

Appendix 09.38

Controllable Opex Costs

RIO-2 Net Spend: £2,113m

£1,991m ('like for like')

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2. Executive Summary

This appendix supports Chapter 9 of the main business plan on Costs and Efficiency by providing additional detail about our opex costs and RIIO-2 forecasts. Our controllable opex costs are mainly spent on the Work Execution and Work Management of three core processes: Emergency, Repair, and Maintenance. These are supported by our Business Support, IT and Telecoms and Training and Apprentice activities.

We are undergoing an ambitious transformation programme to reduce costs across our business. This programme of cost reduction impacts opex costs most significantly, and will move Cadent to an underlying cost position which benchmarks comparably with other GDNs by the end of RIIO-1. Our transformation of opex costs particularly, is in recognition that historically these costs have been above the GDN benchmark, in some cases significantly. (See Chapter 9 'Cost and Efficiency' of the main plan for details of our transformation programme)

We have set an ambitious target of a 2.5% reduction per annum in the volume of escapes resulting from the condition of our mains, against an historic increase in RIIO-1. We will achieve this by refocusing our investment programme from the reduction of fracture risk, to a more balanced view that includes the reduction of escapes and so opex, whilst still meeting our safety obligations. This will be achieved through the use of innovative modelling techniques and by implementing our 'area centric' operating model that puts decision making much closer to our assets and customers.

In total we are forecasting to spend £1,991m on a 'like for like' basis (i.e. excluding Output Cases and Xoserve, Pension Admin, and Non-price Controlled activities) across our four networks in RIIO-2, an average of £398m p.a. and a reduction of £50m p.a. when compared to RIIO-1.

The profile of opex cost reductions to move Cadent in-line with other GDNs is steeply downward towards the end of RIIO-1. Having addressed Cadent's gap with the benchmarked industry performance we find constraints that prevent the same trajectory of cost reductions from continuing throughout RIIO-2. Most notably a heavy reliance on a highly skilled workforce in a tight labour market that is competing for employees to deliver licence obligations and other safety critical services. Our targeted level of efficiency is 4.6% over the 5 years to 2025/26 which will bring us below our assessment of the Upper Quartile level of performance over RIIO-2 (see Appendix 09.20 Resolving Our Benchmarked Performance Gap).

Our opex plan for RIIO-2 is impacted by some notable increases in opex workload. The two biggest categories of spend are within maintenance costs where non-routine maintenance opex workload is increasing, and secondly a new programme of work to fix problems with multi-occupancy buildings (identified through the RIIO-1 inspection programme). Our opex plan includes a continuation of efficiency improvements but against some significant workload pressures.

3. Introduction

As opex accounts for approximately 38% of our totex, this appendix provides detailed information to support our business case for opex spend in RIIO-2 and therefore our overall expenditure.

We use historical information and data on future workloads and costs to forecast our performance, overlaid with the impact of our transformation activity. It should be noted that in order to illustrate trends and differences over time, the data we use in this appendix is based upon 'like for like' opex

and so does not necessarily reflect the BPDTs. This is because output cases, pension scheme admin & PPF levy, and Xoserve are removed from the analysis.

The appendix includes:

- An outline of our overall opex costs and a breakdown of key spend areas
- A detailed year by year forecast of our controllable costs for Cadent and each network
- Our transformational cost reduction targets and the key drivers
- A forecast of workload across our three core processes (emergency response, repair and maintenance) as the primary cost driver
- An overview our other commitments and services that are funded through opex

4. Controllable Opex Components, Cost Base & Drivers

4.1. Controllable Opex Breakdown

As per Ofgem’s RIGs our Controllable Opex breakdown is outlined in the Figure 1 below:

Figure 1 Opex category breakdown

Category	Cost
Controllable Opex Costs (Price controlled)	
Direct Costs: Work Management	<ul style="list-style-type: none"> • Asset Management (Including Network Policy) • Operations Management (Including Contract Management) • Customer Management & Network Support • System Control
Direct Costs: Work Execution	<ul style="list-style-type: none"> • Emergency • Repair • Maintenance • Statutory Independent Networks (SIU) • Other Direct Activities (ODA)
Business Support (ex IT and Telecoms)	<ul style="list-style-type: none"> • Property Management • HR & Non-Operational Training • Audit, Finance & Regulation • Insurance • Procurement • CEO & Group Management • Stores & Logistics
IT and Telecoms	
Training & Apprentices	

4.2 Description of Components

With reference to 2018/19 and shown in Figure 2, Work Execution is the main area of controllable opex spend with 52% (£221m) of the total. Business Support and Work Management represent 24% and 21% of the cost respectively.

Breaking down Work Execution there is an even split between Repair and Maintenance, with Emergency and other direct activities (exc. Xoserve), together accounting for a similar amount (Figure 3).

Figure 2 18/19 Controllable Opex Costs Breakdown (£m)

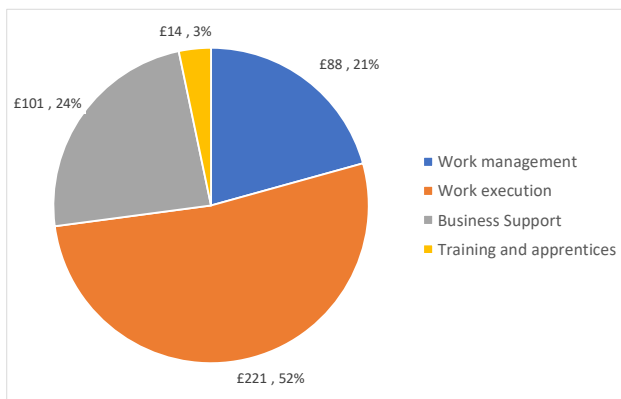


Figure 3 18/19 Work Execution Breakdown

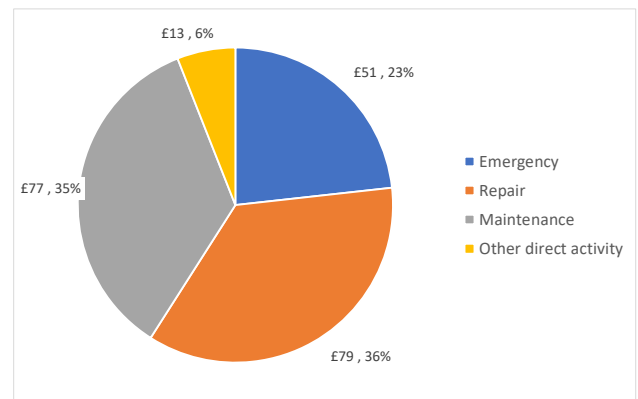
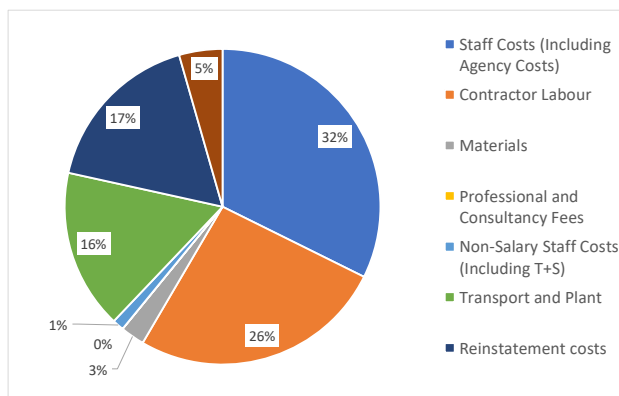


Figure 4 shows a further breakdown of controllable costs and it highlights that Labour (staff and contractor) is the largest element of our cost base with Transport and Plant and (for Repair) Reinstatement costs also representing significant value. The graph is based upon East of England Repair data, but this is representative of other networks and cost bases.

Figure 4 18/19 East of England breakdown of Repair costs



4.3 Our Cost Base through time

As outlined in Chapter 9 in the Business Plan we have set ourselves an ambitious target to reduce our operating cost and ensure we deliver value for money for our customers. In total we are forecasting to spend £1,991m of opex on a 'like for like' basis (i.e. excluding Output Cases and Xoserve, Pension Admin, and Non-price Controlled activities) across our four networks in RIIO-2, an average of £398m p.a. and a reduction of £50m p.a. when compared to RIIO-1. This represents a step change for our business compared to our cost base at 2016/17 and the preceding years, and is the result of our transformational change activity.

