

# RIIO GD2 Business Plan Appendix

GD1 Experience

December 2019



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# 1 Introduction

This appendix should be read in conjunction with chapter 2 of our business plan. It provides a description of the outputs and incentives which were set at the start of GD1, how we performed against them and an explanation of any significant variations.

## 2 Our track record against GD1 targets and incentives

The three commitments driving our GD2 plan are a natural evolution from our current approach in GD1. Our track record in GD1 and the earlier price control (GDPCR1) demonstrate we have always delivered a service that is safe and reliable, efficient, and with a sharp eye on improving our performance for customers and communities.

Our use of innovation has already saved over £125m for customers in GD1, and we are forecasting an overall 7% reduction to customer bills by the end of the current price control. We are achieving these efficiencies while dramatically improving customer satisfaction scores – complaints are down by 76% since 2013 – and have been the only gas network so far in GD1 to give back £145m to customers through a voluntary contribution.

### 2.1 GD1 performance

We are proud of what we have achieved for customers and the communities we serve. This price control has, and continues, to deliver strong and enduring consumer benefits: improved safety and efficiency, improved customer service and lower cost.

We have worked with our stakeholders and customers throughout GD1 to establish the priorities which are important to them as we move into GD2. The quality of this ongoing engagement, listening to feedback and acting on it has supported our continuing success and resulted in us being the best gas network for customer service for the last three years, and the best for stakeholder engagement over the last two.

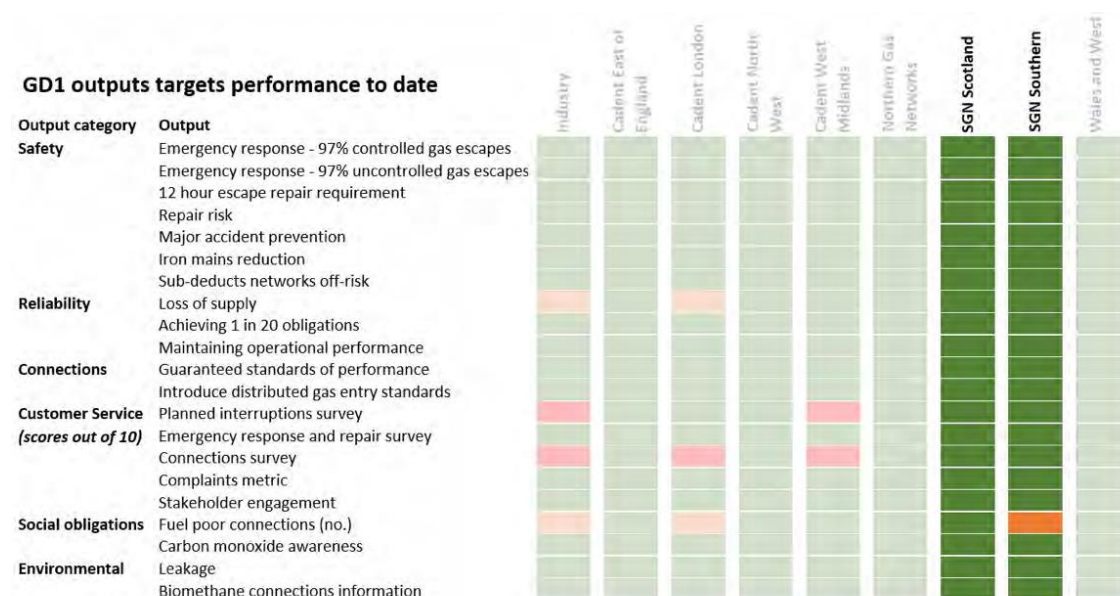
One key area of focus has been customers experiencing vulnerability or fuel poverty, ensuring they had the support they needed. When Ofgem asked network companies to take on a greater challenge in delivering fuel poor network connections, we took on more than half of the combined increase for all GDNs. Our responsibility is now for 30% of the total combined target for all GDNs in GD1. We have already exceeded our increased target in Scotland and we are making good progress towards our target in Southern.

We are just as proud of our leading work on decarbonisation; we were the first network to inject biomethane into the grid back in 2010, and have facilitated 33 connections in GD2. Of these, 30 sites are live and supplying the equivalent of 199,000 homes with green gas. Our ambition remains unchanged: collaborating across the industry to find future net-zero solutions for heat, building the evidence to demonstrate a pathway towards the decarbonisation of the gas networks.

In this appendix we review performance against output targets in GD1 to support and add detail to chapter 2 in the Business Plan. We then go on to discuss how our experience from GD1 has informed our proposals for GD2.

## 2.2 GD1 performance against outputs

Figure 1: GD1 outputs targets performance to date



Source: Ofgem RIIO-GD1 Annual Report 2017/18 - <https://www.ofgem.gov.uk/publications-and-updates/riio-gas-distribution-annual-report-2017-18>

Our performance against each output is discussed in more detail in the following sections and is presented in the same order in which the outputs appear in Figure 1 above.

### 2.2.1 Output category: Safety

The safety of our network and the customers we serve is our highest priority. As such, we have seven outputs in this category, of which two relate to our emergency service. Our performance against these outputs is a critical indicator of our commitment to maintaining a safe network.

#### Emergency response: 97% of controlled gas escapes within two hours; and 97% uncontrolled gas escapes within an hour

Figure 2: and Figure 3: below detail our performance in Scotland and Southern.

Figure 2: Emergency response performance: Scotland

| Safety - Emergency response - Primary output   |         |        |        |        |        |        | Current year actuals |          |
|--|---------|--------|--------|--------|--------|--------|----------------------|----------|
| Actuals  |         |        |        |        |        |        |                      |          |
|  | 2014    | 2015   | 2016   | 2017   | 2018   | 2019   |                      |          |
| Total PREs   | 74,751  | 70,548 | 73,362 | 72,812 | 69,758 | 64,542 |                      |          |
| (1) Controllable   |         |        |        |        |        |        |                      |          |
| Percentage of controlled gas escapes responded to within timescale (2 hours)   | 99.8%   | 99.6%  | 99.6%  | 99.5%  | 98.6%  | 99.5%  |                      |          |
| (2) Non-controllable   |         |        |        |        |        |        |                      |          |
| Percentage of uncontrolled gas escapes responded to within timescale (1 hour)  | 99.0%   | 98.8%  | 98.6%  | 98.5%  | 98.0%  | 98.7%  |                      |          |
| Proportion of gas escapes prevented within 12 hrs (secondary deliverable)  | 72.5%   | 69.2%  | 71.6%  | 71.8%  | 65.6%  | 70.1%  |                      |          |
| Gas in Buildings (GIB) events - Iron mains - Secondary deliverable   | Actuals |        |        |        |        |        | Current year actuals | Forecast |
|  | 2014    | 2015   | 2016   | 2017   | 2018   | 2019   | 2020                 | 2021     |
| GIB events reportable under RIDDOR ie GIB >= 20% LEL or > 10kg from spun/cast iron fracture or DI corrosion of mains of: | 4       | 4      | 1      | -      | -      | -      | -                    | -        |
| GIB events (any % level) from spun/cast iron fracture or DI corrosion of mains of:                                       | 33      | 29     | 21     | 23     | 27     | 26     |                      |          |
| Cast/spun iron fractures and ductile iron corrosion failures - Secondary deliverable                                     | Actuals |        |        |        |        |        | Current year actuals | Forecast |
|  | 2014    | 2015   | 2016   | 2017   | 2018   | 2019   | 2020                 | 2021     |
| Number of spun/cast iron fracture or DI corrosion of mains of:   | 455     | 473    | 373    | 315    | 427    | 407    | 380                  | 358      |

**Figure 3: Emergency response performance: Southern**

| Safety - Emergency response - Primary output   | Actuals |         |         |         |         | Current year actuals |          |      |
|--|---------|---------|---------|---------|---------|----------------------|----------|------|
|  | 2014    | 2015    | 2016    | 2017    | 2018    | 2019                 |          |      |
| Total PREs   | 158,343 | 150,762 | 150,517 | 148,726 | 144,696 | 138,941              |          |      |
| (1) Controllable   |         |         |         |         |         |                      |          |      |
| Percentage of controlled gas escapes responded to within timescale (2 hours)   | 99.51%  | 99.37%  | 99.2%   | 99.2%   | 98.9%   | 99.4%                |          |      |
| (2) Non-controllable   |         |         |         |         |         |                      |          |      |
| Percentage of uncontrolled gas escapes responded to within timescale (1 hour)  | 98.5%   | 98.5%   | 98.3%   | 98.1%   | 98.3%   | 98.7%                |          |      |
| Proportion of gas escapes prevented within 12 hrs (secondary deliverable)  | 63.8%   | 62.6%   | 63.5%   | 64.3%   | 63.4%   | 62.4%                |          |      |
| Gas in Buildings (GIB) events - Iron mains - Secondary deliverable   | Actuals |         |         |         |         | Current year actuals | Forecast |      |
|  | 2014    | 2015    | 2016    | 2017    | 2018    | 2019                 | 2020     | 2021 |
| GIB events reportable under RIDDOR ie GIB >= 20% LEL or > 10kg from spun/cast iron fracture or DI corrosion of mains of: | 18      | 10      | 17      | 14      | 14      | 15                   | 15       | 15   |
| GIB events (any % level) from spun/cast iron fracture or DI corrosion of mains of:                                       | 64      | 94      | 73      | 104     | 104     | 93                   |          |      |
| Cast/spun iron fractures and ductile iron corrosion failures - Secondary deliverable                                     | Actuals |         |         |         |         | Current year actuals | Forecast |      |
|  | 2014    | 2015    | 2016    | 2017    | 2018    | 2019                 | 2020     | 2021 |
| Number of spun/cast iron fracture or DI corrosion of mains of:   | 1,077   | 1,145   | 778     | 1,190   | 920     | 1,125                | 1,051    | 940  |

We are proud of our emergency response record, which demonstrates the best performance across all GDNs in GD1 to-date. We fully intend to maintain this excellent level of emergency service during GD2.

### 12-hour escape repair requirement

Under the Gas Safety (Management) Regulations (GS(M)R), in the event of a reported gas escape, we are required to prevent the release of gas within 12 hours or as soon as reasonably practicable. Figure 4: demonstrates our performance against this output.

**Figure 4: 12 hour escape repair requirement: Scotland & Southern**

| Safety - Emergency response - Primary output  | Actuals |       |       |       |       | Current year actuals |
|---|---------|-------|-------|-------|-------|----------------------|
|   | 2014    | 2015  | 2016  | 2017  | 2018  | 2019                 |
| Scotland: Proportion of gas escapes prevented within 12 hrs (secondary deliverable) | 72.5%   | 69.2% | 71.6% | 71.8% | 65.6% | 70.1%                |
| Southern: Proportion of gas escapes prevented within 12 hrs (secondary deliverable) | 63.8%   | 62.6% | 63.5% | 64.3% | 63.4% | 62.4%                |

### Repair risk

When assessing and prioritising a repair, we calculate a risk score based on the individual gas escape. Our overall risk score is measured against an annual target set by Ofgem, which must not be exceeded.

In our Scotland network we have delivered a positive variance of 33%, while our southern network shows a positive variance of 47%. This is in comparison to the other networks' average positive variance of 21.5% (2017/18).



**Figure 5: Repair risk: Scotland and Southern**

| Actual/forecast repair risk (x10 <sup>6</sup> )          |         |      |      |      |      |                        |          |      |
|--|---------|------|------|------|------|------------------------|----------|------|
|  | Actuals |      |      |      |      | Current year actuals   | Forecast |      |
|  | 2014    | 2015 | 2016 | 2017 | 2018 | 2019                   | 2020     | 2021 |
| Scotland: Annual repair risk                             | 1.89    | 2.01 | 1.62 | 1.51 | 1.64 | 1.42                   | 1.68     | 1.66 |
| Southern: Annual repair risk                             | 10.3    | 10.0 | 11.1 | 9.1  | 9.4  | 10.5                   | 10.1     | 10.0 |
| Previous year's forecast repair risk (x10 <sup>6</sup> ) |         |      |      |      |      |                        |          |      |
|  | Actuals |      |      |      |      | Previous Year Forecast |          |      |
|  | 2014    | 2015 | 2016 | 2017 | 2018 | 2019                   | 2020     | 2021 |
| Scotland: Annual repair risk                             | 1.89    | 2.01 | 1.62 | 1.51 | 1.64 | 2.46                   | 2.46     | 2.46 |
| Southern: Annual repair risk                             | 10.3    | 10.0 | 11.1 | 9.1  | 9.4  | 17.7                   | 17.7     | 17.7 |

## Iron mains reduction

Our combined networks are made up of over 74,000km of mains and we have beaten our targets for iron mains replacement in our two regions. Over the course of GD1 we have managed to increase the amount of PE in the network from 62% to 76% by the end of 2017/18, meaning we are already beating our April 2021 target of 73%.

A critical measure of network safety is pipe failures caused by fractures and corrosion. In GD1 we studied trends in the impact of weather on the network, using predictive analytics to identify and target those assets most likely to be at risk of causing a problem. This unique approach has led to a substantial reduction in safety incidents when compared with other networks.

Figure 6: below tracks the reduction in iron mains risk per year since 2014, along with our forecasts for the remaining years of GD1.

**Figure 6: Iron mains reduction: Scotland and Southern**

| Actual/forecast iron mains risk reduction (incidents/year x 10 <sup>3</sup> ) - Primary output      |                 |        |         |         |         |                        |          |         |
|---|-----------------|--------|---------|---------|---------|------------------------|----------|---------|
|   | Actuals         |        |         |         |         | Current year actuals   | Forecast |         |
|   | 2014            | 2015   | 2016    | 2017    | 2018    | 2019                   | 2020     | 2021    |
| Scotland: Cumulative mains risk reduction   | 17,024          | 35,886 | 48,563  | 59,615  | 68,116  | 76,254                 | 80,893   | 84,689  |
| Southern: Cumulative mains risk reduction   | 44,401          | 77,902 | 102,113 | 122,465 | 146,849 | 163,931                | 185,194  | 198,188 |
| Previous year forecast iron mains risk reduction (incidents/year x 10 <sup>3</sup> )                |                 |        |         |         |         |                        |          |         |
|   | Actuals         |        |         |         |         | Previous Year Forecast |          |         |
|   | 2014            | 2015   | 2016    | 2017    | 2018    | 2019                   | 2020     | 2021    |
| Scotland: Cumulative mains risk reduction   | 17,024          | 35,886 | 48,563  | 59,615  | 68,116  | 74,310                 | 78,439   | 81,536  |
| Southern: Cumulative mains risk reduction   | 44,401          | 77,902 | 102,113 | 122,465 | 146,849 | 170,333                | 186,322  | 196,815 |
| Final proposals allowed iron mains risk reduction for RIIIO-GD1 (incidents/year x 10 <sup>3</sup> ) |                 |        |         |         |         |                        |          |         |
|   | Final proposals |        |         |         |         |                        |          |         |
| Southern: Mains risk reduction  | 44,277          |        |         |         |         |                        |          |         |
| Scotland: Mains risk reduction  | 137,287         |        |         |         |         |                        |          |         |

## Sub-deducts networks off-risk

A sub-deduct network comprises a primary meter, pipes and one or more secondary meters. The owner and operator of these networks is not always clear, which can present a potential safety risk. Risk can be removed by reengineering the pipes and meters, or by establishing that a third party formally accepts responsibility for them.

