6**	**55.4**	**53.5**	**53.0**	**57.2**	**51.7**	**65.7**	**445.8**	**439.8**
2019/20 view	**59.6**	**49.6**	**55.4**	**53.5**	**53.0**	**57.2**	**51.7**	**59.8**	**439.8**	

The RIIO-GD1 Capex costs reflect the following areas that impact on expenditure levels:

- Continued delivery of our key reliability outputs targets, adjusting them where appropriate for changes to workload assumptions, e.g., fuel poor connections.
- Connections service workload was impacted by COVID-19 in the final year of RIIO-GD1 however fuel poor connections were higher than the previous year.
- Reinforcement workload continued to be delivered in the same volumes as previous years, Workload for specific reinforcement was made up of 47 schemes for 2020/21, most delivered by third party contractors. Work was undertaken to facilitate delivery of specific reinforcement for 2 small gas fired power stations at Thorne Lane, Yeovil and Rassau Industrial Estate, Ebbw Vale, for commissioning in 2021/22.
- Continued implementation of the ALARP methodology for LTS pipelines which has reduced capital costs.
- Continued investment in a programme to replace boilers which have reached the end of their asset life with new efficient boilers, and this will also reduce our ongoing Opex costs i.e., taking a Totex approach.
- PSUP has reduced from 2018/19 onwards following completion of the security upgrade projects at the end of December 2018.
- Updated detailed asset plans specifying size and location of installations/refurbishments allowing greater accuracy for future years planning.
- Continued focus on efficient delivery which supports our on-going outperformance.

5.3.2 Capex Workload Summary

Total workload	2014 Actual	2015 Actual	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	RIIO Total	FPs
Total mains reinforcement (km)	11	13	10	13	18	23	19	18	**125**	200.0
Total reinforcement Governors (#)	-	-	4	-	1	1	1	-	**7**	128
Total connection services (#)	11,498	11,294	11,640	11,933	11,074	10,857	10,227	8,948	**87,471**	98,060
– New housing services (#)	2,898	3,595	3,878	4,463	4,370	4,097	4,109	3,645	**31,055**	21,355
– Existing housing services (#)	5,381	5,508	5,563	5,235	4,998	5,086	4,461	3,620	**39,852**	59,760
– Non- domestic services (#)	587	530	640	639	655	591	566	491	**4,699**	6,145
– Fuel poor services (#)	2,632	1,661	1,559	1,596	1,051	1,083	1,091	1,192	**11,865**	12,590
Governor interventions (#)	94	90	35	24	16	14	22	13	**308**	514

- Reinforcement lengths have been less than forecast in the early years of RIIO-GD1 but have returned to the forecast levels in the final few years. This is a result of the steady recovery in the housing market and an increase in connections of small peaking power plants. These 'peakers' are required to balance supply and demand on the electricity network with the increase in intermittent wind and solar generation. We continue to engage with DNOs to understand the future requirement for 'peakers' and ensure the overall energy network is optimally balanced with storage on the gas network enabling intermittent green energy generation on the electricity network.
- Connections workload is clearly customer driven and is lower in 2021 due to COVID-19 but also companies taking stock of proposed changes to heat in buildings policy and requirements for landlords to improve the energy efficiency and carbon emissions of their buildings. The governor intervention forecast only included Capex replacement. Our Totex intervention plan for governors was also focused on Capex refurbishments and Opex life extensions. As such, a simple count of the Capex work vs FP is not an indication of the delivery of the asset health and risk outputs.