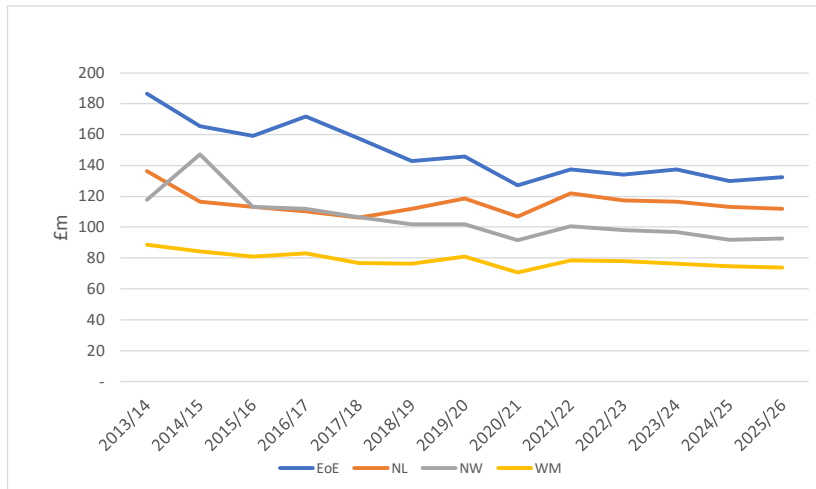
Figure 5 shows the opex summary for Cadent across the RIIO-1 and RIIO-2 price controls based upon 2018/19 prices.

Figure 5 Cadent Opex Summary)

£'m (2018/19 price base)	RIIO-1			RIIO-2					RIIO-2	Av.
	2019	2020	2021	2022	2023	2024	2025	2026	RIIO-2 Total	
Emergency	51	49	47	46	45	43	41	40	215	43
Repairs	79	78	69	65	62	59	57	55	297	59
Maintenance	77	97	77	105	101	104	94	97	500	100
Of Which: Routine Maintenance	44	44	37	35	35	34	33	33	170	34
MOBs (Incl. Buy-Outs)	3	7	6	19	19	21	19	20	98	20
Non-Routine Maintenance	30	46	34	51	47	49	41	44	232	46
Other Direct Activities (ODA)	13	12	11	10	10	10	10	10	51	10
Work Execution	221	236	203	225	218	216	202	201	1,063	213
Work Management	87	84	79	80	77	76	74	74	381	76
Business Support (Ex IT&T)	51	52	50	47	46	46	47	47	234	47
IT & Telecoms	50	46	39	45	47	46	46	46	230	46
Training & Apprentices	14	15	14	17	16	17	16	17	83	17
Opex: Adjusted	423	434	384	415	403	403	385	385	1,991	398
Memo items										
Output Cases	-	-	-	17	18	19	19	20	93	19
Xoserve	10	13	12	-	-	-	-	-	-	-
Pension Admin	-	-	-	6	6	6	6	6	29	6
Opex: Reported	433	447	396	438	427	427	410	411	2,113	423

Figure 6 shows the opex breakdown by network. The networks show significant declines through late RIIO-1 (2017/18 to 2020/21) followed by a further decline in RIIO-2. There is an increase between 2020/21 and 2021/22 due to opex costs associated Multi-occupancy Buildings, Non-routine Maintenance Programme, IT and Telecoms, Training and Apprentices and new Outputs (see later in this appendix). The increase for London (NL) in 2018/19 is also because of the impact of multi-occupancy building surveys and subsequent remediation work. All four networks follow a similar path in RIIO-2 based upon our workload forecasting, efficiency improvements and workload reductions. The workload trending is covered later on in this appendix.

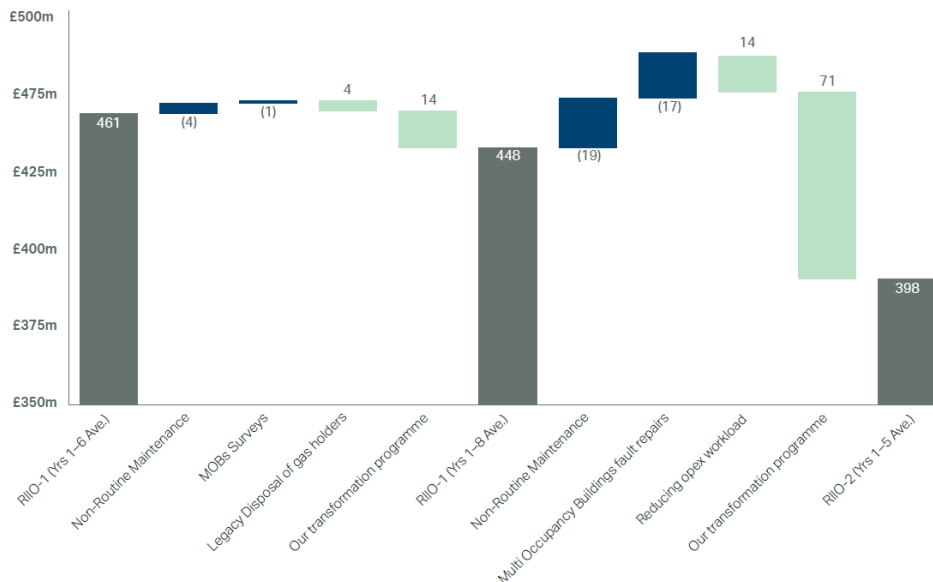
Figure 6 Cadent Total Net Controllable Opex Costs (Opex Reported)



4.4 Cost Drivers

Figure 7 is an extract from the Cost chapter in the business plan. To reduce costs from our business the Work Execution and Work Management activities has reduced cost most in absolute terms, accounting for over 80% of the annual £71m savings labelled as ‘our transformation programme’ in Figure 7 below. This is above the 73% of the opex cost make up, due primarily to removal of the repair risk commitment in RIIO-1.

Figure 7 RIIO-1 vs RIIO-2 Average Opex (18/19 prices excluding Output Cases, Xoserve and Pension Costs)



The most material opex cost drivers in Work Execution are workload / demand, employment costs, materials and productivity. The key features of these process-agnostic cost drivers are outlined below:

Workload & Demand

- Most opex workload is driven by factors that are significantly outside of our control, particularly on a short-term basis
- The number of public reported escapes (PREs) drives the reactive services delivered by Emergency Response and Repair – 80% of PREs relate to issues inside of customers' premises and are not related to our network
- Escapes from our network drive repair workloads. The replacement of our network with plastic pipes reduces the volume of this workload compared with where it would be without the investment
- Seasonal variability in weather and gas demand creates a 'winter peak' in reactive opex work associated with the network running at higher pressures when leakage, and therefore PREs, increase.
- Investment in assets drives opex reductions. The key driver is the impact of our replacement activity on reducing repairs in future years against ongoing deterioration. Similarly, rates of asset condition depreciation drive maintenance work (captured through our NARM process driving non-routine maintenance).
- Policies and regulatory change impact demand, particularly for maintenance work, and are normally relatively stable
- Third party interventions or actions, such as damage caused to our apparatus by customers or other utilities, drives a small part of our reactive work. The impact of SMART metering installation is included in this category.

Employment and people costs

- Our Emergency, Repair and Maintenance processes, including their work management, are labour intensive. Given this, and the volume of work to be done, employing people for the work is the largest area of cost by a significant margin.
- The terms and conditions of employment drive cost: the majority of our employees are on terms and conditions which are now closed to new entrants, and we have launched new terms within the last two years for staff, field employees and managers. We also have contractor colleagues.
- Pension schemes. Our defined benefit scheme closed to new entrants many years ago and we now have a majority group within our defined contribution scheme. Funding the DB scheme remains a significant area of cost.
- Balance of direct and indirect resource (i.e. what do we contract out versus do 'in-house'). Tactical decisions on what activities we do ourselves can drive costs, or benefits and this will be driven by our move towards a 'depot centric' operating model.
- Mix of permanent employees and contractors. Contractor employees have higher unit costs but greater flexibility.
- Recruitment and attrition. This includes apprenticeships, employee retention, costs of advertising and attracting and onboarding new staff
- Absence management. As a responsible employer we provide sickness cover in excess of statutory requirements. However, we need to ensure that we create the conditions so that people return to work when they are well enough to do so.
- Shift patterns, standby rotas and additional hours (overtime). The structure of the shift patterns that our field operatives work drive cost because more onerous / less 'sociable' shifts come with higher employment costs
- Costs of training people and maintaining their skills

Material costs and equipment

- Reducing the quantity and size of excavations (and therefore reinstatement work) and the treatment and disposal of waste
- Procurement and contract costs. Effective procurement and cost control processes (including demand management) support ongoing lower materials and plant costs.
- Fleet operating costs are connected with the number of employees, the nature of vehicle usage and how well the vehicle is looked after

Productivity

- The complexity of the work (more complex work takes longer to complete)
- Effectiveness of our work planning and scheduling
- Constraints that customers or other stakeholders place on how and when our work is delivered (e.g. restricted hours imposed can significantly reduce productivity).
- The ability for engineers to work flexibly across different processes and job types
- Behaviour of our employees impacting job times
- The balance between quality/service (e.g. interactions with the customer) and completing the work
- How effectively we implement new innovations and best practices
- The incentives created by performance / bonus schemes and commercial contracts
- The skills and problem solving abilities that our teams possess and are free to use
- Non-productive time e.g. waiting for work, training, absence, team meetings, van repairs

There are some factors that can impact these cost drivers across all of our processes which include:

- The labour market for the types of skills and employee we require is tight and length of time for new industry or company starters to achieve competency in many areas is relatively long. Given our heavily manual processes, this is a critical constraint.
- Local authorities and other stakeholders have powers over the public highway access and use and sometimes place constraints about when and how we deliver our work
- The management of employee working time and fatigue is an important safety consideration and there are some indications of these requirements becoming more risk averse. Compliance with existing, and any further tightening of these controls, drives significant cost given the manual nature of our opex work and our obligation to provide services 24/7/365 right across our networks.
- There are economic and practical constraints on our investment programmes, which constrain the rate of improvement in opex costs. For instance, there are cases where an asset that drives high opex costs (e.g. a gas main that leaks regularly) cannot be replaced because there are access or other delivery constraints that may mean investment work is delayed for a long time. In the busiest areas, accessing highways for investment work is increasingly challenging. This leads to enduring opex costs.