Although we have completed all known instances on our network, sub-deducts continue to be identified by customers and shippers. Any newly discovered sub-deducts will be removed in accordance with our procedures and we expect to have minimal or zero on our networks by the end of GD1.

Figure 7: and Figure 8: below summarise our annual sub-deducts risk removal progress for our Scotland and southern regions.

**Figure 7: Sub-deducts: Scotland**

| Sub-deduct networks - secondary deliverable | Actuals |      |      |      |      | Current year actuals | Forecast |      |
|---|---------|------|------|------|------|----------------------|----------|------|
|   | 2014    | 2015 | 2016 | 2017 | 2018 | 2019                 | 2020     | 2021 |
| % off sub-deduct networks taken of risk     | 35%     | 17%  | 9%   | 30%  | 8%   | 4%                   | 4%       | 0%   |
| Cumulative                                  | 35%     | 52%  | 61%  | 91%  | 99%  | 104%                 | 108%     | 108% |

**Figure 8: Sub-deducts: Southern**

| Sub-deduct networks - secondary deliverable | Actuals |      |      |      |      | Current year actuals | Forecast |      |
|---|---------|------|------|------|------|----------------------|----------|------|
|   | 2014    | 2015 | 2016 | 2017 | 2018 | 2019                 | 2020     | 2021 |
| % off sub-deduct networks taken of risk     | 41%     | 29%  | 12%  | 12%  | 4%   | 1%                   | 1%       | 0%   |
| Cumulative                                  | 41%     | 71%  | 82%  | 94%  | 98%  | 99%                  | 100%     | 100% |

## 2.2.2 Output category: Reliability

In addition to being safe, our network must also be reliable. As such, we have three outputs relating to reliability, covering loss of supply, achieving our 1 in 20 obligations, and maintaining operational performance. We have met or exceeded our targets in each case.

Figure 9 and Figure 10 below demonstrate the actual and forecast numbers of interruptions in each category for each year of GD1, for both our Scotland and southern networks.

**Figure 9: Loss of supply volumes and duration: Scotland**

| Summary of loss of supply volumes and duration - primary output     |                 |        |        |        |        |                      |          |        |                      |
|---|-----------------|--------|--------|--------|--------|----------------------|----------|--------|----------------------|
| Actual/forecast loss of supply volumes (no.)                        |                 |        |        |        |        |                      |          |        |                      |
|   | Actuals         |        |        |        |        | Current year actuals | Forecast |        |                      |
|   | 2014            | 2015   | 2016   | 2017   | 2018   | 2019                 | 2020     | 2021   | Forecast RIIIO Total |
| No. of planned interruptions  | 29,395          | 28,754 | 31,459 | 27,728 | 23,181 | 23,723               | 24,044   | 24,042 | 212,326              |
| No. of unplanned interruptions                                      | 6,270           | 5,079  | 4,650  | 4,445  | 4,324  | 4,396                | 4,324    | 4,261  | 37,749               |
| Total interruptions   | 35,665          | 33,833 | 36,109 | 32,173 | 27,505 | 28,119               | 28,368   | 28,303 | 250,075              |
| Final proposals allowed loss of supply volumes (no.)                |                 |        |        |        |        |                      |          |        |                      |
|   | Final proposals |        |        |        |        |                      |          |        |                      |
| No. of planned interruptions  | 237,823         |        |        |        |        |                      |          |        |                      |
| No. of unplanned interruptions                                      | 48,164          |        |        |        |        |                      |          |        |                      |
| Total interruptions   | 285,987         |        |        |        |        |                      |          |        |                      |
| Actual/forecast loss of supply duration (mins - million of)         |                 |        |        |        |        |                      |          |        |                      |
|   | Actuals         |        |        |        |        | Current year actuals | Forecast |        |                      |
|   | 2014            | 2015   | 2016   | 2017   | 2018   | 2019                 | 2020     | 2021   | Forecast RIIIO Total |
| Dur. of planned interruptions                                       | 11.1            | 11.3   | 11.7   | 10.9   | 8.5    | 8.5                  | 9.0      | 9.0    | 80.0                 |
| Dur. of unplanned interruptions                                     | 3.7             | 4.1    | 3.1    | 3.6    | 2.6    | 3.6                  | 3.2      | 3.2    | 27.1                 |
| Total interruptions   | 14.7            | 15.4   | 14.8   | 14.5   | 11.1   | 12.0                 | 12.2     | 12.2   | 107.0                |
| Final proposals allowed loss of supply duration (mins - million of) |                 |        |        |        |        |                      |          |        |                      |
|   | Final proposals |        |        |        |        |                      |          |        |                      |
| Dur. of planned interruptions                                       | 91              |        |        |        |        |                      |          |        |                      |
| Dur. of unplanned interruptions                                     | 51              |        |        |        |        |                      |          |        |                      |
| Total interruptions   | 142             |        |        |        |        |                      |          |        |                      |

**Figure 10: Loss of supply volumes and duration: Southern**

| Summary of loss of supply volumes and duration - primary output |                 |         |        |        |        |                      |          |        |                     |
|---|-----------------|---------|--------|--------|--------|----------------------|----------|--------|---------------------|
| Actual/forecast loss of supply volumes (no.)                    |                 |         |        |        |        |                      |          |        |                     |
|   | Actuals         |         |        |        |        | Current year actuals | Forecast |        | Forecast RIIO Total |
|   | 2014            | 2015    | 2016   | 2017   | 2018   | 2019                 | 2020     | 2021   |                     |
| No. of planned interruptions                                    | 101,584         | 95,698  | 76,738 | 79,072 | 83,998 | 70,931               | 79,841   | 78,857 | 666,719             |
| No. of unplanned interruptions                                  | 24,142          | 18,572  | 17,255 | 16,537 | 15,522 | 15,508               | 15,700   | 15,520 | 138,757             |
| Total interruptions   | 125,726         | 114,270 | 93,993 | 95,609 | 99,520 | 86,439               | 95,542   | 94,377 | 805,476             |
| Final proposals allowed loss of supply volumes (no.)            |                 |         |        |        |        |                      |          |        |                     |
|   | Final proposals |         |        |        |        |                      |          |        |                     |
| No. of planned interruptions                                    | 708,000         |         |        |        |        |                      |          |        |                     |
| No. of unplanned interruptions                                  | 162,256         |         |        |        |        |                      |          |        |                     |
| Total interruptions   | 870,256         |         |        |        |        |                      |          |        |                     |
| Actual/forecast loss of supply duration (mins - million of)     |                 |         |        |        |        |                      |          |        |                     |
|   | Actuals         |         |        |        |        | Current year actuals | Forecast |        | Forecast RIIO Total |
|   | 2014            | 2015    | 2016   | 2017   | 2018   | 2019                 | 2020     | 2021   |                     |
| Dur. of planned interruptions                                   | 54.4            | 37.2    | 26.6   | 23.4   | 28.2   | 24.6                 | 27.4     | 27.0   | 248.8               |
| Dur. of unplanned interruptions                                 | 14.7            | 19.9    | 19.8   | 21.8   | 22.2   | 21.6                 | 21.7     | 21.4   | 163.0               |
| Total interruptions   | 69.1            | 57.2    | 46.4   | 45.2   | 50.3   | 46.2                 | 49.0     | 48.4   | 411.8               |

### 2.2.3 Output category: Connections

Our two outputs relating to connections are guaranteed standards of performance (GSOP) and introduction of gas entry standards.

#### Guaranteed standards of performance (GSOPs)

- GSOP 4 - to provide a standard quotation within 6 working days of receiving a request for a new quotation
- GSOP 5 – to provide a non-standard quotation within 11 working days of receiving a request for a new quotation and GSOP 6 for larger sites within 21 working days
- GSOP 7 – to provide accurate quotations and to refund any over-charge
- GSOP 9/10 – to provide a planned start date and substantial completion date for the works within 20 working days of receipt of a customer acceptance of a quotation (which has been reduced to 17 days for smaller loads)
- GSOP 11 – to substantially complete the works on or before the date agreed with the customer

Figure 11 demonstrates our GSOP performance while Figure 12 shows our entry standard performance.

**Figure 11: Guaranteed standards of performance: Scotland and Southern**

| 2018-19 Performance  | Scotland | Southern |
|--|----------|----------|
| GSOP 4 - Provision of standard connections quotations =<275kWh per hour  | 99.94%   | 99.82%   |
| GSOP 5 - Provision of non-standard connections quotations =<275kWh per hour                                      | 99.26%   | 98.55%   |
| GSOP 6 - Provision of non-standard connections quotations =>275kWh per hour                                      | 96.42%   | 97.83%   |
| GSOP 9/10 - Offering commencement date and substantial completion of connections work =<275k & >275k WH per hour | 99.72%   | 99.74%   |
| GSOP 11 - Substantial completion on agreed date  | 97.79%   | 99.05%   |

All GDNs have collectively agreed voluntary standards of service for distributed gas connections for the services which cannot be provided competitively, as shown in Figure 12.



**Figure 12: Distributed gas entry standards**

| Process         | Below 7bar      |
|-----------------|-----------------|
| Initial enquiry | 15 working days |
| Capacity Study  | 30 working days |

We have published online a comprehensive guide to distributed gas connections, including standards and expected service levels for customers, which is available on our website<sup>1</sup>.

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<sup>1</sup> <https://online.flowpaper.com/784b0757/SGNDistributedGasConnectionsGuidev11Sept2017/#page=1>

## 2.2.4 Output category: Customer service

Customer service is at the heart of all we do. Our Scotland network has been ranked in first place for customer service for the last two years, having improved from third place at the start of GD1. Southern has been fourth for the duration of the price control. Figure 13 demonstrates our rankings while Figure 14 demonstrates our scores.

**Figure 13: Planned interruption surveys – average customer satisfaction score ranking**

|        |     | 2014/15 | 2015/16 | 2016/17 | 2017/18 |
|--------|-----|---------|---------|---------|---------|
| Cadent | EoE | 6       | 6       | 5       | 5       |
|        | Lon | 8       | 8       | 8       | 8       |
|        | NW  | 5       | 5       | 6       | 6       |
|        | WM  | 7       | 7       | 7       | 7       |
| NGN    | NGN | 2       | 1       | 2       | 3       |
| SGN    | Sc  | 3       | 2       | 1       | 1       |
|        | So  | 4       | 4       | 4       | 4       |
| WWU    | WWU | 1       | 3       | 3       | 2       |

**Figure 14: Customer service survey results**

| Scores out of 10 | Scotland |         | Southern |         | Base target |
|------------------|----------|---------|----------|---------|-------------|
|                  | 2017/18  | 2018/19 | 2017/18  | 2018/19 |             |
| Emergency work   | 9.48     | 9.49    | 9.34     | 9.40    | 8.81        |
| Planned work     | 8.96     | 8.95    | 8.70     | 8.78    | 8.09        |
| Connections work | 9.36     | 9.27    | 8.89     | 8.77    | 8.41        |
| Average          | 9.27     | 9.24    | 8.98     | 8.98    | 8.44        |

## 2.2.5 Output category: Customer complaints performance

Customer complaints are down by 76% so far during GD1, showing significant improvement in complaints reduction over the course of this price control. We achieved a 32% reduction in the volume of complaints received during 2018/19.

Complaints performance is incentivised through penalties for poor performance. A weighted complaint score is calculated, and penalties are imposed if our score is 11.57 or more. Both our networks have been performing at substantially below this target to-date and we aim to continue this performance for the rest of GD1.

Figure 15 shows our customer complaint ranking, with Scotland first and Southern fourth in 2017/2018.

**Figure 15: Customer complaints metric ranking**

|        |     | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 |
|--------|-----|---------|---------|---------|---------|---------|
| Cadent | EoE | 6       | 6       | 5       | 5       | 5       |
|        | Lon | 8       | 8       | 8       | 8       | 6       |
|        | NW  | 5       | 7       | 7       | 6       | 8       |
|        | WM  | 7       | 5       | 6       | 7       | 7       |
| NGN    | NGN | 1       | 1       | 2       | 2       | 3       |
| SGN    | Sc  | 3       | 3       | 1       | 1       | 1       |
|        | So  | 4       | 4       | 3       | 4       | 4       |
| WWU    | WWU | 2       | 2       | 4       | 3       | 2       |

## 2.2.6 Output category: Stakeholder engagement

An independent panel of experts assesses the performance of the gas and electricity networks and transmission companies to determine the effectiveness of their engagement with stakeholders.

We have been the leading gas network for the last two years. Figure 16 shows the comparative scores for all GDNs, with SGN being ranked first in 2017/2018 and 2018/19.

**Figure 16: Comparative stakeholder engagement scores**

| Company | 2018/19 Score | 2018/19 Position | 2017/18 Score | 2017/18 Position |
|---------|---------------|------------------|---------------|------------------|
| SGN     | 6.76          | 1                | 6.25          | 1                |
| Cadent  | 6.33          | 2                | 6.0           | 3                |
| NGN     | 5.96          | 3                | 6.15          | 2                |
| WWU     | 5.43          | 4                | 5.0           | 4                |

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## 2.2.7 Output category: Social obligations

### Fuel poor connections

The only output in Figure 1 which is not green relates to our current behind-target status for fuel poverty connections in our southern region. The difficulty of finding funding for first time central heating systems is a significant challenge in England, compounded by a change in eligibility for the fuel poor network extension scheme (FPNES). However, we have built effective working arrangements with partners across our southern region and now expect to meet our increased eight-year target of 10,367 by the end of GD1. In Scotland, by September 2019 we had already significantly outperformed our target of 17,130 by connecting 19,514 homes.

### Additional support for those in fuel poverty

Playing our part in alleviating fuel poverty continues to be an important priority for us and our stakeholders.

Expert members of our specialist fuel poverty stakeholder panel agreed we should go over and above our established Help to Heat fuel poor connections scheme. We responded to this with a significant increase in focus and resource. With the support of our shareholders we have established a £20m fund and created a dedicated team to drive our additional initiatives forward. Our CEO and Executive team review progress each month.

We describe above how fuel poor connections are a very different story in our Scotland and southern networks. We have now exceeded our GD1 target in Scotland and so far, we have delivered 68% of target in our southern network. In each of our network areas we have found ways to tailor additional support to the wider context.