5. Opex Forecasts

5.1 Work Execution

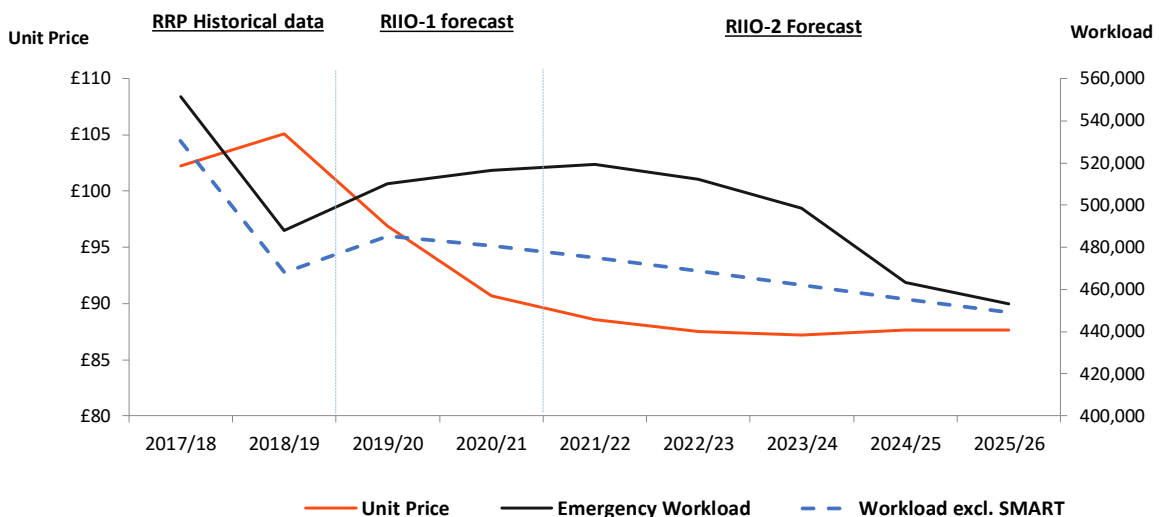
5.1.1 Emergency

Figure 8 shows our emergency workload and unit cost of delivering this work. The key points are:

Workload and demand

- Overall in RIIO-1 we have seen a continued trend of a reduction in emergency workload of 1-2% p.a. (albeit with some fluctuations caused by weather e.g. 2018/19)
- For our RIIO-2 forecast we have applied a reduction of 1.5% p.a. in workload based on linear regression modelling of the RIIO-1 period. We have no material evidence or reason for our forecast workload trend to change in this work type given over 80% of the work is driven by gas escapes within the customer's own premises.
- 2018/19 was an unusually warm year which manifested in reduced workload, and therefore increased unit costs because our field force became stranded with less work to do. It is an outlier compared to previous years.
- SMART metering associated workloads are forecasted to align with the phasing of the rollout programme. We have aligned the phasing of work with BEIS's confirmed revised 2024 deadline, accounting for the volume of work already delivered to date in each of our networks. The rate of our intervention at SMART meter requests has been forecast at 2.3% on the basis that we have established effective controls to reduce interventions and 2.3% is the average intervention rate from 2018/19.

Figure 8 Emergency workload and unit cost



The factors that can impact Emergency workload include:

- Public reported escapes are challenging to control. Our gas emergency call handling team triage all calls on the same basis (for all GDNs) to ensure that reports are given the right priority allocation.
- Our obligation to provide a 24/7 emergency response, attending within 60 minutes for all regions irrespective of population density
- There are HSE & EU working time regulations that obliges the safe management of resource working time and fatigue to specific limits
- There is high demand for gas skilled resourcing, thereby encouraging movement between networks, suppliers, installers and metering businesses. Over recent years we have seen an increase in staff turnover.
- Several Regulation / legal constraints – see section 6

The factors that will impact the unit cost include:

- Unit costs to decrease through the transformation programme: roll out of area centric operating model with local work planning.
- The proliferation of newer terms and conditions that provide increased flexibility and lower unit costs
- Ongoing workforce size and coverage optimisation – the impact of shift patterns, a review of where to position resources to cover the geography and maintain standards of service
- Emergency's apportionment of the targeted opex saving is below the overall opex saving of 4.6% over 5 years, given the restraints of manning this service to achieve the licence obligations of attending emergencies.

SMART Metering costs

This section briefly sets out:

1. The background of SMART metering costs and the leading role we have taken in supporting the role out to mitigate its impact
2. What we have included in our plan

1. SMART Metering Costs

The direct impact of smart meters is the stranding of fixed overhead costs into the regulatory cost base as the non-formula work declines. We have however invested considerable management time on ensuring that:

- The gas emergency service was protected such that those customers reporting a genuine gas emergency (such as a gas escape in their property) were not put at risk through the workforce being deployed to smart meter related reports elsewhere, and

- As far as possible, that customers experience of having a smart meter installed by a supplier was as smooth as possible.

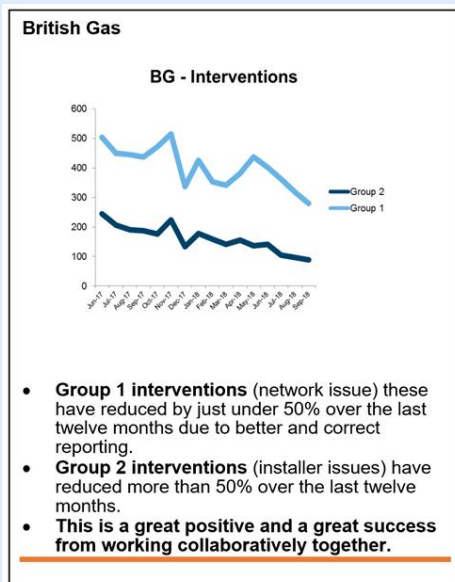
We identified these two aims after the initial trials for smart metering were identifying significant customer and GDN impacts, without action the cost impacts could be significant.

Supporting the roll out

We took an active role in the rollout. We became an industry leadership role in relation to smart metering deployment on behalf of other GDNs and in relation to supporting the energy suppliers on delivering the best experience for customers through the rollout. Our leading work on the network response to smart metering deployment underpinned by a clear strategy has been recognised as best practice by BEIS and suppliers and more importantly helped to ensure customers experience of smart is a positive one and significantly reduced the potential additional costs of emergency callouts associated with the rollout.

We recognised that in order to minimise costs and inconvenience to our customers, we need to be able to filter out those calls from customers that were smart meter related and not genuine gas emergencies. We therefore trained our call handling staff to be able to assess whether the call was smart meter related and support customers by directing them to their energy supplier - thus avoiding inefficient use of emergency engineer resources and inconvenience for customers when the attending engineer could only refer them to their supplier to repair or replace the new meter.

Case studies: Our work with large and small organisations



Utility Warehouse

- The Utility Warehouse (UW) requested Cadent to support them in **testing and piloting their systems** for managing the new generation of SMETS2 smart meters. Cadent created dummy Meter Point Reference Numbers and address details for UW to register their meters with the Data Communications Company.
- In return UW have promised to provide details of how their testing programme is working and any issues that may be of interest/use for gas networks.
- We continue to work with UW and other suppliers and continue to support from a GDN perspective where we can and update the other networks through our collaboration groups.

Our engineers were also trained to record details of the reasons for their attendance, so this could be used to feedback to the relevant suppliers where common problems were being

encountered. For instance, where potentially dangerous or faulty smart meter installations were carried out by suppliers or their agents. This feedback loop was and is essential to enable corrective action from suppliers and in turn protect customers and reduce unnecessary emergency calls. To date around 250,000 reports have been provided to suppliers. Our initial estimates of over 6% of smart metering jobs requiring intervention by Cadent has been managed consistently at 3% to date through, we believe, our efforts outlined above.

Our leading work on the network response to smart metering deployment underpinned by a clear strategy has been recognised as best practice by BEIS and suppliers and more importantly helped to ensure customers experience of smart is a positive one.

2. What we have included in our plan

To date, installations for customers across our network have averaged approximately 1.2 million per annum. We also know that across these installed meters, we have had to make an intervention in approximately 3% of cases, although this value varies by network. Based on recent announcements for the timetable of the smart meter roll-out, we have included forecast intervention volumes in our base plan. See table below.

Figure: Smart Metering Workloads

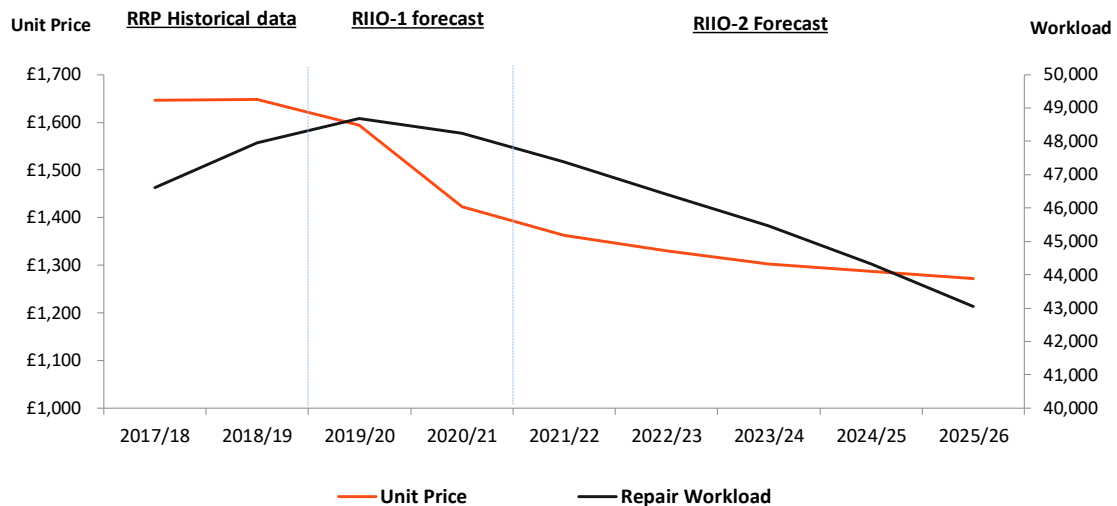
Smart Metering workloads (jobs '000s)								
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
East of England	7.1	8.7	11.5	15.3	14.7	12.2	2.4	1.2
London	2.5	3.1	8.5	9.9	9.9	8.5	2.0	1.3
North West	6.2	7.6	9.1	10.6	10.6	9.1	2.0	1.3
West Midlands	4.7	5.8	6.9	8.4	8.4	6.8	1.2	0.4
Cadent Total	20.5	25.2	36.0	44.2	43.6	36.6	7.7	4.2

We know through engagement with BEIS that there is a strategic direction for networks and suppliers to become full users of the DCC. As the roll out continues to progress, this may strengthen as the economic benefits of the programme grow. We are therefore proposing an uncertainty mechanism to address specifically the DCC roll out. More detail on this can be found in Appendix 10.06 Smart Meter Roll-Out Costs.

5.1.2 Repair

Figure 9 shows our repair workload together the unit cost of delivering this work.

Figure 9 Repair workload and unit cost



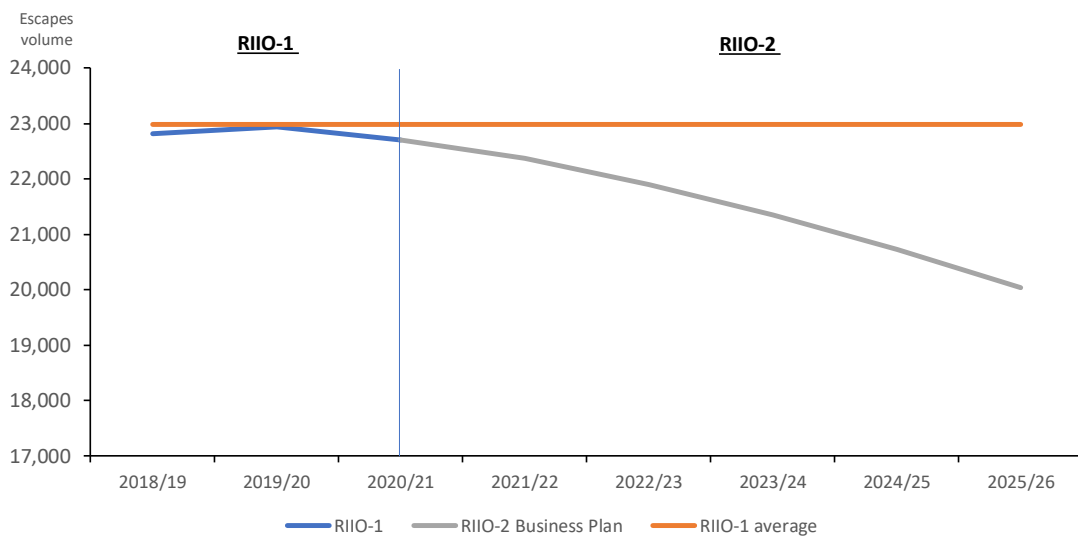
Our business plan is based upon a forecasted reduction of workload despite an historical increase in RIIO-1. This is as a result of an ambitious investment programme that will reduce escapes from mains by 2.5% per annum. This will be achieved through innovative modelling techniques and an increased focus on opex by putting decision making closer to our assets, which is facilitated by our transformational activity of creating an 'area centric' operating model. The key points relating to Repair workload and unit cost are:

Workload & demand:

- Repair workload is very seasonal and weather dependent which can stretch resources in winter. There is also a noticeable difference between colder and milder winters which is illustrated by the year to year fluctuations
- There has been an average increase of 1% per annum in Repair workload volume during RIIO-1 despite the mains replacement investment programme. This is because the primary focus of the mandated programme is to reduce mains fracture risk (which has been achieved very successfully), rather than targeting other failure modes. Nevertheless, without the mains replacement programme escapes from our mains would be significantly higher than they are now.
- The investment / replacement of larger diameter mains has reduced, and our models predict that this asset group is deteriorating faster than they are being replaced. In repair we are seeing moderate increases in workload on these large assets which can be very expensive to repair.
- We are revising our repex investment plan for RIIO-2 to enable a better balance between safety, repex and opex costs, without compromising on safety imperatives. This is facilitated by the removal of the iron mains risk removed (IMRR) target

- Figure 10 illustrates a projection of escape volumes resulting from the condition of our mains through RIIO-2 based upon the forecasted RIIO-1 exit rate, and the expected continued deterioration of larger diameter mains, in which we have limited repex investment. However, we have built our business plan around 2.5% reduction per annum to reflect the ambition of our investment activity. This gives a cumulative benefit of 12% by the end of RIIO-2.

Figure 10 Volume of escapes as a result of mains condition



The factors that can impact repair workload include:

- The labour market for skilled resource is tight. The impact of this is accentuated because the mains replacement programme (which is delivered mainly by contract labour) pulls on a similar resource pool to repair operations.
- Several Regulation / legal constraints – see section 6
- NRSWA based constraints on access to public highways

The factors that will impact the unit cost include:

- Unit costs are forecasted to decrease through the transformation programme – area centric model with competition and improved work planning and scheduling
- We are moving the connection service close to the repair process to support customer service and productivity improvements through enabling repair to offset more opex costs
- The repair risk output measure will be removed in RIIO-2. This currently requires short cycle times that tie up some more resource than would otherwise be required. Through its removal we have forecasted lower opex costs in RIIO-2

- Repair's apportionment of the targeted opex saving is above the overall opex saving of 4.6% over 5 years, given the removal of the repair risk output target which is tighter (more restrictive for Cadent than the other GDNs).
- These factors support a reduction in unit costs for repair during the latter of RIIO-1 and throughout RIIO-2, particularly around the change in price controls when our contracting model and the risk measure change.

5.1.3 Maintenance

The subgroups of maintenance work are:

- Routine maintenance (which includes multi-occupancy buildings - MOBs)
- Non-routine maintenance

There are factors that impact workload and cost that cover all maintenance work with some specifics relating to the 2 sub-groups.

All Maintenance Work

The factors that can impact all maintenance workload include:

- Regulation / legal constraints are many and tight – see section 6
- HSE enforcements – e.g. cathodic protection intervention programme
- Safety legislation and current asset health condition

The factors that will impact cost include:

- Maintenance's apportionment of the targeted opex saving is above the overall opex saving of 4.6% over 5 years, given that our internal transformation plans are identifying more opportunity in RIIO-2 than Emergency and Repair
- In some instances, there may be an opportunity to move to single-man working without any material safety or quality risk. This will drive an efficiency improvement, likely within the assumed efficiency factor.