### Over and above in Scotland

Recognising the importance of continuing our Help to Heat scheme in Scotland we have allocated £10m to enable us to continue the scheme beyond the agreed target we have been funded for.

We have provided £10,000 complementary funding to Warmworks to create an enabling fund for energy efficiency measures. This pays for vulnerable customers to have lofts cleared or remedial works carried out to allow them to benefit from funded energy saving measures. So far, £3,000 investment has enabled 17 households to benefit from 127 energy measures to enable lifetime savings of £3,200 per property.

### Overcoming funding blocks in the South

The availability of funding for central heating systems continues to be a significant obstacle for fuel poor households in our southern network. We established a £10m SGN Central Heating Grant Fund in April 2017 to provide extra funding for gas central heating systems and enable eligible households to benefit from existing schemes.

So far, we have committed £2m to partners including local authorities and housing associations, helping 1,158 households out of fuel poverty with a contribution to the cost of their central heating. We have offered a further £2.1m of central heating support funding to assist an additional 1,000 fuel poor households. We provided support to 12 local authorities and housing associations to submit well researched, high quality bids for funding for central heating from the Affordable Warmth Solutions. We have helped to secure funding in our southern network for 1,407 central heating systems through the Warm Homes Fund.

### Driving policy change to help more households

In 2015/16 we led discussions with Ofgem to secure changes to the FPNES to allow district heating to be included and to recognise those served by independent gas transporters.

### Raising awareness of carbon monoxide

Carbon monoxide (CO) poisoning accounts for 40 recorded deaths each year (Department of Health, 2015/16), and as many as 4,000 visits to A&E. The GD1 output for CO is a discretionary reward scheme, including raising

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CO awareness. During GD1 we have focused on three key areas to raise awareness and reduce risk associated with CO: driving behaviour change; grassroots awareness and partnership working. Descriptions of our activity in each area are provided below.

### **Driving behavioural change**

Over three years we investigated almost 8,000 properties in Oban in Scotland, to determine the status of CO protection measures in place. Using our findings and applying them as a measure of national risk, we estimate 4% of the British population would currently be classified as 'at risk' from CO poisoning. Our full report<sup>2</sup> is available online and the Oban research case study below explains our approach in more detail.

The work has led to a refresh of our CO awareness strategy, which has been approved by stakeholders and presented at the Scottish Parliament in February 2018.

### **Legislation on CO alarms**

The private rented sector is the most at risk from CO poisoning. To support government legislation to introduce CO alarms within this housing sector, we briefed MPs and drafted an amendment for Baroness Findlay (then chair of the All-Party Parliamentary CO Group) which was endorsed, and the bill became law in October 2015. We continue to engage with MPs in Westminster to try and achieve a change in legislation which would require landlords to fit CO alarms where a room has solid fuel burning appliances (e.g. coal fire, wood burning stove). This change would bring CO legislation for England and Wales in line with Scotland and Northern Ireland.

### **A&E CO screening research**

We supported the creation of the process and protocols for a study at the St George & Frimley Hospitals to screen 2,000 people attending the A&E department for CO levels in their blood. If a patient showed elevated CO levels a service engineer visits the home to check appliances for possible cause. An 18-month trial project is now underway.

### **CO alarm inquiry**

We supported the development of a report submitted to the Department of Communities and Local Government recommending the harmonisation of CO alarm regulations across the UK. A consultation was opened in October 2017 and will form part of the review of building regulations post the Grenfell tragedy.

### **CO Training and competency inquiry**

A concern was raised about short duration training courses by Molly Mather, CO Charity, and whether sufficient competency could be achieved in two weeks to safely undertake gas works in customers' homes. We instigated a review of training in the downstream sector, with Policy Connect producing a report under our direction. We chaired all the preliminary meetings and the Parliamentary Evidence Session – Gas Engineer Training Standards Inquiry, hosted by Barry Sheerman MP and Luke Pollard MP. Our report was published in Summer 2018 and is available online.

We've donated almost 1,000 CO alarms for vulnerable customers through our partnerships with Fire and Rescue services and other trusted community organisations.

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<sup>2</sup> <https://www.sgn.co.uk/sites/default/files/media-entities/documents/2019-08/SGN-CO-Strategy-2018.pdf>



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## Case study: Driving behaviour change through our Oban research project

We undertook a Gas Quality project over three years in Oban and several remote towns in Scotland, visiting 7,777 properties and inspecting 10,842 gas appliances and CO alarms. Based on our findings, we estimate 4% of the British population would currently be classified as 'at risk' from CO poisoning.

Visiting nearly 8000 homes gave us valuable insight into the types of properties in which CO alarms are not fitted. Where an alarm was fitted we checked if it was fitted correctly and whether the householder had their appliances regularly serviced. This large data sample provides robust evidence on which to base our own work and to support the development of UK-wide collaborative strategies. During our inspection we:

- Inspected and tested all gas appliances to check they were installed, serviced and operated correctly. We rectified or replaced where necessary.
- Captured CO alarm data and reported on the status of alarms in every property. We installed a new alarm where one was not present.

### Appliance testing and conclusions

- 10,842 appliances were inspected with 97% recorded as correctly installed, serviced and operated.
- 206 appliances were replaced, the majority of which were more than 20 years old.
- From this sample it can be estimated that 4% of the UK population would be classed 'at risk'.

### CO alarm installation and efficiency

- 63% of appliances were found to have an existing associated CO alarm; 3% of these alarms were either incorrectly positioned or not functioning.
- 37% of appliances had no associated CO alarm present.
- 60 - 65% of 'at risk' appliances had no associated alarm fitted.
- Many CO alarms were fitted in cupboards despite installation instructions.

### Conclusion

Appliance maintenance, servicing and replacement on this project achieved a seven-fold reduction in absolute risk. These compelling statistics underpin our recommendation that gas distribution networks should focus their CO awareness strategy on preventative and protective measures. Communication and campaigning regarding CO should be clear, having a CO alarm is no substitute for regular maintenance and servicing of appliances.

This insight has informed the development of our refreshed CO awareness strategy, which was reviewed by members of our specialist stakeholder panels before its launch at the Scottish Parliament in February 2018, by Clare Adamson MSP, chair of the Cross-Party Safety Group. The report has been shared with other gas networks and industry colleagues at collaborative forums. The report and our ongoing work has been acknowledged in the Scottish Parliament (2018 Scottish Parliament Motion – S5M-10363 on gas safety) with cross party support.

## Grassroots awareness

### Customer survey

All gas networks survey customers quarterly to test their knowledge on CO after an engineer's visit. With around 1,400 customer survey responses each year, knowledge levels of our customers typically increase by around 13%.

Figure 17 below provides an example of the improvement in awareness levels over one year in GD1 (FY16/17):

**Figure 17: CO awareness survey responses**

| Survey responses | CO knowledge prior to visit | CO knowledge post visit | Awareness % change |
|------------------|-----------------------------|-------------------------|--------------------|
| 1400             | 8.03                        | 9.11                    | 13.52%             |

### Engaging with school children

Safety awareness centres in Scotland and our southern region provide venues for children to visit and be educated on a full range of potentially dangerous circumstances, including electricity, rail, water, fire and gas. Domestic scenarios highlight the dangers of CO, as well as outside activities associated with camping and the safe use of barbecues. We have and continue to support the Risk Factory in Edinburgh, Hazard Alley in Milton Keynes and Streetwise in Poole, where over ninety thousand children have experienced our courses over the last three years.

We attend *SafeTaysiders* in Scotland annually, raising CO awareness using devices such as comic-strip cards for children to complete. So far in GD1 we have engaged with 9,000 children from 79 schools. We support the CO competition run collaboratively by the gas networks and have trained 15 staff to deliver Safety Seymour (a national CO awareness initiative created by Cadent, aimed at five to seven-year-olds in school years 1 and 2) content across both our networks. To date we have trained over 250 pupils to recognise the dangers of CO. See also Partnership working below.

*National TV:* We have provided guidance and advice to many TV programmes, including Coronation Street on a story line about carbon monoxide poisoning. Chris Bielby, our Director of Industry Liaison appeared on 'Loose Women' (a reach of 9million viewers) to highlight the dangers of barbecues in tents and caravans, and to launch a competition resulting in 1,000 viewers winning a CO alarm.

### Partnership working

CO awareness during power cuts: We use our website to inform and promote the dangers of CO during power cuts, particularly around the misuse of barbecues or petrol generators. Similar messages have been added to SSE Networks and Energy Networks Association websites and today, all GDNs have updated their websites to feature this CO awareness within their customer information.

Partnering to reach a younger audience: Through partnerships with Solutions for the Planet, Girlguiding and Developing the Young Workforce West region we have carried out a variety of STEM, gas safety and CO events. We've worked with over 7,700 students to date from 5 to 22 years of age.

CO alarms and literature: Our ongoing collaboration with fire and rescue services across both our networks has provided literature and, where possible, CO alarms distributed during home safety visits. We support a Handyvan service in Dumfries and Galloway and have given away 5,000 CO alarms in total over the last three years.

Royal Voluntary Service (RVS): We partner with RVS on a winter campaign producing a leaflet with vital information including CO and gas safety. Through this campaign and a series of hub visits we continue to reach 100,000 service users each year.

We've provided 29,895 leaflets, 3,314 posters for display at the 68 RVS Hubs and community centres nationwide, which include information on the Priority Services Register, locking cooker valve and CO.

## 2.2.8 Output category: Environmental performance

There are two GD1 Outputs relating to this category: Leakage and biomethane connections.

### Leakage

Stakeholders have told us that damage prevention is the most important objective for keeping the gas flowing safely. In response we introduced a tailored self-service website 'linesearchbeforeUdig' (LSBUD) to provide instant online access to our mapping data.

Figure 18 below shows the reduction in leakage we have delivered since 2008/9.

**Figure 18: Leaking volumes**

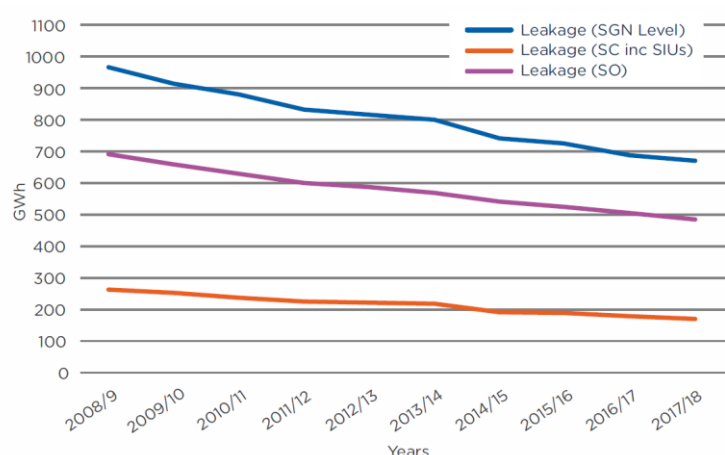


Figure 19 and Figure 20 report our leakage reduction performance in GD1 for Scotland and Southern respectively.

**Figure 19: Leakage reduction performance breakdown: Scotland**

| Actual/forecast shrinkage volumes (GWh)         |                 |      |      |      |      |              |          |      |
|---|-----------------|------|------|------|------|--------------|----------|------|
|   | Actuals         |      |      |      |      | Current year | Forecast |      |
|   | 2014            | 2015 | 2016 | 2017 | 2018 | 2019         | 2020     | 2021 |
| Shrinkage volumes at start of RIIO-GD1          | 234             |      |      |      |      |              |          |      |
| Shrinkage volume                                | 241             | 214  | 212  | 197  | 193  | 186          | 180      | 174  |
| Shrinkage volume reduction                      | - 7             | 20   | 22   | 37   | 41   | 48           | 54       | 60   |
| % shrinkage volume reduction                    | -3%             | 9%   | 9%   | 16%  | 18%  | 21%          | 23%      | 26%  |
| Final proposals allowed shrinkage volumes (GWh) |                 |      |      |      |      |              |          |      |
|   | Final proposals |      |      |      |      |              |          |      |
| Shrinkage volume reduction                      | 20.5%           |      |      |      |      |              |          |      |
| Actual/forecast leakage volumes (GWh)           |                 |      |      |      |      |              |          |      |
|   | Actuals         |      |      |      |      | Current year | Forecast |      |
|   | 2014            | 2015 | 2016 | 2017 | 2018 | 2019         | 2020     | 2021 |
| Leakage volumes at start of RIIO-GD1            | 218             |      |      |      |      |              |          |      |
| Leakage volume                                  | 225             | 198  | 196  | 182  | 177  | 170          | 165      | 159  |
| Leakage volume reduction                        | - 7             | 20   | 22   | 36   | 41   | 48           | 53       | 59   |
| % Leakage volume reduction                      | -3%             | 9%   | 10%  | 17%  | 19%  | 22%          | 24%      | 27%  |
| Final proposals allowed leakage volumes (GWh)   |                 |      |      |      |      |              |          |      |
|   | Final proposals |      |      |      |      |              |          |      |
| Leakage volume reduction                        | 20.5%           |      |      |      |      |              |          |      |

**Figure 20: Leakage reduction performance breakdown: Southern**

| Actual/forecast shrinkage volumes (GWh)         |                 |      |      |      |      |              |          |      |
|---|-----------------|------|------|------|------|--------------|----------|------|
|   | Actuals         |      |      |      |      | Current year | Forecast |      |
|   | 2014            | 2015 | 2016 | 2017 | 2018 | 2019         | 2020     | 2021 |
| Shrinkage volumes at start of RIIO-GD1          | 638             |      |      |      |      |              |          |      |
| Shrinkage volume                                | 598             | 582  | 554  | 536  | 522  | 501          | 484      | 466  |
| Shrinkage volume reduction                      | 40              | 56   | 84   | 102  | 116  | 137          | 154      | 172  |
| % shrinkage volume reduction                    | 6%              | 9%   | 13%  | 16%  | 18%  | 22%          | 24%      | 27%  |
| Final proposals allowed shrinkage volumes (GWh) |                 |      |      |      |      |              |          |      |
|   | Final proposals |      |      |      |      |              |          |      |
| Shrinkage volume reduction                      | 19.3%           |      |      |      |      |              |          |      |
| Actual/forecast leakage volumes (GWh)           |                 |      |      |      |      |              |          |      |
|   | Actuals         |      |      |      |      | Current year | Forecast |      |
|   | 2014            | 2015 | 2016 | 2017 | 2018 | 2019         | 2020     | 2021 |
| Leakage volumes at start of RIIO-GD1            | 605             |      |      |      |      |              |          |      |
| Leakage volume                                  | 569             | 542  | 526  | 506  | 491  | 473          | 455      | 436  |
| Leakage volume reduction                        | 36              | 63   | 79   | 99   | 114  | 132          | 151      | 169  |
| % Leakage volume reduction                      | 6%              | 10%  | 13%  | 16%  | 19%  | 22%          | 25%      | 28%  |
| Final proposals allowed leakage volumes (GWh)   |                 |      |      |      |      |              |          |      |
|   | Final proposals |      |      |      |      |              |          |      |
| Leakage volume reduction                        | 20.2%           |      |      |      |      |              |          |      |

### Operations performance: annual report of unplanned interruptions caused by third parties.

Figure 21 below highlights the impact on numbers of unplanned interruption events in both networks following the introduction of line search before Udig (LSBUD) in 2017.

**Figure 21: Unplanned interruptions (third party action)**

| Unplanned Interruption (Third Party Action) | 2014        | 2015        | 2016        | 2017        | 2018        |
|---|-------------|-------------|-------------|-------------|-------------|
| So  | 4456        | 5190        | 4556        | 5649        | 3703        |
| Sc  | 1747        | 1606        | 1935        | 4185        | 1875        |
| <b>Total</b>                                | <b>6203</b> | <b>6796</b> | <b>6491</b> | <b>9834</b> | <b>5578</b> |

### Output category: Biomethane connections information

Throughout GD1, we have grown biomethane connections and increased the number of customers supplied with biomethane gas. We have developed our connections process throughout the period, publishing connections guides for potential customers to explain not only the connection to the network processes, but also a background to the biomethane industry. We provide a two-tier enquiry service for potential biomethane projects in the form of an initial enquiry and an in-depth capacity study report. The initial enquiry provides a free, quick turn-around service to indicate distance from and capacity in the nearest SGN gas main. The latter is a much more in-depth report, providing sufficient detail to progress a project to investment stage. Both reports are provided to timescales imposed and maintained by SGN, which are 15 and 30 working days respectively.

All standards have been maintained at 100% during GD1 to date. In relation to actual biomethane connections, we have facilitated 33 new connections delivering 41k Scm/h of biomethane entry capacity onto our network. Currently, operational sites (30) supply 199,870 domestic customers with low carbon renewable energy across this period. We are forecasting up to a further 12 sites connecting during the remainder of GD1.

**Figure 22: Single year southern performance report for 2018/19**

| Environmental Factor               | Description  | Units  |         |
|------------------------------------|--|--------|---------|
| <b>Broad Environmental Measure</b> | Biomethane enquiries   | Number | 38.0    |
|                                    | Biomethane connection studies                                      | Number | 7.0     |
|                                    | Capacity of Biomethane connection studies                          | scmh   | 11300.0 |
|                                    | Biomethane connections   | Number | 1.0     |
|                                    | Capacity of Biomethane connected                                   | scmh   | 2180.0  |
|                                    | Other unconventional sources of gas enquiries                      | Number | 11.0    |
|                                    | Other unconventional sources of gas connection studies             | Number | 2.0     |
|                                    | Capacity of other unconventional sources of gas connection studies | scmh   | 10000.0 |
|                                    | Other unconventional sources of gas connections                    | Number | 1.0     |
|                                    | Capacity of other unconventional sources of gas connected          | scmh   | 1100.0  |

### Performance against our GD1 Greenplan key performance indicators (KPIs)

Our Greenplan was introduced in 2013 and aligned to our five environmental goals:

- reduce gas emissions
- reduce carbon emissions
- increase energy efficiency
- eliminate waste to landfill
- increase resource efficiency.



We set several environmental sustainability KPIs for GD1 in addition to reduced leakage, and we have already achieved or exceeded the majority, on average delivering a 50% reduction for goal.

| Greenplan: 2013-2019 |   |             |  |                           |                           |   |
|----------------------|---|-------------|--|---------------------------|---------------------------|---|
|                      |   |             |  | Baseline Year             | Final Year                |   |
| Goal One             | Reduce Emissions  | Natural Gas |  | 2012/13                   | 2018/19                   | Reduce Natural Gas Emissions  |
| Target 1             | Reduce Natural Gas Emissions by 12% (3% per annum)                        |             |  | 54,537 tCO <sub>2</sub> e | 42,904 tCO <sub>2</sub> e | This is a total reduction of 21% and we were successful in meeting our target. We have saved around 9,997 tCO <sub>2</sub> e of natural gas.      |
| Goal Two             | Reduce Carbon Emissions   |             |  |                           |                           | Reduce Carbon Emissions   |
| Target 2             | Reduce carbon emissions from business travel by 10% (2.5% per annum)      |             |  | 17,646 tCO <sub>2</sub> e | 17,020 tCO <sub>2</sub> e | This is an overall reduction of 3.6% and we failed to meet our target. We have saved around 626 tCO <sub>2</sub> e from business travel.          |
| Goal Three           | Increase Energy Efficiency  |             |  |                           |                           | Increase Energy Efficiency  |
| Target 3             | Reduce energy consumption in offices and depots by 10% (2.5% per annum)   |             |  | 6,294,261 kWh             | 9,487,470 kWh             | We failed to reach our target and increased our energy consumption overall by 3,193,209 kWh.  |
| Target 4             | Reduce energy consumption at operational sites by 10% (2.5% per annum)    |             |  | 10,264,015 kWh            | 7,768,411 kWh             | This is an overall reduction by 24% and we succeeded in meeting our target. We have reduced the energy at our operational sites by 2,495,600 kWh. |
| Goal Four            | Increase Resource Efficiency  |             |  |                           |                           | Increase Resource Efficiency  |
| Target 5             | Reduce the use of virgin aggregate by 50% (12.5% per annum)               |             |  | 9.09%                     | 17.02%                    | Overall we have not managed to reduce our use of virgin aggregate. It has in fact gone up instead.  |
| Target 6             | Increase PE Efficiency Index by 10% (2.5% per annum)                      |             |  | 54                        | 66                        | We were successful in increasing our PE Efficiency Index by 18.2%.  |
| Target 7             | Reduce Water Consumption in Offices/Depots by 20% (5% per annum)          |             |  | 13,857 m <sup>3</sup>     | 17,904 m <sup>3</sup>     | We did not reach our reduction target. Water usage has gone up by 29% overall and we increased our consumption by 4,047 m <sup>3</sup> of water.  |
| Goal Five            | Eliminate Waste to Landfill   |             |  |                           |                           | Eliminate Waste to Landfill   |
| Target 8             | No office and depot waste to landfill by 2021 (reduce by 12.5% per annum) |             |  | 14.31%                    | 0.12%                     | We have almost managed to reduce our office and depot waste to landfill to zero.  |
| Target 9             | No excavated spoil to landfill by 2021 (reduce by 15% per annum)          |             |  | 2.61%                     | 2.64%                     | We did not achieve our target to reduce spoil to landfill. Over the 6 year period of Greenplan, it increased slightly.                            |

## 2.3 GD1 performance and achievements linked to incentive mechanisms

Our incentive performance to date has resulted in average incentive income earned each year of £16.9m. A breakdown of the overall incentive income earned in each year is shown in Figure 23 below.

**Figure 23: Incentive income**

| SGN Incentive (£m)                      | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 |
|---|---------|---------|---------|---------|---------|---------|
| Shrinkage                               | 0.8     | 0.8     | 0.6     | 0.8     | 0.9     | 1.2     |
| Environmental emissions incentive (EEI) | 2.4     | 3.7     | 3.4     | 4.7     | 4.5     | 5       |
| NTS exit incentive                      | 2.6     | 1.1     | 1.9     | 5.5     | 6       | 9.7     |
| Customer satisfaction                   | 4.2     | 5.3     | 5.2     | 5.3     | 5.3     | 5.5     |
| Customer complaints                     | 0       | 0       | 0       | 0       | 0       | 0       |
| Stakeholder engagement                  | 2.1     | 2.4     | 1.8     | 3.2     | 2.3     | 3       |
| DRS award                               | 0       | 0.7     | 0       | 0       | 0.5     | 0       |
| Total                                   | 12.1    | 14      | 12.9    | 19.5    | 19.5    | 24.4    |

Our 2018/19 performance for incentives has generated income of £3.7m for Scotland and £20.7m for Southern. This includes the recent stakeholder award, when we were awarded the highest amount for a gas distribution company. Both of our networks continue to perform strongly.

### NTS exit incentive

The 2018/19 NTS Exit Capacity incentive in Southern has seen improvement in performance due to reduced capacity bookings during the year. The reduction in bookings was a result of an administrative oversight on two offtakes, which was identified at an early stage. Subsequently, we have made arrangements to ensure there was enough capacity. We incurred a total of £0.5m in overrun charges. However, due to the mild winter and incentive payments, we have generated £4m extra in revenue, the net benefit of this oversight, which we intend to repay back to customers in GD1.

## 2.4 Putting customers and stakeholders at the heart of our business

### 2.4.1 Our focus on vulnerable customers

#### Front line support for vulnerable customers

One of the key steps in our plan to support vulnerable customers is to build our understanding of the challenges those customers face when dealing with us. Taking the advice of experts at our specialist stakeholder panel we surveyed our frontline engineers to understand the most common circumstances in which they wish they could do more to help. The top four were:

1. Customers suffering with dementia, or learning difficulties who may not have understood
2. Witnessing a customer living in a cold home, fuel poverty, evidence of damp and condensation, lack of credit on meter
3. Lack of funds to undertake a repair or service following a disconnection/isolation
4. A customer who has left an unlit cooker on.

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We used this information to review and extend the initiatives we already had in place and begin additional initiatives where we identified gaps in the support we provide.

### **Mental health support**

Our approach to dementia awareness was endorsed by the 90% of our stakeholders who agreed that training our own staff to recognise signs of dementia is important. In 2015/16 we trained 357 of our frontline staff in dementia awareness through the Care Commission e-learning package and extended the training to include our charity partners. In 2017 we extended our programme and signed up with the Alzheimer's Society to become a dementia friendly organisation, updating our training package and rolling out a second phase, encouraging our staff to become 'dementia friends'. 2,439 signed up by May 2019, already exceeding our target of 2,000. We have also engaged with the mental health charity MIND to train our telephone advisors to interact better with customers who may have mental health issues.

### **Addressing lack of funds for repair after disconnection on safety grounds**

We piloted a new scheme for customers who our engineers recognise as being vulnerable to being left in the cold without a bit of extra help. We ran an initial trial in February 2018 with the support of East and West Sussex County Councils targeted at vulnerable owner occupiers. The voucher scheme trial gives our front-line engineers the ability to refer a customer they believe may be vulnerable to a trusted third-party organisation to be assessed and provided with a £200 repair voucher. If the cost of repairing the disconnected appliance exceeds £200, additional funding is provided by SGN, by the local council or from ECO funding. Customers can also be referred to the local RVS for any other support needs.

Seven customers have been referred and repairs or replacements made quickly to cookers, fires and boilers. One customer, newly discharged from hospital and suffering from dementia, was living in her kitchen and wearing gloves at home to keep warm.

### **Locking Cooker Valve - Preventing the danger of an unlit cooker**

We continue to promote our award-winning, free, UK wide locking cooker valve service to all potential users to avoid gas leaks and provide reassurance to carers. Within the last three years, we carried out a pilot to prove the concept and worked with local partners to trial the service which we then rolled-out to both our networks. We have now achieved our ambition to extend the service across all gas network footprints. In total, 563 valves have been fitted within the UK, with another 11 planned so far out of a total of 1,113 enquiries received.

We continue to engage with key partners and stakeholders to raise awareness of our Locking Cooker Valve initiative, so we can provide this free service to as many customers as possible who could benefit.

We made a short film, produced exhibition and print materials including train panel adverts, a booklet was distributed via Age UK, libraries, frontline workers and hospital services and customers can now apply online to have a locking cooker valve installed. The Alzheimer's Society welcome us at its events, and we have developed 20 new partnerships to promote the service this year, through Fire and Rescue divisions, Sussex NHS Partnership, CAB Yateley, British Red Cross reaching over **1 million people** through partner publications.

We have received five awards including the Association of Gas Safety Managers (AGSM) Safety initiative of the year, Lord Cullen Safety Award and Sustainability First's 'Gold' award for safety and peace of mind.

### **Partnerships to deliver social outputs**

#### **London Sustainability Exchange**

Partnering with London Sustainability Exchange (LSx), we are working with trusted partners to engage in culturally and linguistically diverse communities. We extended our partnership to include other utilities.

In phase 1 (2016) we trained five energy champions, reaching 640 people in 1-1 settings, receiving 1,798 pledges to switch energy supplier with a possible saving of £35,000, equivalent to 140 tonnes of CO2.

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In Phase 2: We extended our partnership with LSx to include UKPN, Thames Water and SSEN on a two year 'Faith and Utilities' project. Twenty-two energy champions and 16 volunteers from 13 charitable organisations and mosques reached 23,950 people, providing 533 households with support, including:

- 243 referrals to the Priority Service Register
- 47 referrals for Help to Heat gas connections
- 170 people provided with information on power loss or water disruption
- 252 people given information on Warm Homes Discount or ECO
- 80 people given energy tariff advice and payment methods
- 961 behavioural change pledges that could collectively save households £20,584 in annual fuel bills.

#### **Groundworks Green Doctor project**

We have worked with Green Doctor to develop a pilot project in our Southern network, partnering with SSEN to use its demographic mapping system to target customers in the most vulnerable circumstances.

The project ran in Selsey during February and March 2018 and exceeded targets with 68 home visits and eight carbon cafes providing 120 people with energy and home safety advice.

- 369 energy efficiency measures were installed by Green Doctor
- 15 households were helped with switching advice
- Eight new referrals to the Priority Services Register were made
- 48 CO alarms were installed
- 195,000 kg CO and £46,500 were saved.

## **2.4.2 Improving service provision: reducing our impact on local communities**

### **Case study: supporting the roll-out of smart metering with our triage desk**

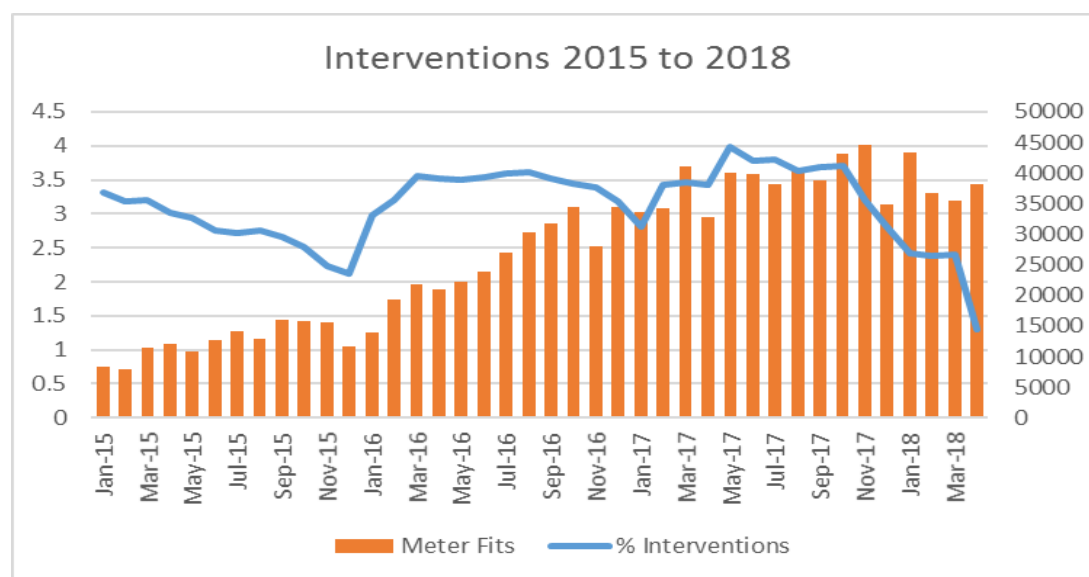
We are the only GDN to put in a triage process to support our smart metering work.