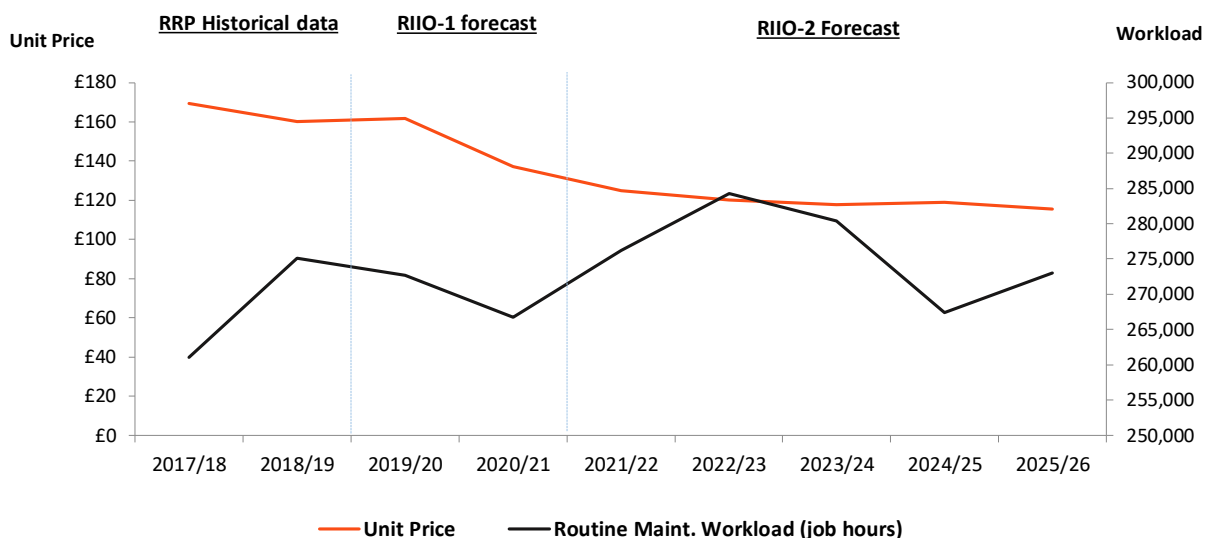
Routine maintenance (excluding MOBs)

Figure 11 shows our routine maintenance workload together the unit cost of delivering this work. It includes our targeted efficiency improvements.

Workload & demand:

- Routine maintenance workload is driven by safety legislative requirements and asset reliability, that together dictate frequency of activity.
- Work types are connected with obligations or commitments that are well established – this is a mature area where work volumes are predictable
- Workloads are relatively stable as they are cyclical and underpinned by policy and regulatory compliance measures

Figure 11 Routine maintenance workload and unit cost (excluding multi-occupancy buildings)



The factors that will impact cost include:

- Over RIIO-2 we require £34m per annum for this work which is £11m p.a. (24%) lower than the average for RIIO-1, this is primarily driven by our targeted efficiencies.

Multi-occupancy buildings (MOBs):

MOBs work opex expenditure is included in figure 12 below, this expenditure is increasing in RIIO-2 as part of our wider programme of improving safety in MOBs.

Workload & demand:

- MOBs opex work will grow materially in RIIO-2 due to large volume of opex ‘fault repair’ work. This is a new programme of work following RIIO-1 surveys, where we plan to remedy identified faults over the RIIO-2 period. We will continue our schedule of surveys and inspections in RIIO-2 and remedy the faults identified. Any high risk faults will be dealt with immediately, with lower risk faults scheduled into a larger programme of works based on risk.

The factors that will impact cost include:

- The volume of this ‘fault repair’ work on our very large number of medium rise buildings dominates costs in this area. In RIIO-1 this work was delivered by direct labour, when they were not engaged on emergency or mains repair activity. To deliver the increased activity in RIIO-2, we will be using a different business processes and newly contracted resources, as such we have included a 15% reduction in unit costs.
- Over RIIO-2, £19.6m p.a. is required for this MOB safety related work, up significantly from the RIIO-1 expenditure levels. It should be noted that, our operating costs also include an associated £2.3m p.a. Work Management costs to support this maintenance

activity from the increased engagement and associated asset management requirements (included in Figure 12)

Full details of the workload requirements and justification, including options considered, together with details of the cost forecast are included in 09.04 'Transforming the Experience for Multi-occupancy Building Customers – Risers'

Figure 12 Multi occupancy building opex costs

Asset	Activity	Predominant expenditure type	2021/22	2022/23	2023/24	2024/25	2025/26	Totals
CDS	CDS inspections	Work Execution	£0.12	£0.11	£0.11	£0.11	£0.10	£0.55
Meter banks	Survey buildings with banks of meters	Work Execution	£0.05	£0.08	£0.08	£0.03	£0.03	£0.26
	Follow up repairs	Work Execution	£0.42	£0.63	£0.63	£0.21	£0.21	£2.11
Large services	Survey buildings with large single services	Work Execution	£0.06	£0.09	£0.09	£0.03	£0.03	£0.31
	Follow up repairs	Work Execution	£0.51	£0.76	£0.76	£0.25	£0.25	£2.53
High Rise work (>20m)	HRB inspections	Work Execution	£0.26	£0.17	£0.47	£0.18	£0.13	£1.20
	HRB fault repair to ensure compliance	Work Execution	£0.71	£0.64	£0.90	£0.64	£0.62	£3.51
Medium rise work (<20m)	MRB inspections	Work Execution	£1.19	£1.24	£1.30	£1.36	£1.42	£6.51
	MRB fault repair to ensure compliance	Work Execution	£15.33	£15.77	£16.22	£16.69	£17.18	£81.19
	Direct Maintenance Sub-total	OPEX	£18.65	£19.49	£20.56	£19.50	£19.97	£98.17
All	Increased engagement and associated asset management	Work Management	£2.30	£2.30	£2.30	£2.30	£2.30	£11.50
Total OPEX			£20.95	£21.79	£22.86	£21.80	£22.27	£109.67

Non-routine Maintenance:

Figure 13 shows the costs associated with non-routine maintenance which ensures our performance of our assets against our safety and reliability standards. Over RIIO-2 we forecast to spend £46m p.a. on non-routine maintenance, which is £19m p.a. higher than RIIO-1 as we maintain our focus on delivering to the safety standards our regulator expects. Note, this work was not fully funded in RIIO-1.

Figure 13 Non-routine maintenance costs

	<u>2018/19</u>	<u>2019/20</u>	<u>2020/21</u>	<u>2021/22</u>	<u>2022/23</u>	<u>2023/24</u>	<u>2024/25</u>	<u>2025/26</u>
LTS Pipelines (including RDoC)	15.2	14.7	10.4	15.9	16.6	19.6	17.4	18.9
Cathodic Protection	7.8	7.7	5.7	12.7	10.2	9.6	8.3	9.1
Distribution Mains	2.9	4.4	3.1	10.2	7.8	8.2	5.7	5.6
Pressure Reduction Systems	3.2	9.2	6.7	2.9	3.2	3.3	2.2	2.4
NTS Offtakes	0.4	0.7	0.6	1.4	1.3	1.3	1.3	1.3
Non Chargeable Pipeline Diversions	-	-	-	1.0	1.3	1.4	1.4	1.4
AGI Decommissioning	-	-	-	0.7	0.7	0.7	0.7	0.7
Governors	0.5	0.8	0.6	1.0	1.0	0.5	0.4	0.4
Other	-	8.8	6.6	5.1	5.0	4.5	3.8	3.9
TOTAL	30.0	46.4	33.7	51.0	47.1	49.0	41.3	43.8

Workload & demand:

- Non-routine maintenance workload peaks early in RIIO-2 and then declines. The primary drivers of increases are the cathodic protection, piggable pipeline work, civil engineering work and remediation of river and rail crossings.