To assist with the increase in call volumes to our front-line emergency operatives (FCOs), we set up a triage desk during autumn 2017. Our executive team approved the expenditure to run this desk for the duration of the smart metering rollout program. This has led to a number of changes and enhancements to our service provision:

- recruited ten new smart metering specific staff, installed new hardware, software and communications
- moved to seven-day shift patterns to meet supplier roll out plans
- contacting customers directly to arrange a timed appointment if deemed necessary
- embedded a highly skilled engineer in the team to help to quickly resolve technical issues 'first time'. We are currently refining proposals to appoint a second engineer with a similar expertise in the team.

Figure 24 below illustrates the positive impact our triage desk has had on smart meter interventions since its implementation in 2017.

**Figure 24: Interventions vs. meter installations**



## 2.5 Innovation

Innovation has served customers well: keeping costs down, reducing environmental impact, reducing disruption to road users and improving our services to customers in vulnerable circumstances. We also recognise value from the innovation process, through collaboration with third parties to share and spread knowledge and insights for broader and long-term consumer advantage.

### Top innovation projects

We can directly attribute £55m of operational expenditure (opex) savings and £71m of replacement expenditure (repe) savings to innovation projects in the first five years of GD1. The table below lists the top 5 innovations from opex and repe, along with the value (savings) created for customers over the course of GD1. The full list of GD1 innovations and their contribution to customer value can be found in the Innovation appendix.

Top 5 innovation projects: opex savings:

- Large CISBOT (Cast Iron Joint Sealing Robot) £10.84m
- Core and Vac £10.61m
- Self-Amalgamating Tape (Stage 2) £7.6m
- Opening up the Gas Market £4.08m
- RCA GPS Survey (MGDC – GeoField) £3.04m

Top 5 innovation projects: repe savings:

- Live Mains Insertion (downsize live) £24.10m
- 20mm Serviflex for 1 1/4" Steel Services £15.6m
- 29mm Mains Inspection Camera £11.90m
- Large CISBOT (Cast Iron Joint Sealing Robot) £6.61m
- Wask PE Riser System III £4.89m

### Costs and benefits of innovation

Figure 25 below provides the costs of innovation as at February 2019 together with the expected present value of benefits over the first 5 years of GD1, and the associated net benefit of that category of project.



**Figure 25: Innovation costs**

| Costs and Benefits associated with Innovation by funding stream Funding | SGN Costs (£m) | 5-year PV Benefits (*) | Net Benefit      |
|---|----------------|------------------------|------------------|
| NIA   | £ 39.1m        | £ 33.0m                | (£ 6.2m)         |
| NIC   | £ 39.7m        | £ 3.2m                 | (£ 36.5m)        |
| <b>Grand Total</b>  | <b>£ 78.8m</b> | <b>£ 36.1m</b>         | <b>(£ 42.7m)</b> |

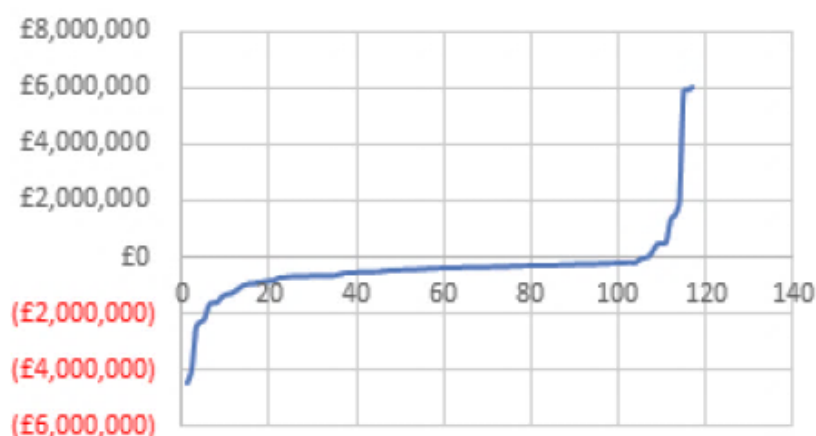
(\*) these benefits are only directly attributed financial benefits and do not include health and safety, consumer, or environmental benefits.

Figure 25 shows that for the Network Innovation Competition (NIC), the net benefit is significantly less than the costs incurred, which is expected given the scale of the project and the longer-term focus on transformation. For the Network Innovation Allowance (NIA), the net benefit is slightly positive for the opex project and negative for the repex benefits over the 5 years of the price control to date.

This gives a simple payback for the NIA project of 5.8 years. We have not been able to provide an equivalent assessment for the Innovation Funding Incentive (IFI) projects as our records do not have the cost data captured appropriately for innovation projects prior to the start of GD1.

Figure 26 below shows the distribution of net benefits delivered by some 117 NIA Innovation projects. This demonstrates that there is a very broad distribution of projects and returns are determined by a couple of 'star' projects rather than projects as a whole showing a positive return.

**Figure 26: Distribution of Net Benefits for innovation projects.**



A further observation is that this is post event analysis and does not capture the perspective of the benefits when the original investment decision was made. As an example, the extent of the increase in lane rental charges were not fully forecast when the CISBOT project was initiated. Similarly, the social and planning benefits and broader process changes brought about by new techniques, such as self-amalgamating tape, would not have been fully recognised.

The final observation is that this benefit curve is a perspective at a point in time based on a 5-year regulatory window. The innovation process and the adoption of innovation itself creates opportunities which may not be fully recognised in these figures.

### Estimates of innovation from GD1 that will be deployed in GD2

By the end of GD1, we expect the benefits from successful innovation projects to be realised in business as usual, setting a new benchmark for normal performance.

We estimate that gross benefits of £1.5m are likely to be realised in the initial years of GD2. However, this is an estimate as it depends upon the development path of innovations between today and the end of GD1.

## 2.6 Historic Cost Performance and analysis

Detailed information about our cost performance over GD1 is provided below in the following subsections:

- Customer value and breakdown of contribution to customer bills
- Differences in planned V actual expenditure
- Variance analysis
- Real Price Effects
- Voluntary contribution
- Regressions
- GD1 performance analysis: totex forecast
- Opex: 6 years Actuals vs Allowances
- GD1 opex forecast
- Repex review
- Capex.

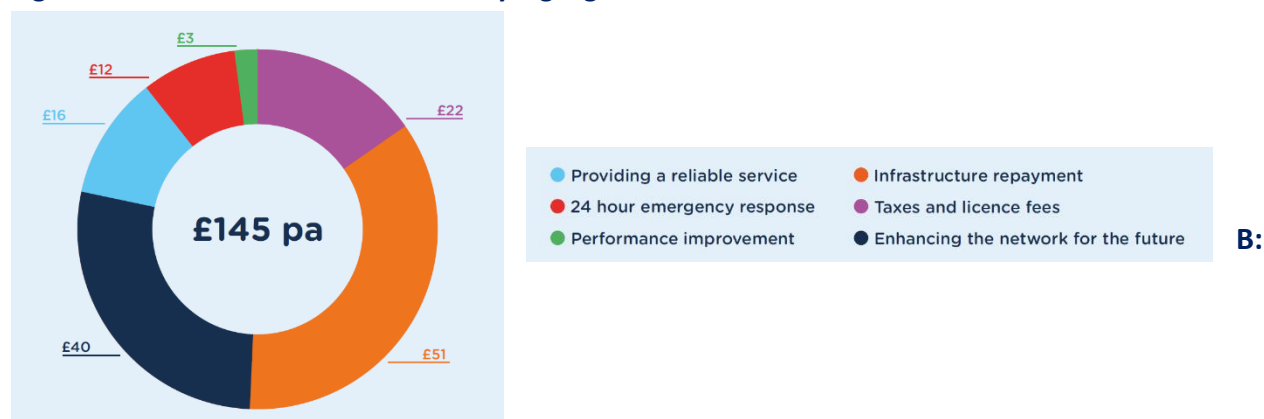
### Customer value and breakdown of contribution to customer bills

Our costs for providing a safe and efficient gas distribution network account for around 25% of the average household gas bill. Over the course of GD1 we are forecasting a reduction in that portion of customer bills of 7% in real terms, from £152pa in 2013/14 to £140pa.

In addition, we are forecasting an expenditure that is approximately 15% below our approved GD1 allowance by the end of March 2021. Currently this variance is 18% (17% in Southern and 20% in Scotland) but we expect this to reduce slightly as a result of labour cost pressures and larger and complex replacement projects coming up before the end of GD1.

The sixth year of GD1 (2018/2019) provides improved visibility of the expected impact on customer prices over the remainder of the GD1 price control period. This year's domestic customer bill for SGN is £145, which compares to last year's figure of £136. The main attributing factor in this movement is inflation (£5).

**Figure 27: Breakdown of costs - Key highlights:**



### Differences in planned versus actual expenditure

Our actual expenditure compared with our allowed expenditure for the first gas distribution price control (GDPCR1) and the first five years of GD1 are shown in the table below for the three main expenditure areas.

Overall in GDPCR1 expenditure was **7% below** allowances awarded, with strong performance in capex and opex. This has increased to a 18% difference for the first 6 years of GD1. The full 8-year forecast for GD1 is expected to reduce to 15% as some of the large projects with more complex design and planning processes come forward for delivery, and as the voluntary contribution impacts are recognised.

As set out in the table below between GDPCR1 and GD1 there was a reduction of approximately £80m from the actual expenditure in GDPCR1 of £3.36m to GD1 allowances awarded of £3.29m (for the first five years). This headline reduction marks a significant step up in allowances for operating costs and a significant reduction in allowances for capital expenditure. The increase in operating expenditure allowances was due to additional output measures being introduced for holder and land remediation; a rise in the training and apprenticeship allowance, and funding to cover the increased downtime of FCOs arising from the smart meter roll-out. GD1 allowances for repex was relative to actual expenditure in GDPCR1.

**Figure 28: Headline financial performance**

| £m 18/19 prices |                         | GDPCR1       |              |            | GD1 (first 6 yrs) |              |            |
|-----------------|-------------------------|--------------|--------------|------------|-------------------|--------------|------------|
|                 |                         | Allowance    | Actuals      | Difference | Allowance         | Actuals      | Difference |
| Southern        | Operating Expenditure   | 843          | 689          | 18%        | 987               | 773          | 22%        |
|                 | Replacement Expenditure | 1,060        | 1,098        | -4%        | 1,302             | 1,095        | 16%        |
|                 | Capital Expenditure     | 557          | 481          | 14%        | 447               | 412          | 8%         |
|                 | <b>Total</b>            | <b>2,460</b> | <b>2,267</b> | <b>8%</b>  | <b>2,736</b>      | <b>2,280</b> | <b>17%</b> |
| Scotland        | Operating Expenditure   | 485          | 414          | 15%        | 565               | 414          | 27%        |
|                 | Replacement Expenditure | 373          | 378          | -1%        | 465               | 370          | 20%        |
|                 | Capital Expenditure     | 310          | 303          | 2%         | 327               | 299          | 9%         |
|                 | <b>Total</b>            | <b>1,168</b> | <b>1,094</b> | <b>6%</b>  | <b>1,357</b>      | <b>1,083</b> | <b>20%</b> |
| <b>Total</b>    |                         | <b>3,629</b> | <b>3,362</b> | <b>7%</b>  | <b>4,093</b>      | <b>3,363</b> | <b>18%</b> |

## Variance analysis

The details of how we have delivered against each of these categories is set out in individual sections. In Figure 29 below, we have separated the GD1 performance levels according to three categories.

**Risk allocation:** These show areas where a forecast was made at the start of GD1 where an actual expenditure could have exceeded allowances, or vice-versa based on a variable that was not directly controlled by the network: weather, economic conditions, services found.

**Business decision:** These show areas where SGN made a business decision that was beneficial. For example, where we decided to maintain the metering work to keep higher utilisation rates or securing HSE exemptions.

**Efficiencies:** These set out process improvements, changes, management interventions and innovations that have been delivered over the course of GD1.

**Figure 29: Variance analysis: Southern and Scotland**

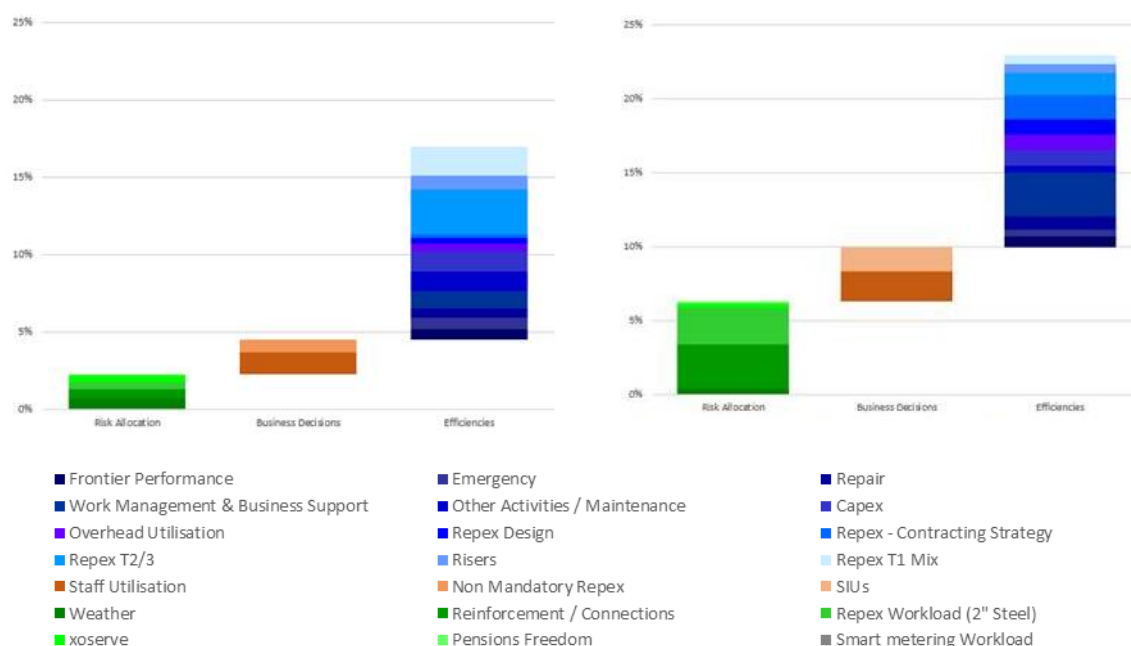


Figure 29 illustrates that efficiency related measures account for the largest proportion of the savings, accounting for 12% of the 17% variance in Southern and 13% of the 23% variance in Scotland. The remainder is accounted for between risk allocation and business decision in Southern with risk allocation contributing a higher proportion to the variation in Scotland than in Southern. This is due to both the extent of the changing market for demand and the volume of 2" steel, which has to be replaced if found. For both connections and steel we had less activity than anticipated (forecast based on historical data from GDPCR1). These estimates do not fully account for the impact of real price effects (RPEs) or our voluntary contribution which we set out below.