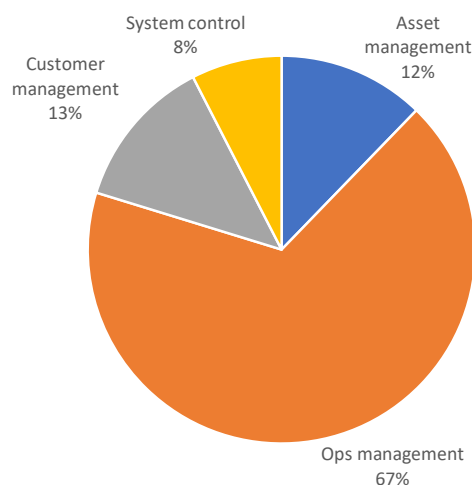
The factors that will impact cost include:

- Investment cases in the RIIO-2 plan outline the basis for much of the NRMP costs
- Our non-routine maintenance programme includes an increase in expenditure over RIIO-2 based upon the investment case (this is detailed in Figure 13)
- Further detail can be found in the following appendices:
 - Appendix 09.05 Offtakes and PRS Heating
 - Appendix 09.14 Offtakes and PRS Filters
 - Appendix 09.18 Mersey Tunnel Access Refurbishment
 - Appendix 09.32 Reduced Depth of Cover
 - Appendix 09.33 Pipeline Sleeves
 - Appendix 09.35 Cathodic Protection
 - Appendix 09.36 Pipeline Crossings

5.2 Work Management

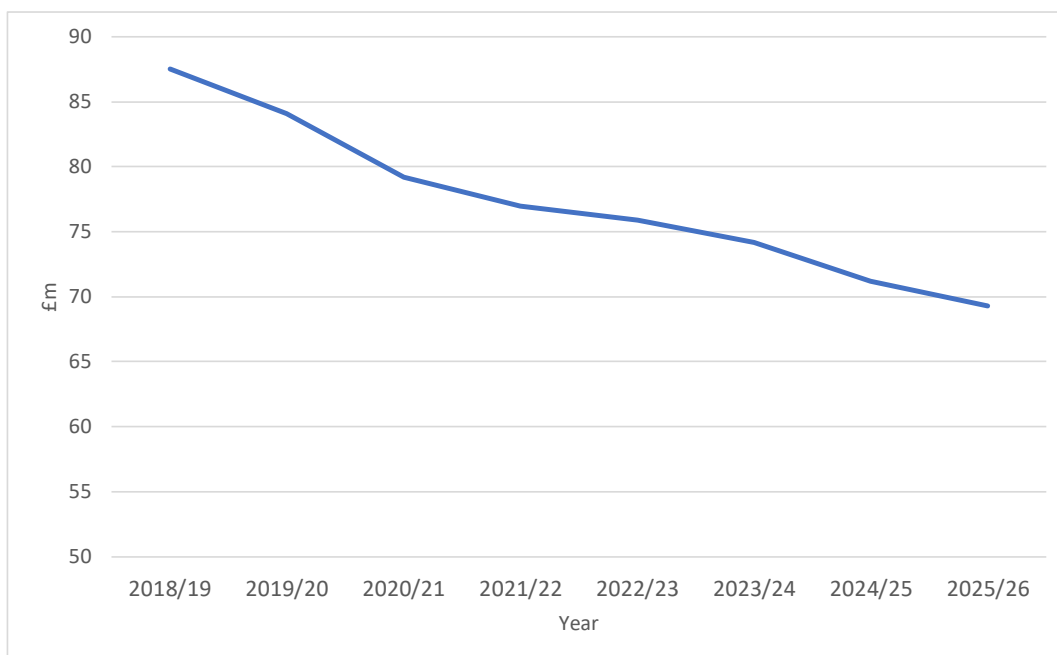
Operations management accounts for the majority of the costs associated with Work Management (see Figure 14). This is made up employees that support work execution such as supervision, management and central planning and dispatch.

Figure 14 Work management cost breakdown (2018/19)



As workload changes across Emergency, Repair and Maintenance, corresponding changes are reflected in the number of employees required to undertake this activity and so our opex. Figure 15 reflects this change including its apportionment to the Cadent targeted efficiency assumptions

Figure 15 Work management cost (exc Output cases)



- Customer Management, Asset Management and Systems Control are more stable because their workload is largely independent of work. Work Management’s apportionment of the targeted opex saving is above the overall opex saving of 4.6% over 5 years, given our internal transformation plans

Customer management reduces significantly in 2020/21 due to efficiency improvements associated with our business operational transformation (see Figure 16).

Figure 16 Work management cost breakdown across RIIO-1 and RIIO-2

		RIIO-1			RIIO-2				
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Work management	£m	87.5	84.1	79.2	77	75.9	74.2	71.2	69.3
Asset management	£m	10.7	10.8	10	9.8	9.8	9.7	9.6	9.6
Ops management	£m	59	57.8	55.2	53.8	52.9	51.6	48.8	47.2
Customer management	£m	11.1	9.1	7.6	7.3	7.2	7.1	7.1	7
System control	£m	6.6	6.4	6.3	6.1	6.1	5.8	5.7	5.6

5.3 Business Support (excluding IT and Telecoms)

Figures 17 and 18 give a breakdown of our Business Support costs and Figure 19 shows how these costs have, and are forecasted to change, over the RIIO-1 and RIIO-2.

We have already demonstrated significant savings in this area and forecast to make more in RIIO-2. Our average Business Support costs in RIIO-1 will be £63m per year and £47m per year in RIIO-2, demonstrating a 25% reduction.

As IT and Telecoms account for approximately half of Business Support cost we have removed this data from the figures below to provide more detailed analysis in section 5.4.

Figure 17 Business Support (exc IT and telecoms) cost breakdown of cost

Business Support (exc IT and telecoms)	£m	RIIO-1			RIIO-2				
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Business Support (exc IT and telecoms)	£m	51	52	50	47	46	46	47	47
Property Management	£m	12.4	13.6	13.9	14.4	14.4	14.1	14.3	14.4
HR & Non-Operational Training	£m	5.6	6.1	6.0	5.9	5.9	5.9	5.9	5.8
Audit, Finance & Regulation	£m	16.9	16.6	13.9	11.5	10.1	11.1	12.0	11.8
Insurance	£m	5.9	6.1	5.9	5.9	5.8	5.8	5.8	5.8
Procurement	£m	2.8	2.7	2.6	2.4	2.2	2.2	2.2	2.2
CEO & Group Management	£m	6.0	5.9	6.0	6.0	5.9	5.9	5.9	5.8
Stores & Logistics	£m	0.9	1.4	1.3	1.2	1.2	1.2	1.2	1.2

Figure 18 Business Support (exc IT and telecoms) cost breakdown of cost

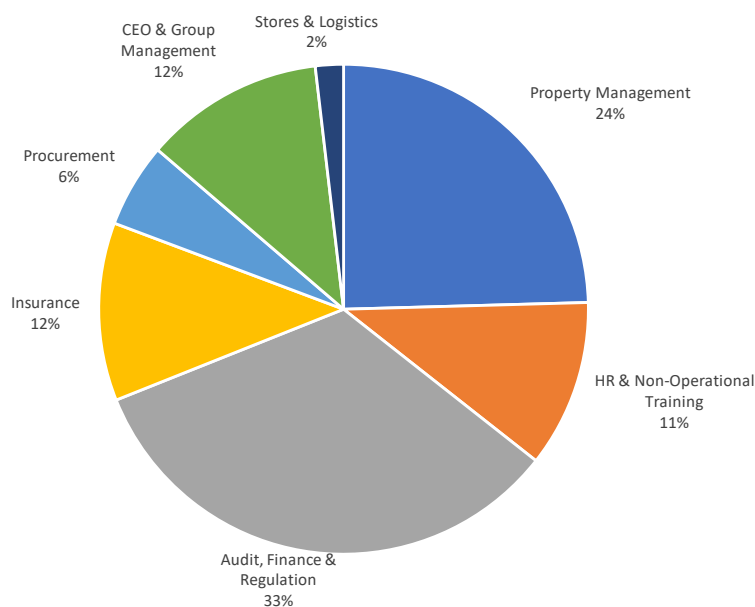
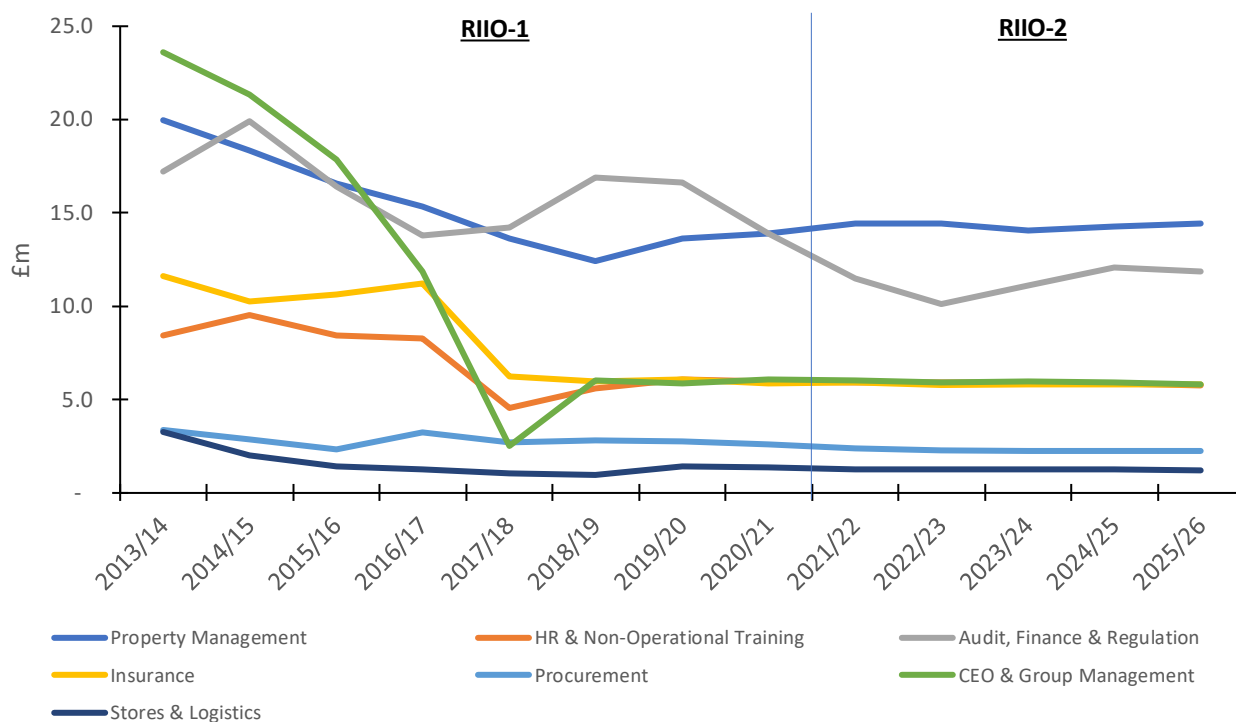


Figure 19 Business Support Costs (exc IT and telecoms)



5.3.1 Property Management

The average annual cost of Property Management over RIIO-2 is £14m p.a., which is £1m lower than the RIIO-1 average.

This opex category covers the maintenance and management of non-operational premises i.e. premises used by people such as stores, offices, depots and training centre buildings & grounds. It includes:

- Rent
- Business rates
- Utilities costs (electricity, gas and water)
- Maintenance/repair costs
- Facilities management/property services (e.g. reception, security, access, catering, mailroom, cleaning, conferencing etc).

Annual Property Management costs have steadily declined over RIIO-1, from £20m p.a. at the start of the period and are expected to plateau at approximately £14m p.a. by the end of RIIO-1, and then broadly remain at that level throughout the RIIO-2 period. These savings have largely been achieved through rationalisation of our property portfolio over time. Our separation from National Grid mid-way through RIIO-1 acted as a catalyst to realise further property estate efficiencies along with the opportunity to negotiate new lower cost contracts for utilities, rents/leases and facilities management.

5.3.2 HR and Non-Operational Training

Over the RIIO-1 period the average annual spend on HR and Non-Operational Training has been in the region of £7m p.a. and is forecast to drop slightly to £6m p.a. over the RIIO-2 period, through on-going efficiency improvements.

This category largely covers the full remit of our Human Resources (HR) function covering the professional activities for an individual's career path from recruitment to retirement, and post-retirement where applicable (e.g. the management and correspondence related to pension related payments and support). It includes:

- Operating and managing the payroll services
- Supporting the grievance & performance management processes
- Facilitating employee performance
- Development and review processes
- Industrial and employee relations including HR strategy, policies and procedures
- Non-technical training courses and administration for office-based staff
- Management/leadership development and training

Note that the costs associated with the administration of the Defined Benefit and Defined Contribution Pension Schemes and the Pension Protection Fund (PPF) Levy (together £6m p.a.) are reported under the "Other Direct Activities" Opex category of the Business Plan Data Tables (as per the RIGS).

5.3.3 Audit, Finance and Regulation

This category encompasses all the opex activities relating to the various external statutory & regulatory reporting requirements, internal management reporting and the relevant financial and regulatory compliance activities for the individual networks and the company entity. It includes:

- Financial transaction processing (e.g. accounts payable and receivable departments)
- Financial & risk management
- Internal and external audit costs

Costs for these activities were historically high whilst we were part of National Grid, which had a complex global structure and governance processes. Since separation we have been able to review and refine our processes and organisational structures, which has led to a declining cost trend and average costs of £16m per annum for RIIO-1. With ongoing continuous improvement initiatives across this category, we are forecasting average costs of £11m per annum across RIIO-2, which is £5m and 31% lower than RIIO-1.

5.3.4 Insurance

Insurance costs comprise of the insurance premiums and the in-house management of all insurance related matters. The premiums cover all our operational activities (property buildings & contents, motor vehicles, public liability etc.) and provisions for employees (life assurance re death in service benefits).

When we became an independent company, we took the opportunity to undertake a competitive tender process for our insurance placement in the external market. This resulted in substantial reductions in the cost of our premiums from an average of £11m p.a. to £6m p.a. from 2017/18 onwards and throughout RIIO-2, a saving of 45%.

5.3.5 Procurement

Annual Procurement costs across RIIO-1 are relatively low, averaging £3m per annum. Through on-going efficiencies improvements, we forecast that this will reduce to £2m per annum in RIIO-2, a 33% reduction.

This category covers the team costs associated with the procurement of goods & services in the support of business operations. It includes:

- Identifying potential suppliers and undertaking background reviews
- Negotiation of procurement contracts with suppliers
- Monitoring and managing supplier performance
- Setting and monitoring against procurement guidelines
- Market analysis costs

5.3.6 CEO and Group Management

These costs comprise of:

- All aspects of communications (internal, external, media & community relations)
- Group strategy activities
- Legal costs
- Risk & compliance
- Company Secretary activities
- Corporate governance
- Corporate responsibility and investor relations
- Costs relating to board members and non-executive directors

As part of our separation from National Grid, we have taken the opportunity to create a relatively simple corporate structure. This has enabled us to reduce our CEO and Group Management costs from an average of £19m per annum pre-separation to £6m per year across RIIO-2, a 68% reduction.

5.3.7 Stores and Logistics

Annual costs across RIIO-1 are relatively low, averaging £1.6m per annum. Through on-going efficiencies, we forecast that this will reduce slightly to £1.2m per annum in RIIO-2.

This category covers:

- Managing and operating our equipment/material stores
- Delivery costs of materials/stock into stores
- Delivery of materials/stock from a centralised store to a satellite store/final location (and vice versa)
- Monitoring of stock levels & quality testing of the items held in stores.

5.4 IT and Telecoms

The average annual IT and Telecoms opex spend in RIIO-2 is forecasted to be £46m p.a., which is only £2m lower than the RIIO-1 average. This is because we have moved to cloud-based systems which have added £6m per annum of investment that will be seen in future operating costs.

Figure 20 give a breakdown of IT and Telecom costs (excluding Cost Recoveries). These costs cover the provision of IT services for the day to day service delivery including:

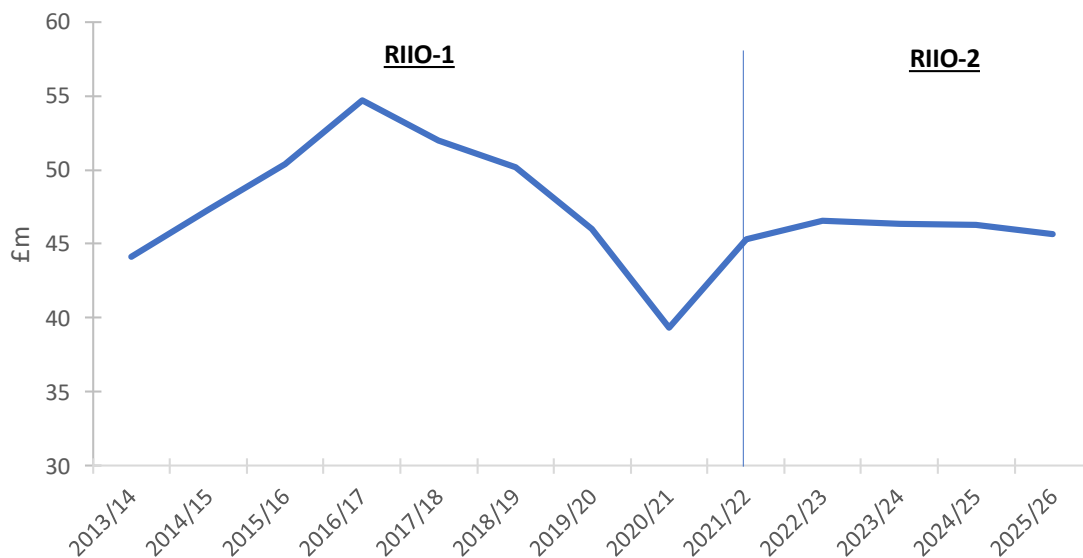
- Help desk services
- Data centres
- IT application development
- Maintenance and support; establishing and maintaining IS infrastructure projects (IT Network Provision, Network Maintenance, Servers support/services)
- Developing new/maintaining existing software
- Cost of software licences
- Maintenance and all the operating costs of the IT infrastructure, management and applications

Figure 20 IT and Telecom cost breakdown (excluding Cost Recoveries)