## Real price effects

During GD1, Ofgem assessed both productivity and RPEs as ex-ante adjustments within the bottom up cost allowances. These were based on forecast labour and productivity indices for each component of totex<sup>3</sup>, with a net impact leading to an annual reduction in allowances of 0.3% per annum against inflation.

Analysis of the indices used for RPEs when setting allowances indicates they have tracked lower than originally forecast in the first half of GD1. While it has been acknowledged that the early part of GD1 has experienced a more favourable climate for labour costs (see Section 1.4 for more details) recent agreements with contractors (through competitive tendering) and trade unions demonstrate that this gap will close significantly during the second half of GD1.

Secondly, the gas sector experiences unique drivers that impact on both direct labour and contractor costs (for example construction competition [particularly in London], an ageing workforce and skill shortages), and we have had to manage the wider impact of National Insurance, sick and holiday pay changes. We believe we

<sup>3</sup> Annual change by expenditure type: OPEX, RPEs of 0.4%, productivity of 1% giving an net impact of -0.6%, Capex RPEs of 0.5%, productivity of 0.7% net impact of -0.2%, Repex: RPEs of 0.6%, productivity of 0.7% giving an net impact of -0.1%

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have managed our labour costs in an efficient manner and in an increasingly challenging labour market, particularly around London and that it is not straightforward to map a national change onto regional differences and changing workforce practices. Given these differences it has not been possible to separate out labour indices directly from our performance drivers above.

We have undertaken further work for our GD2 Business Plan to identify appropriate indices to more accurately track our labour costs going forward.

### **Voluntary contribution**

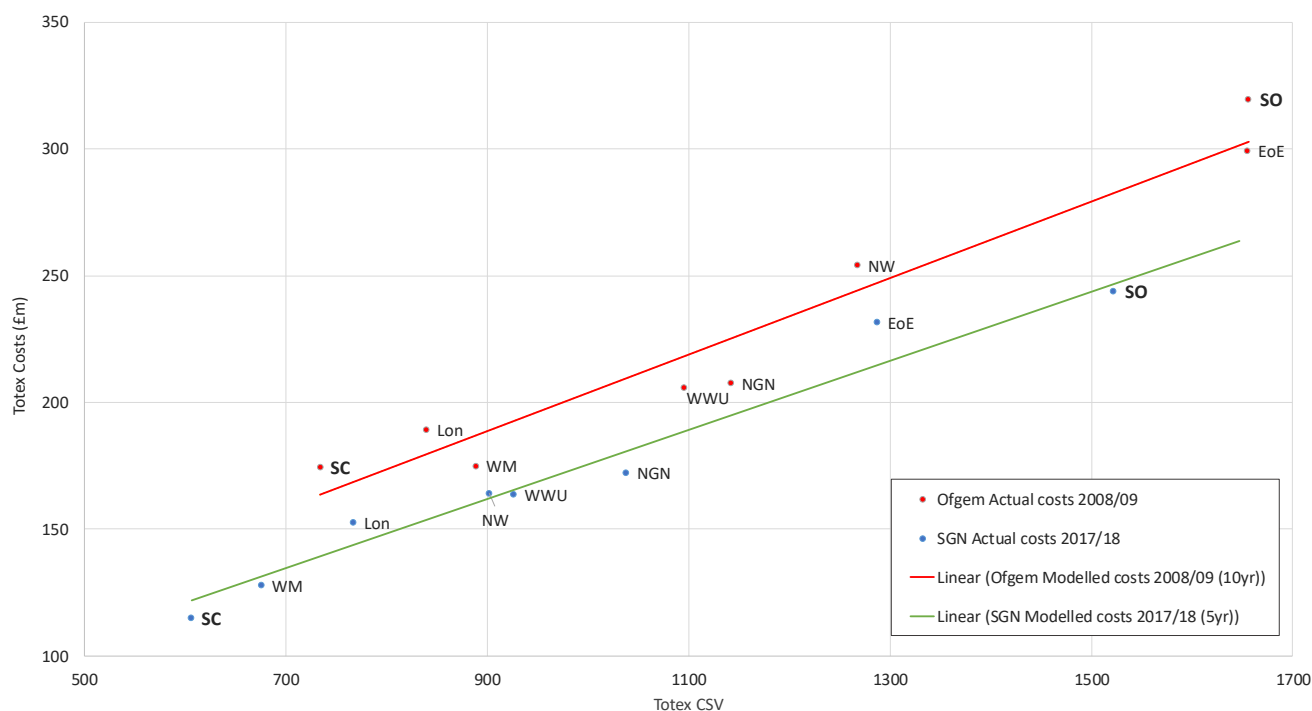
- The variance analysis above does not make full allowance for the voluntary contribution we made in 2017/18 and will be mostly returned to customers in the last two years of the price control. These include:
- Re-opener claims forgone - £60m. This was value we are entitled to recover under our licence which we have forgone relating to the smart meter, streetworks and the physical security upgrade. Earlier this year we submitted a detailed estimate to Ofgem of our additional expenditure to date for streetworks of £33.8m and physical security £14.8m. The smart meter reopener is expected to be submitted by the end of this financial year.
- Repex allowances - £50m. (Repex T1 mix, included in the five years analysis above will be returned in the last two years). This is to recognise the repex underspend where we have delivered the outputs but have not clearly attributed the variance to design improvements, efficiency gains and innovation, or in the mix of work undertaken. We have taken Ofgem through these calculations and have received nothing to suggest they dispute the figure.
- Assisting fuel poor households - £20m. This is to fund the over delivery of FPNES targets in Scotland and to support additional measures to deliver the targets in the Southern network.
- Security improvements - £15m. Additional funding over and above the allowances allocated in price control to deliver additional cyber and physical security improvements.

### **Regressions**

Figure 30 below shows total expenditure (totex) regressions for the eight networks in 2008/9 to 2017/18, showing overall improvement in their efficiency, and overall lowering of the regression line. It shows how SGN as a whole has become more efficient relative to the other networks. In 2008/09 both Scotland and Southern were above the regression line, indicating that on a comparable basis both networks were more expensive than average. By 2017/18 both Scotland and Southern are below the line and therefore more efficient than average.



**Figure 30: Totex benchmarking results**



Note – We have removed the atypical accrual releases in WWU referenced by Ofgem in their recent annual report.

The regressions are driven by a scale variable that is made up primarily of MEAV (Modern Equivalent Asset Value) and repex workload. The gap between the red and green line is approximately £25m to £40m (dependent on size of network) which represents the efficiency achieved by the industry over the last 10 years (around 15%), normalised for changes in workload. It shows the Scotland and Southern networks achieving efficiency savings greater than the industry average during this period.

## GD1 performance analysis: totex forecast

Figure 31 below sets out our actual totex to date (2018/19) and our forecast for totex for the remainder of GD1. Over the eight years of the GD1 price control we expect our totex to be £4,511m which is £810m below our allowances, giving a 15.2% variance to the allowances we were awarded under the final proposals at the start of GD1 (and subsequently adjusted where directed by Ofgem).

**Figure 31: Totex to date and forecast to end of GD1**

| £m 2018/19 prices | 6 yrs        |              | Scotland Remain 2 years |            | GD1 Period   |              |
|-------------------|--------------|--------------|-------------------------|------------|--------------|--------------|
|                   | Acts         | Allow        | Acts                    | Allow      | Acts         | Allow        |
| Opex              | 414          | 565          | 132                     | 181        | 546          | 746          |
| Repex             | 370          | 465          | 132                     | 139        | 502          | 603          |
| Capex             | 298          | 327          | 76                      | 75         | 374          | 402          |
| <b>TOTEX</b>      | <b>1,082</b> | <b>1,356</b> | <b>340</b>              | <b>395</b> | <b>1,422</b> | <b>1,751</b> |

| £m 2018/19 prices | 6 yrs        |              | Southern Remain 2 years |            | GD1 Period   |              |
|-------------------|--------------|--------------|-------------------------|------------|--------------|--------------|
|                   | Acts         | Allow        | Acts                    | Allow      | Acts         | Allow        |
| Opex              | 773          | 987          | 257                     | 315        | 1,031        | 1,302        |
| Repex             | 1,095        | 1,302        | 412                     | 402        | 1,507        | 1,704        |
| Capex             | 412          | 447          | 140                     | 115        | 552          | 562          |
| <b>TOTEX</b>      | <b>2,280</b> | <b>2,737</b> | <b>809</b>              | <b>832</b> | <b>3,089</b> | <b>3,568</b> |

| £m 2018/19 prices | 6 yrs        |              | SGN Remain 2 years |              | GD1 Period   |              |
|-------------------|--------------|--------------|--------------------|--------------|--------------|--------------|
|                   | Acts         | Allow        | Acts               | Allow        | Acts         | Allow        |
| Opex              | 1,187        | 1,552        | 390                | 496          | 1,577        | 2,047        |
| Repex             | 1,465        | 1,767        | 544                | 541          | 2,009        | 2,307        |
| Capex             | 710          | 774          | 216                | 191          | 925          | 964          |
| <b>TOTEX</b>      | <b>3,362</b> | <b>4,093</b> | <b>1,149</b>       | <b>1,227</b> | <b>4,511</b> | <b>5,319</b> |

The main drivers for this variance are set out in figure 32 and demonstrate we have delivered significant efficiency gains over this period with 70% being clearly attributable to this category.

**Figure 32: Drivers of totex variance in GD1**

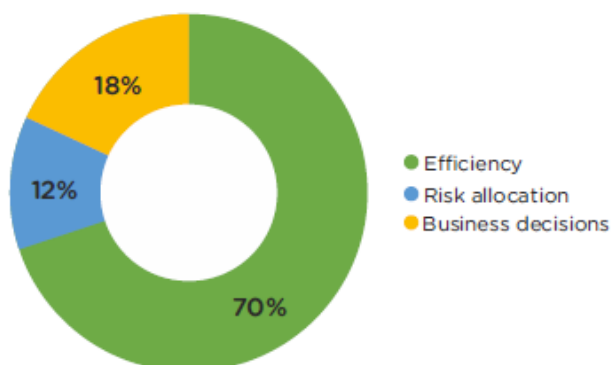


Figure 33 below provides a summary of the key drivers of our totex variance to allowance for GD1, attributing

these drivers to efficiency, external factors and variations in original assumptions (values are before customer sharing):

- **Category 1 - efficiency (£563m, 70% of variance)**

Efficiency gains through the application and roll out of innovation, introduction of management changes, improved processes, frontier performance / efficient business model and improved contracting strategies.

- **Category 2 - external factors / risk allocation (£100m, 12 % of variance)**

Where a forecast was made at the start of GD1 and companies took the risk that actual expenditure could have exceeded allowances or vice-versa based on a variable that was not directly controlled by the network e.g. weather, economic conditions, < 2" services found.

- **Category 3 - variations in settlement position / good business decisions (£145m, 18% of variance)**

These show the areas where assumptions set at the start of the price control have varied but we were incentivised to manage the risk exposure and good business decisions have been made that were beneficial. These include the volume of meter work and the phase in of smart meters, non-mandatory repex where the application of cost benefit analysis (CBAs) has resulted in a cheaper opex solution and the enduring solution for the Scottish Independent Undertakings that negated the need for a reopener.

**Figure 33: Key drivers of totex variance**

| Driver   | Short Summary  | Category | 8 year estimate of TOTEX under/over spend driver (£m estimate) |           |            |            | % of TOTEX Underspend |
|--|--|----------|--|-----------|------------|------------|-----------------------|
|  |  |          | Repex  | Capex     | Opex       | Totex      |                       |
| Mild Weather   | Recent winters have been milder than seasonal norms  | 2        |  |           | 22         | 22         | 3%                    |
| Underlying Emergency/Repair efficiency (incl Innovation) | Proactive volume management, pressure management, focus on performance management tools, flexible working, innovation applications (eg core n vac), optimal scheduling               | 1        |  |           | 82         | 82         | 10%                   |
| Impact of Smart Metering                                 | Additional costs due to implementation of smart meter programmes   | 2        |  |           | -14        | -14        | -2%                   |
| Efficiencies/Frontier Network-Business Support           | Efficient business model, optimum utilisation of overheads across the group, and a Managed Service Agreement with SSE  | 1        |  |           | 68         | 68         | 8%                    |
| Efficiencies/Frontier Network-Work management            | Efficient business model, optimum utilisation of overheads across the group, and a Managed Service Agreement with SSE  | 1        |  |           | 88         | 88         | 11%                   |
| Utilisation of workforce                                 | Minimising unproductive time through alternative use of resources such as meterwork - the delay in Smart Meterwork roll out has provided more legacy meter workload than anticipated | 3,1      |  |           | 67         | 67         | 8%                    |
| SIUs LNG Solution/Operational costs                      | Enduring LNG solution has resulted in savings against the more expensive arrangements at Avonmouth   | 3        |  | -15       | 42         | 42         | 5%                    |
| Other Direct Activities                                  | Savings in tools, compensation payments, Xoserve charges in first 4 years  | 1        |  |           | 54         | 54         | 7%                    |
| Maintenance Programme                                    | Optimising workload and performance improvements   | 1        |  |           | 5          | 5          | 1%                    |
| Other  | Other Opex   | 1,2,3    |  |           | 40         | 40         | 5%                    |
| TOTEX trade offs   | Maintenance Capex vs Opex  | 1        |  | -17       | 17         | 0          | 0%                    |
| Macro Factors  | Mains reinforcement workload, slow economic growth   | 2,1      |  | 44        |            | 44         | 5%                    |
| Workloads, Costs   | Other Capex  | 1,2,3    |  | 27        |            | 27         | 3%                    |
| Tier 1 Project Design                                    | Holistic design - increased use of insertion, few larger projects  | 1        | 106  |           |            | 106        | 13%                   |
| Tier 1 Volume  | Resulting from higher insertion rates  | 1        | -38  |           |            | -38        | -5%                   |
| Tier 1 Contracting/pricing                               | Contracting strategy - insourcing smaller contractors, pricing benefits, from project design, use of innovation  | 1        | 91   |           |            | 91         | 11%                   |
| Tier 1 Services Mix                                      | Changes in actual mix of service relays and transfers  | 1        | 14   |           |            | 14         | 2%                    |
| Tier 1 Services Volume                                   | Increased volume of services driven by mix of smaller diameter pipes   | 1        | -19  |           |            | -19        | -2%                   |
| Tier 1 Service Price                                     | Contractor price for services - believed to be trade offs between mains and services   | 1        | -11  |           |            | -11        | -1%                   |
| Tier 2 Volume/Price                                      | Better design, partially offset by adverse price variances   | 1        | 32   |           |            | 32         | 4%                    |
| Tier 3 Price   | Driven by deployment of robotics   | 1        | 32   |           |            | 32         | 4%                    |
| 2" Steel   | Reductions in lay compared to abandonment  | 2        | 48   |           |            | 48         | 6%                    |
| Other Mains  | CBA Driven   | 3        | 36   |           |            | 36         | 4%                    |
| Risers   | Repairs/remedation instead of full replacement, part renewals, improved design   | 1        | 28   |           |            | 28         | 3%                    |
| Other  |  | 1        | -21  |           |            | -21        | -3%                   |
| <b>TOTAL VARIANCE</b>                                    |  |          | <b>298</b>   | <b>39</b> | <b>470</b> | <b>822</b> | <b>100%</b>           |

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It is important to note that while the level of data granularity allows us to have some confidence in the repex figures, the figures for capex and opex are broader categorisations. Given the breadth of these opex and capex categories, there are many instances where the variance is driven by more than one of the categories identified above. In these instances, we have indicated where this is the case but have not quantified the splits.