	RIIO-1		RIIO-2					
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
IT and Telecom	53	48	41	47	48	48	48	47
Application Development	-	3.0	2.8	2.7	2.7	2.9	3.0	3.0
Application Maintenance & Support	-	16.2	16.0	21.7	23.0	22.1	21.6	20.2
Desktop Services	-	2.8	2.8	3.1	3.1	3.2	3.3	3.4
Application Server Support	-	4.7	5.4	5.2	5.2	5.5	5.8	5.7
Storage	-	3.7	2.1	2.1	2.1	2.1	2.2	2.3
Central Printing	-	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Network (LAN & WAN)	-	9.3	5.4	5.5	5.5	5.6	5.8	6.0
Business Telecoms	-	3.9	3.9	3.8	3.8	3.8	3.9	4.0
Management Services	52.6	4.2	2.4	2.6	2.4	2.4	2.0	2.5

In the first half of RIIO-1, we invested in IT projects such as SAP Gas Distribution Front Office system which saw an increase in cost from £44m per year to £55m per year. Our separation from National Grid has created the opportunity to build/procure capability and services to better suit our requirements as a smaller, stand-alone business. The resultant move to a 'cloud-based system' provides some 'future proofing' as it can better respond to future technological change (e.g. 5G telecoms) and changing business conditions (e.g. whole system solutions). The move off the Transitional Service Arrangements (TSAs) with National Grid will see costs reduce to £41m p.a. by the end of RIIO-1. Figure 21 illustrates our IT and Telecoms opex costs over RIIO-1 and RIIO-2.

Figure 21 IT and Telecoms opex



As mentioned above, in RIIO-2 we forecast a £6m per year increase in annual opex cost. This is because we see IT and Telecoms as an enabler to drive efficiencies elsewhere in our plan. A focus on data and digitisation will enable better, real time decision making and support our move to a ‘depot centric’ operating and planning model.

The increase in cost is also due to a need to improve cyber security (to protect our national infrastructure and customer data), and a general industry shift toward spending opex on ‘Software as a Service’ (SaaS) and cloud-based services rather than capital-intensive IT investment. This shift is evident in a reduction in cost in our RIIO-2 capex plan by an average of £5m per year when compared with RIIO-1.

Further details of our IT and Telecoms plan including investment and our operating costs can be found in Appendix 09.30 Technology IT and Telecoms.

5.5 Training and Apprentices

Having the right skills and capabilities is a key element of our business plan and we remain committed to developing talented individuals through our apprentice and graduate programmes, as well as our obligation to develop and maintain the skills of existing employees.

We are looking to invest £83m in Training and Apprentices over RIIO-2. This represents an average annual increase from £15m in RIIO-1 to £16.7m in RIIO-2 and will further underline the quality of our award-winning apprenticeship scheme.

Figure 22 gives a breakdown of this by activity.

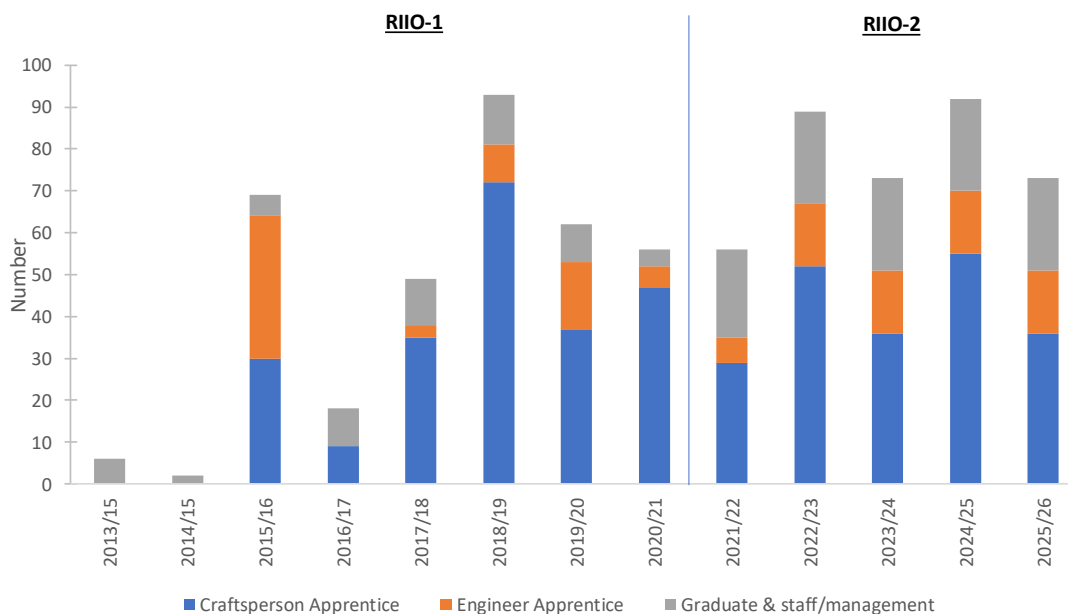
Figure 22 Training and Apprentice cost by activity

		RIIO-1			RIIO-2				
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Training and Apprentices*	£m	14.9	16.0	14.6	18.2	16.7	18.3	16.7	18.4
Salary Costs	£m	5.1	6.2	6.6	7.4	8.3	8.7	8.7	8.7
Training Costs	£m	9.7	9.7	7.9	10.6	8.2	9.5	7.9	9.5
Administration Costs	£m	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

*Excludes cost recoveries

We plan to increase recruitment of apprentices from an average of 18 FTE p.a. in RIIO-1 to 27 FTE p.a. in RIIO-2, and also increase the recruitment of graduates/students from 7 to 22. Our apprentice recruitment is a blend of both Craftsperson and Engineering apprentices (See Figure 23).

Figure 23 Apprentice and graduate/student positions created



This increase in investment and recruitment helps us mitigate the risk associated with a changing labour market and business climate resulting from:

- Revised terms and conditions to better reflect the market rates
- Changing pension schemes and conditions
- A demographic shift from an aging workforce to younger, less experienced people
- Changing aspirations and expectations that younger workers have
- The need to achieve greater diversity and inclusion across our business

- Challenges in the acquisition and retention of key skills in a competitive labour market

In addition to our recruitment plans for apprentices and graduates we are creating greater flexibility in our operating model by investing in our existing employees to refresh their competency and, in some instances, enabling them to 'cross skill'. This will be further supplemented with the recruitment of experienced hires.

This £33m investment in Training to Address Skills Shortage will enable our teams to operate across different processes (Emergency, Repair and Maintenance), and allow us to better match resources to workload and manage seasonal variability, changing patterns in demand and the need for 24/7/365 coverage (See Figure 24).

Figure 24 Training to address Skills Shortage

		RIIO-1			RIIO-2				
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Training to Address Skills Shortage	£m	4.4	7.3	5.5	8.1	5.6	6.9	5.2	6.9
Competency Refresh	£m	4.4	4.3	3.6	3.7	3.5	3.6	3.5	3.6
Experienced Hires	£m	0.0	1.1	0.9	0.7	0.8	0.9	0.7	0.7
Upskilling/Cross-skilling	£m	0.0	2.0	1.0	3.6	1.2	2.4	1.0	2.5

6. Services & Commitments Delivered

Our business purpose is to “keeping the energy flowing” and from our customer engagement activity it has been emphasised that providing a safe and reliable network 24 hours a day 365 days a year is seen as a pre-requisite. It is customers’ highest priority.

This sentiment is core to all our day to day operational activities. The outputs we provide through opex funded activities include:

- Response to controlled and uncontrolled gas escapes (emergency response) 24 hours a day 365 days a year
- Management of gas escape risk (repair work) so that we prioritise activity based upon the potential impact to safety and service
- Reconnecting customers where unplanned interruptions to gas supply have occurred
- Pressure System Safety Regulations Fault Response to ensure that we maintain security of supply to our customers
- Focused effort to improve customer satisfaction from our Emergency Response and Repair process, and should our performance not be as expected, there is an effective complaint handling process

Through opex work we also deliver on a wide range of other obligations/ commitments, outside of the Ofgem framework. Compliance with other legislation that is central to our business and industry is delivered through our opex business. This includes:

-
- Pipeline Safety Regulations (PSR)
 - Gas Safety (Management) Regulations
 - Pressure System Safety Regulations
 - Control of Major Accident Hazard Regulations
 - Dangerous Substances and Explosive Atmosphere Regulations etc.
 - New Roads and Streetworks Act

The activities we undertake through opex that directly discharge our obligations under these regulations (as well as, sometimes, RIIO obligations) include:

- Answering PRE calls promptly
- Safety advice to customers
- Pressure management and control
- Gas quality management
- Gas escape attendance
- A large range of important maintenance work including pipelines pigging and line walking, cathodic protection work, asset performance checks, maintenance of the electrical, instrumentation and telemetry systems that control the high pressure network, painting and coating works
- Make safe & repair responsibilities
- Major accident hazard pipeline monitoring
- Plant protection services
- Network fault responses

More details of the above can be found throughout our business plan.