**Utilisation of workforce:** productivity in the emergency process. We have maintained the resource and flexibility to compete for meterwork contracts which has historically been excellent filler work for our emergency employees. It was anticipated with the roll out of smart meters, suppliers would use their own dedicated staff and this filler work (legacy meterwork) would fall away – impacting adversely on productivity. However, the delay in the smart meter roll out (category 3) has resulted in more legacy work being retained in GD1. The majority of this work is competitively tendered, and we have won contracts through having trained resources available, through the quality of service provided and having an efficient price (all category 1). Therefore, it is not possible to accurately split this between category 1 and 3.

Of the above categories it is also important to note the following:

**Timing considerations.** Certain costs in the first half of GD1 such as labour are coming under pressure as we are seeing increased resourcing costs as the country moves to fuller employment and competing workload has emerged – e.g. smart metering, inner London utility workload.

**Frontier rewards.** We were the frontier company at the time of GD1 in several categories and as a result we had a greater propensity to outperform as frontier companies had a level of outperformance built into the final proposals, compared to other networks. However, due to the nature of how benchmarking fed into the final allowances, it is not possible to give an accurate assessment of the materiality.

**Repex variances.** There has been substantial work undertaken to separate out the repex variances and the underlying causes of variations from the final proposals - this is not a straightforward process due to the lack of detail in the final proposals regarding the allocation of allowances, particularly with regards to the mains diameter / pipe mix categories. However, we now have an accurate picture as is possible given this uncertainty, and the analysis supports the £50m variance in the tier 1 abandonment that was the basis of one component of the voluntary contribution we made in November 2017. On this basis we now consider our tier 1 variance to be equivalent to the allowances. This is described in more detail in section 4.8.

### **Opex: 6 years actuals vs allowances**

Cumulatively, we have outperformed the controllable opex allowance by £365m (24%). Included within these allowances are rewards for being the frontier GDN within overheads.

**Figure 34: Opex 6 year actuals vs allowances**

| 6 Year Actual vs Allowance<br>£m 2018/19 prices | Scotland   |            | Southern   |            | SGN          |              |
|---|------------|------------|------------|------------|--------------|--------------|
|   | Actual     | Allowance  | Actual     | Allowance  | Actual       | Allowance    |
| Work Management                                 | 89         | 128        | 195        | 215        | 284          | 344          |
| Emergency                                       | 40         | 76         | 99         | 176        | 139          | 252          |
| Repair  | 41         | 54         | 137        | 157        | 177          | 211          |
| Maintenance                                     | 61         | 53         | 116        | 140        | 177          | 193          |
| SIU   | 62         | 88         | 0          | 0          | 62           | 88           |
| Other Direct Acts                               | 27         | 46         | 50         | 82         | 77           | 127          |
| <b>Total Direct Opex</b>                        | <b>320</b> | <b>445</b> | <b>596</b> | <b>770</b> | <b>916</b>   | <b>1,215</b> |
| Business Support                                | 73         | 101        | 142        | 185        | 214          | 287          |
| Training & Apprentices                          | 22         | 18         | 35         | 32         | 57           | 50           |
| <b>Total Indirect Opex</b>                      | <b>94</b>  | <b>120</b> | <b>177</b> | <b>217</b> | <b>271</b>   | <b>337</b>   |
| <b>TOTAL OPEX</b>                               | <b>414</b> | <b>565</b> | <b>773</b> | <b>987</b> | <b>1,187</b> | <b>1,552</b> |

Work management continues to be below our allowances, but our current performance levels may reduce in future years as a result of the uncertainty over call handling charges received from National Grid. Being volume driven there is increased uncertainty over the level of calls resulting from smart metering making it hard to predict the future impact. In support of this we have seen increased charges in 2018/19 which included backdated charges from 2017/18.

Through GD1 we have continued to see a decrease in our external workload volumes predominantly driven by our replacement programmes focus on reducing the volume of metallic mains and services. Further to this we have experienced relatively mild winters. However, due to the complexity of the changes in weather patterns, sudden cold events could stretch our emergency resources in the future. The reduction in internal escapes has been less pronounced due to successful campaign of promoting CO alarms. As a result, there has been increased workload in responding to calls associated with the alarms due to the presence of CO, faulty alarms or battery replacements.

Calls relating to smart meters have continued to increase in GD1 but with the support of the triage team the level of interventions have been kept to a minimum.

To date we have continued to benefit from legacy metering contracts and estimate that our emergency operating expenditure would have been £10m a year higher if we did not have these contracts.

Our strategic approach in managing residual risk has resulted in savings versus allowances. However, in the later years of GD1 it is anticipated that the differential between costs and allowances will reduce at a slower pace due to the mix of repairs with repairs on larger diameter and medium pressures distribution pipes reducing at a lower rate than small diameter.

During GD1 we have made specific improvements to the inspection regime to make it more robust and more cost effective without compromising safety. At the start of GD1 many procedures had caps even where there was sufficient evidence that intervals could be extended. Work was completed within these caps. As part of our approach to maintenance in GD1 these were reviewed according to technical evidence, independent expertise and a full review with HSE before implementation. As a result, this generated an efficiency saving by increasing the time that can lapse between inspections for known high quality pipe assets.

Further efficiency gains were delivered through the deployment of more effective scheduling software to optimise workforce deployment, as well as identifying associated process improvements and introducing expectations on visit durations and time allocated to each work order.

Due to the wide variance in work types undertaken under the maintenance umbrella, operating expenditure

has been impacted by several factors to varying degrees across both of our networks. Nevertheless, both networks are focused upon a drive to improve performance towards frontier levels, which is an explicit challenge in our Scotland network.

We continue to make savings within our SIU operations, as a result of further changes in our operation in the financial year 2017/18, when the transport contract was put out to tender, and the logistics strategy for transportation shifting from a completely road-based operation, to a combination of road and rail movements. Further to this 2017/18 and 2018/19 have experienced relatively mild winters, with the expectation that this is unlikely to continue.

### GD1 opex forecast

Figure 35 and Figure 26 show the eight-year forecast for Scotland and Southern opex against allowance which identifies that Scotland is forecast to be 24% below allowance and Southern 21% below allowance – at SGN level this equates to 23%. The underspend has been achieved through a combination of good strategic decisions, risk allocation and efficiencies through innovation and project design.

**Figure 35: Opex forecast against allowances: Scotland**

| SCOTLAND                   |                   |                   |                   |                   |                   |                   |                  |                  |            |
|----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------------|
| 2018/19 Prices<br>£m       | 2013/14<br>Actual | 2014/15<br>Actual | 2015/16<br>Actual | 2016/17<br>Actual | 2017/18<br>Actual | 2018/19<br>Actual | 2019/20<br>Fcast | 2020/21<br>Fcast | Total      |
| Work Mgmt.                 | 18                | 14                | 13                | 15                | 14                | 16                | 13               | 13               | 115        |
| Emergency                  | 7                 | 6                 | 7                 | 7                 | 7                 | 7                 | 7                | 7                | 53         |
| Repair                     | 8                 | 7                 | 6                 | 6                 | 7                 | 7                 | 7                | 7                | 54         |
| Maintenance                | 11                | 9                 | 9                 | 10                | 9                 | 13                | 10               | 11               | 82         |
| SIUs                       | 12                | 13                | 14                | 9                 | 7                 | 7                 | 7                | 7                | 75         |
| Other Direct Acts          | 5                 | 6                 | 6                 | 5                 | 3                 | 3                 | 3                | 3                | 34         |
| <b>Total Direct Opex</b>   | <b>61</b>         | <b>54</b>         | <b>55</b>         | <b>52</b>         | <b>47</b>         | <b>52</b>         | <b>47</b>        | <b>46</b>        | <b>413</b> |
| Business Support           | 10                | 12                | 10                | 13                | 12                | 16                | 18               | 16               | 106        |
| T & A                      | 2                 | 3                 | 6                 | 6                 | 3                 | 2                 | 3                | 2                | 27         |
| <b>Total Indirect Opex</b> | <b>12</b>         | <b>14</b>         | <b>16</b>         | <b>19</b>         | <b>15</b>         | <b>18</b>         | <b>20</b>        | <b>19</b>        | <b>133</b> |
| <b>Controllable Opex</b>   | <b>72</b>         | <b>69</b>         | <b>71</b>         | <b>70</b>         | <b>62</b>         | <b>70</b>         | <b>67</b>        | <b>65</b>        | <b>546</b> |
| <b>Ofgem Allowance</b>     | <b>94</b>         | <b>95</b>         | <b>96</b>         | <b>96</b>         | <b>92</b>         | <b>93</b>         | <b>91</b>        | <b>90</b>        | <b>746</b> |

**Figure 36: Opex forecast against allowances: Southern**

| SOUTHERN                   |                   |                   |                   |                   |                   |                   |                  |                  |              |
|----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|--------------|
| 2018/19 Prices<br>£m       | 2013/14<br>Actual | 2014/15<br>Actual | 2015/16<br>Actual | 2016/17<br>Actual | 2017/18<br>Actual | 2018/19<br>Actual | 2019/20<br>Fcast | 2020/21<br>Fcast | Total        |
| Work Mgmt                  | 25                | 31                | 39                | 29                | 30                | 41                | 29               | 28               | 253          |
| Emergency                  | 15                | 15                | 18                | 17                | 17                | 17                | 19               | 18               | 136          |
| Repair                     | 26                | 26                | 20                | 21                | 21                | 23                | 21               | 21               | 178          |
| Maintenance                | 25                | 18                | 18                | 20                | 17                | 19                | 19               | 19               | 154          |
| SIUs                       | 0                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0                | 0                | 0            |
| Other Direct Acts          | 10                | 7                 | 11                | 8                 | 7                 | 6                 | 6                | 6                | 61           |
| <b>Total Direct Opex</b>   | <b>101</b>        | <b>97</b>         | <b>105</b>        | <b>96</b>         | <b>92</b>         | <b>106</b>        | <b>93</b>        | <b>92</b>        | <b>782</b>   |
| Business Support           | 20                | 22                | 19                | 26                | 24                | 31                | 33               | 31               | 205          |
| T & A                      | 5                 | 6                 | 8                 | 7                 | 6                 | 4                 | 4                | 4                | 44           |
| <b>Total Indirect Opex</b> | <b>25</b>         | <b>27</b>         | <b>27</b>         | <b>33</b>         | <b>30</b>         | <b>35</b>         | <b>37</b>        | <b>35</b>        | <b>249</b>   |
| <b>Controllable Opex</b>   | <b>126</b>        | <b>124</b>        | <b>132</b>        | <b>129</b>        | <b>122</b>        | <b>141</b>        | <b>130</b>       | <b>127</b>       | <b>1,030</b> |
| <b>Ofgem Allowance</b>     | <b>167</b>        | <b>165</b>        | <b>166</b>        | <b>168</b>        | <b>161</b>        | <b>160</b>        | <b>158</b>       | <b>156</b>       | <b>1,302</b> |

The allowances have been adjusted for the revised Xoserve charges. We have aligned these charges between opex and capex allowances based on the instructions we received from Ofgem.



Work management includes our profile for holder demolition. The holder programme is the main driver of the fluctuation in costs through GD1. The holder and land costs for the remainder of GD1 are in line with those retained under the regulated business.

## Repex review

Our project design has been enhanced by the flexibility provided by an eight-year price control. This has assisted efficiency by delivering larger projects with greater insertion rates (in excess of 90%), as well as targeting higher leakage hotspots to focus on output delivery. The flexibility that higher insertion rates has given us has enabled the choice of pipe replacement with the focus on replacing higher risk pipes.

As a part of our strategy to deliver the repex programme we have a wider pool of contractors to ensure the workload targets are met. This has given us greater control on how and when to deliver the programme. We have also experienced cost pressures in relation to contractors, which is reflected in both our 2018/19 actuals and our latest forecast, while remaining positive in delivering or exceeding all safety outputs by the end of GD1.

We have continued to drive forward the application of innovative solutions, to manage the risk from iron mains with a number of projects using the CISBOT solution from 2015/16 and into 2018/19 on larger diameter pipes. The benefit of this has been two-fold; reducing the cost impact and the customer impact as a result of our reduced street works disruption.

The length of mains remediated is included within our 'length of mains taken off risk' and the cost is reported within tier 3. However, there is no associated lay, with 15.398km included in decommissioned in tier 3 mains. This must be considered when carrying out any benchmarking activities.

Our predictive analytics solution to optimise delivery and opex/repex trade-offs has been successfully targeting risk removal recognising that optimal project design will require a more reflective network replacement diameter profile on average through GD1.

Our performance to date has exceeded most of our targets and our strategy for the remaining GD1 period will be to focus on removing risks on our large diameter pipes. We expect to deliver greater than targeted risk removal over GD1 for both our networks.

**Figure 37: Repex outputs**

| 6 Years Actuals v Allowance                | Scotland<br>6 Year Act | Scotland<br>6 Year Allow | Southern<br>6 Year Act | Southern<br>6 Year Allow | SGN<br>6 Year<br>Act | SGN<br>6 Year<br>Allow |
|--|------------------------|--------------------------|------------------------|--------------------------|----------------------|------------------------|
| Risk Removed                               | 76,254                 | 44,277                   | 169,311                | 137,287                  | 246,953              | 181,564                |
| Length of mains taken off risk             | 1,538                  | 1,497                    | 4,184                  | 4,124                    | 5,722                | 5,621                  |
| Number of services replaced                | 143,989                | 163,472                  | 424,434                | 399,447                  | 568,423              | 562,919                |
| Number of GiBs                             | 159                    | 396                      | 521                    | 456                      | 680                  | 852                    |
| Number of fractures and corrosion failures | 2,450                  | 7,800                    | 6,235                  | 9,666                    | 8,685                | 17,466                 |
| Sub deduct networks off risk               | 104%                   | Delivered by Yr 8        | 99%                    | Delivered by Yr 8        | 100%                 | Delivered by Yr 8      |
| Number of planned interruptions            | 164,240                | 178,367                  | 508,021                | 531,000                  | 672,261              | 709,367                |
| Duration of planned interruptions (Mmins)  | 62                     | 68                       | 194                    | 209                      | 256                  | 277                    |

The table summarises the key repex outputs delivered by SGN in the six years of GD1. On risk removed both networks have now exceeded their full eight-year targets.

### GD1 repex forecast

Figure 38 below shows our GD1 8 year forecast allowance for both costs and workloads in Scotland and Southern. It represents an underspend against allowance of 17% in Scotland and 12% in Southern (13% across SGN) while delivering all workloads and outputs. The mix of workload from previous year forecast has changed with a greater focus on smaller diameters, coupled with contractor cost pressures.

**Figure 38: GD1 repex forecast**

| Scotland<br>2018/19 Prices<br>£m | 13/14<br>Act | 14/15<br>Act | 15/16<br>Act | 16/17<br>Act | 17/18<br>Act | 18/19<br>Act | 19/20<br>Fcast | 20/21<br>Fcast | Total        | Allow        | Variance       |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|--------------|--------------|----------------|
| HSE Mains & Services             | 48.6         | 47.3         | 52.7         | 50.2         | 47.7         | 48.0         | 46.4           | 46.3           | 387.3        |              |                |
| Non HSE Mains & Services         | 6.8          | 7.3          | 7.9          | 9.8          | 12.6         | 19.6         | 17.7           | 17.3           | 99.0         |              |                |
| Risers                           | 1.4          | 1.6          | 1.7          | 1.5          | 1.5          | 3.1          | 2.2            | 2.2            | 15.3         |              |                |
| <b>Total Net Repex</b>           | <b>56.8</b>  | <b>56.2</b>  | <b>62.4</b>  | <b>61.4</b>  | <b>61.9</b>  | <b>70.8</b>  | <b>66.3</b>    | <b>65.8</b>    | <b>501.6</b> | <b>603.6</b> | <b>(102.0)</b> |

| Southern<br>2018/19 Prices<br>£m | 13/14<br>Act | 14/15<br>Act | 15/16<br>Act | 16/17<br>Act | 17/18<br>Act | 18/19<br>Act | 19/20<br>Fcast | 20/21<br>Fcast | Total          | Allow          | Variance       |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|
| HSE Mains & Services             | 141.7        | 139.9        | 127.2        | 143.4        | 145.8        | 135.9        | 143.7          | 141.2          | 1,118.6        |                |                |
| Non HSE Mains & Services         | 23.6         | 24.6         | 28.3         | 28.4         | 39.5         | 45.4         | 48.8           | 49.0           | 287.6          |                |                |
| Risers                           | 10.2         | 11.1         | 11.5         | 13.3         | 11.7         | 14.0         | 15.1           | 14.0           | 101.0          |                |                |
| <b>Total Net Repex</b>           | <b>175.5</b> | <b>175.5</b> | <b>167.0</b> | <b>185.1</b> | <b>196.9</b> | <b>195.3</b> | <b>207.6</b>   | <b>204.2</b>   | <b>1,507.1</b> | <b>1,704.0</b> | <b>(196.9)</b> |

We have adjusted our allowances in the last two years of GD1 to reflect part of our voluntary contribution, which we made during 2016/17.

Our current forecast for repex is showing a favourable 13% variance to allowance. This is due to volumes, mix, project design and innovation. The variance is further split into these categories within the tables below:

**Figure 39: Variance Split**

| Area  | Sub Area           | GDN View Driver   | Sc<br>18/19<br>Prices | So<br>18/19<br>Prices |
|-------|--------------------|---|-----------------------|-----------------------|
| Repex | T1 Abandonment Mix | Variation in mix over first four years, targeting higher risk pipes that are more prone to failures to Gibbs (voluntary contribution)     | 7.1                   | 46.4                  |
| Repex | T1 Project Design  | Holistic network analysis design, increased levels of mains laid by insertion, fewer and larger projects                                  | 19.7                  | 87.3                  |
| Repex | T1 Volume Variance | Increased length laid resulting from higher insertion levels and accelerated programme  | 5.4                   | -43.8                 |
| Repex | Contracting/Price  | Change to contracting strategy to insource smaller contracting companies, price benefits resulting from project design                    | 34.4                  | 57.0                  |
| Repex | Services Mix       | Changes in actual mix of service relays and transfers   | 0.8                   | 13.1                  |
| Repex | Service Volumes    | Increased volume of services driven by mix of smaller diameter pipes  | 10.2                  | -28.8                 |
| Repex | Service Price      | Increased contractor price for service relays and transfers, believed to be elements of contractual trade-offs between mains and services | -16.2                 | 5.0                   |
|       |                    | <b>Forecast GD1 Tier 1 Variance</b>   | <b>54.3</b>           | <b>89.0</b>           |

**Figure 40: Variance Split**

| Area  | Sub Area       | GDN View Driver   | Sc<br>18/19<br>Prices | So<br>18/19<br>Prices |
|-------|----------------|---|-----------------------|-----------------------|
| Repex | Tier 2         | Positive volume and mix variances through better design offset by adverse price variance in both networks, price having greater Sc impact   | -1.0                  | 32.9                  |
| Repex | Tier 3         | Conventional work in Sc with mostly price variance, benefits in SO driven by significant volume reduction (lay) as we deploy CISBOT   | 1.0                   | 31.0                  |
| Repex | 2"Steel        | Reductions in lay compared to abandonment where we cut off back rails and renew services to the front, less unrecorded 2" steel feeding through   | 33.9                  | 14.0                  |
| Repex | Other Mains    | So variance being driven by Totex trade off (volume reduction) as we continue to maintain rather than replace – CBA driven  | 1.8                   | 34.2                  |
| Repex | Repex Services | Positive volume and mix variances offset by adverse price variances   | -1.5                  | -1.3                  |
| Repex | Other Services | Sc variances is mainly positive price variance, So it is adverse volume and adverse price variances   | 6.1                   | -27.6                 |
| Repex | Diversions     | Mostly driven by adverse price variances  | -6.0                  | -4.3                  |
| Repex | Risers         | Mix of repairs or remediation instead of full replacement, part renewals where possible, improved designs, e.g. using Pe, more completed on planned rather than unplanned basis drives efficiencies | 7.7                   | 19.8                  |
| Repex | Other Repex    | More efficient delivery of sub deduct programme, slow growth of smart metering programme  | 5.7                   | 9.1                   |
|       |                | <b>Forecast GD1 Other Variance</b>  | <b>47.7</b>           | <b>107.8</b>          |

## Capex

Capex expenditure has continued to normalise in the sixth year of GD1, following the slow start to the programme in 2013.

Within capex, IT security continues to be a focus for us, reflecting the business's assessment of cyber security as a key risk. As the industry treatment of Cloud spend matures, our assessment of the capex/opex split associated with this type of expenditure has shifted and is reflected in our numbers.

The use of cost benefit analysis tools in capex continues to assist the way in which we approach asset integrity work, and we have put significant focus on the monetised risk approach. This has resulted in the creation of a robust cost benefit analysis tool supported by an external consultancy to assist us in the prioritisation of our work. The ability to plan for longer periods has also delivered savings in procurement, contract award and flexing direct labour more efficiently.

We have experienced increases in vehicle investment due to timing. We have phased our investment programmes to ensure the most efficient rollout, and we intend to continue this approach for the remainder of the current price control period.

## GD1 capex forecast vs allowance

Figure 41 and Figure 42 below show our GD1 forecast for total capex separated into Scotland and Southern.

**Figure 41: GD1 capex forecast: Scotland**

| Scotland<br>2018/19 Prices<br>£m | 2013/14<br>Act | 2014/15<br>Act | 2015/16<br>Act | 2016/17<br>Act | 2017/18<br>Act | 2018/19<br>Act | 2019/20<br>Fcast | 2020/21<br>Fcast | Total<br>GD1 |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|--------------|
| LTS, Storage & Entry             | 12             | 18             | 15             | 26             | 20             | 33             | 16               | 11               | 150          |
| Connections                      | 8              | 9              | 7              | 8              | 7              | 8              | 7                | 8                | 62           |
| Mains Reinforcement              | 1              | 1              | 4              | 3              | 5              | 5              | 5                | 5                | 28           |
| Governors                        | 3              | 5              | 3              | 2              | 2              | 2              | 2                | 2                | 20           |
| Other Capex                      | 9              | 28             | 19             | 12             | 11             | 16             | 12               | 8                | 114          |
| <b>Net Capex</b>                 | <b>33</b>      | <b>61</b>      | <b>47</b>      | <b>50</b>      | <b>44</b>      | <b>63</b>      | <b>42</b>        | <b>34</b>        | <b>374</b>   |

**Figure 42: GD1 capex forecast: Southern**

| Southern<br>2018/19 Prices<br>£m | 2013/14<br>Act | 2014/15<br>Act | 2015/16<br>Act | 2016/17<br>Act | 2017/18<br>Act | 2018/19<br>Act | 2019/20<br>Fcast | 2020/21<br>Fcast | Total<br>GD1 |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|--------------|
| LTS, Storage & Entry             | 9              | 8              | 13             | 27             | 25             | 23             | 21               | 16               | 142          |
| Connections                      | 13             | 9              | 13             | 13             | 13             | 15             | 14               | 13               | 101          |
| Mains Reinforcement              | 2              | 4              | 5              | 5              | 8              | 8              | 7                | 8                | 46           |
| Governors                        | 6              | 8              | 6              | 5              | 7              | 9              | 7                | 6                | 53           |
| Other Capex                      | 21             | 40             | 31             | 22             | 24             | 23             | 29               | 21               | 210          |
| <b>Net Capex</b>                 | <b>51</b>      | <b>69</b>      | <b>68</b>      | <b>71</b>      | <b>76</b>      | <b>77</b>      | <b>77</b>        | <b>63</b>        | <b>552</b>   |

Overall capex spend peaked across both networks in 2018/19. This was driven by increases in total Local Transmission System spend within our Scotland network, due to the timing of the large Erskine Bridge directional drilling project. We are aiming to deliver as much as possible of the GD1 LTS workload before the final year of the price control in order to ensure that we meet our targets and are less exposed to resource and project delivery risk.

Connections spend is expected to remain relatively flat for the remainder of the price control based on our current estimates of economic activity and expectations to deliver our fuel poor targets.

Reinforcement in both networks is forecast to stay around both 2018/19 and 2017/18 levels, assuming the economy stays at these levels.

Governor spend is expected to continue in line with current year to the end of GD1 and is phased in line with delivery expectations.

Other capex has peaked somewhat in the past couple of years driven by our Cloud programme and vehicles. We also expect that vehicles investment continue at the current year's levels, reflecting the age profile of the current fleet. This is designed to provide totex benefits in terms of reducing ongoing maintenance costs.

## 2.7 GD1 returns earned and level of profit distributed to investors

Our six-year average RORE is 11.1% for SGN. For our Scotland network our six-year average is 11.7% and for our Southern network slightly lower with a RORE of 10.7%.

Figure 43 illustrates our six year average.

**Figure 43: Six year average**

| Performance 2018/19 Prices (£m)          | Scotland         | Southern         | SGN              |
|--|------------------|------------------|------------------|
|  | Six year average | Six year average | Six year average |
| Totex variance to allowance              | 46               | 76               | 123              |
| Incentive Income                         | 3                | 12               | 15               |
| IQI Reward                               | 2                | 4                | 7                |
| Less Sharing / Tax                       | -18              | -31              | -49              |
| <b>Performance relative to allowance</b> | <b>33</b>        | <b>62</b>        | <b>95</b>        |
| <b>Performance Return on Equity</b>      |                  |                  |                  |
| Performance relative to allowance        | 33               | 62               | 95               |
| Equity (Based on notional gearing)       | 582              | 1,294            | 1,876            |
| <b>Performance Returns %</b>             | <b>5.7%</b>      | <b>4.8%</b>      | <b>5.1%</b>      |
| <b>Base Cost of Equity</b>               | <b>6.7%</b>      | <b>6.7%</b>      | <b>6.7%</b>      |
| <b>Total RORE (pre financing)</b>        | <b>12.4%</b>     | <b>11.5%</b>     | <b>11.8%</b>     |



Figure 44 below reflects our 8 year average.

**Figure 44: Eight year average**

| Network Performance 2018/19<br>Prices £m | Scotland<br>Eight<br>year<br>average | Southern<br>Eight<br>year<br>average | SGN<br>Eight<br>year<br>average |
|--|--------------------------------------|--------------------------------------|---------------------------------|
| Totex Outperformance                     | 42                                   | 61                                   | 103                             |
| Incentive Income                         | 3                                    | 13                                   | 16                              |
| IQI Reward                               | 3                                    | 4                                    | 7                               |
| Less Sharing / Tax                       | -17                                  | -25                                  | -42                             |
| <b>Performance relative to allowance</b> | <b>31</b>                            | <b>53</b>                            | <b>84</b>                       |

| Additional Return on Equity        |             |             |             |
|------------------------------------|-------------|-------------|-------------|
| Performance relative to allowance  | 31          | 53          | 84          |
| Equity (Based on notional gearing) | 590         | 1,312       | 1,902       |
| <b>Performance Returns (%)</b>     | <b>5.2%</b> | <b>4.1%</b> | <b>4.4%</b> |

|                            |             |             |             |
|----------------------------|-------------|-------------|-------------|
| <b>Base Cost of Equity</b> | <b>6.7%</b> | <b>6.7%</b> | <b>6.7%</b> |
|----------------------------|-------------|-------------|-------------|

|                   |              |              |              |
|-------------------|--------------|--------------|--------------|
| <b>Total RORE</b> | <b>11.9%</b> | <b>10.8%</b> | <b>11.1%</b> |
|-------------------|--------------|--------------|--------------|